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TESTIMONY

Invisible Wounds of War

Summary of Key Findings on Psychological and Cognitive Injuries

LISA H. JAYCOX

CT-307

June 2008

Testimony presented before the House Committee on Veterans' Affairs on June 11, 2008

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Lisa H. Jaycox¹
Study Co-Director, Invisible Wounds of War Study Team
The RAND Corporation

***Invisible Wounds of War: Summary of Key Findings on Psychological
and Cognitive Injuries²***

Before the Committee on Veterans' Affairs
United States House of Representatives

June 11, 2008

Chairman Filner, Representative Buyer, and distinguished members of the Committee, thank you for inviting us to testify today to present the findings from our study of the Invisible Wounds of War. It is an honor and pleasure to be here.

My testimony will briefly discuss the prevalence of post-traumatic stress disorder and depression, as well as the incidence of traumatic brain injury among servicemembers returning from Operations Enduring Freedom and Iraqi Freedom; the costs to society associated with these conditions and of providing care to those afflicted with these conditions, and the gaps in the care systems designed to treat these conditions among our nation's servicemembers and veterans. These findings form the basis of several recommendations which will be presented in the testimony of my colleague, Terri Tanielian. Together, Ms. Tanielian and I co-directed more than 30 researchers at RAND in the completion of this study and our testimony is drawn from the same body of work.

Background

Since October 2001, approximately 1.64 million U.S. troops have deployed as part of Operation Enduring Freedom (OEF; Afghanistan) and Operation Iraqi Freedom (OIF; Iraq). The pace of the deployments in these current conflicts is unprecedented in the history of the all-volunteer force (Belasco, 2007; Bruner, 2006). Not only is a higher proportion of the armed forces being deployed, but deployments have been longer, redeployment to combat has been common, and breaks between deployments have been infrequent (Hosek, Kavanagh, and Miller, 2006). At the same time, episodes of intense combat notwithstanding, these operations have employed smaller forces and have produced casualty rates of killed or wounded that are historically lower than in earlier prolonged wars, such as Vietnam and Korea. Advances in both medical technology and body

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armor mean that more servicemembers are surviving experiences that would have led to death in prior wars (Regan, 2004; Warden, 2006). However, casualties of a different kind are beginning to emerge—invisible wounds, such as mental health conditions and cognitive impairments resulting from deployment experiences.

As with safeguarding physical health, safeguarding mental health is an integral component of the United States' national responsibilities to recruit, prepare, and sustain a military force and to address Service-connected injuries and disabilities. But safeguarding mental health is also critical for compensating and honoring those who have served our nation.

Public concern over the handling of such injuries is running high. The Department of Defense (DoD), the Department of Veterans Affairs (VA), Congress, and the President have moved to study the issues related to how such injuries are handled, quantify the problems, and formulate policy solutions. And they have acted swiftly to begin implementing the hundreds of recommendations that have emerged from various task forces and commissions. Policy changes and funding shifts are already occurring for military and veterans' health care in general and for mental health care in particular. However, despite widespread policy interest and a firm commitment from DoD and the VA to address these injuries, fundamental gaps remain in our knowledge about the mental health and cognitive needs of U.S. servicemembers returning from Afghanistan and Iraq, the adequacy of the care systems available to meet those needs, the experience of veterans and servicemembers who are in need of services, and factors related to whether and how injured servicemembers and veterans seek care.

To begin closing these gaps, RAND undertook this unprecedented, comprehensive study. We focused on three major conditions—post-traumatic stress disorder (PTSD), major depressive disorder and depressive symptoms, and traumatic brain injury (TBI)—because these are the conditions being assessed most extensively in servicemembers returning from combat. In addition, there are obvious mechanisms that might link each of these conditions to specific experiences in war—i.e., depression can be a reaction to loss; PTSD, a reaction to trauma; and TBI, a consequence of blast exposure or other head injury. Unfortunately, these conditions are often invisible to the eye. Unlike the physical wounds of war that maim or disfigure, these conditions remain invisible to other servicemembers, to family members, and to society in general. All three conditions affect mood, thoughts, and behavior; yet these wounds often go unrecognized and unacknowledged. The effects of traumatic brain injury are still poorly understood, leaving a large gap in knowledge related to how extensive the problem is or how to handle it.

The study was guided by a series of overarching questions:

Prevalence: What is the scope of mental health and cognitive conditions that troops face when returning from deployment to Afghanistan and Iraq?

Costs: What are the costs of these conditions, including treatment costs and costs stemming from lost productivity and other consequences? What are the costs and potential savings associated with different levels of medical care—including proven, evidence-based care; usual care; and no care?

The care system: What are the existing programs and services to meet the health related needs of servicemembers and veterans with post-traumatic stress disorder, major depression, or traumatic brain injury? What are the gaps in the programs and services? What steps can be taken to close the gaps?

Key Findings

Our study was the first of its kind to independently assess and address these issues from a societal perspective. Below we summarize the key findings of our research. We consider each of the questions in turn. Please note that in the findings discussed below, we use the term servicemembers returning from OIF or OEF, this includes servicemembers in the Active and Reserve component, as well as those that may have since separated from the military. We use the term veteran to refer to any servicemember who served in major combat operations.

What is the scope of mental health and cognitive issues faced by OEF/OIF troops returning from deployment?

Most of the 1.64 million military servicemembers who have deployed in support of OIF or OEF will return home from war without problems and readjust successfully, but many have already returned or will return with significant mental health conditions. Among OEF/OIF veterans, rates of PTSD, major depression, and probable TBI are relatively high, particularly when compared with the general U.S. civilian population. A telephone study of 1,965 previously deployed individuals sampled from 24 geographic areas found substantial rates of mental health problems in the past 30 days, with 14 percent screening positive for PTSD and 14 percent for major depression. Major depression is often not considered a combat-related injury; however, our analyses suggest that it should be considered one of the post-deployment mental health consequences. In addition, 19 percent reported a probable TBI during deployment. Although a substantial proportion of respondents had reported experiencing a TBI while they were deployed, it is not possible to know from the survey the severity of the injury or whether the injury caused functional impairment.

Assuming that the prevalence found in this study is representative of the 1.64 million servicemembers who had been deployed for OEF/OIF as of October 2007, we estimate that approximately 300,000 individuals currently suffer from PTSD or major depression and that 320,000 individuals experienced a probable TBI during deployment.

About one-third of those previously deployed have at least one of these three conditions, and about 5 percent report symptoms of all three. Some specific groups, previously understudied—including the Reserve Components and those who have left military service—may be at higher risk of suffering from these conditions.

Seeking and Receiving Treatment. Of those reporting a probable TBI while deployed, 57 percent had not been evaluated by a physician for brain injury. Without such clinical evaluation, it is unclear the extent of treatment need among those that reported a probable TBI. If TBI is diagnosed, treatment would depend in large part on the associated impairments. Military servicemembers with probable PTSD or major depression seek care at about the same rate as the civilian population, and, just as in the civilian population, many of the afflicted individuals were not receiving treatment. About half (53 percent) of those who met the criteria for current PTSD or major depression had sought help from a physician or mental health provider for a mental health problem in the past year.

Getting Quality Care. Even when individuals receive care for their mental health condition, too few receive acceptable quality of care. Of those who have a mental disorder and also sought medical care for that problem, just over half received a minimally adequate treatment. The number who received *quality* care (i.e., a treatment that has been demonstrated to be effective) would be expected to be even smaller. Focused efforts are needed to significantly improve both accessibility to care and quality of care for these groups. The prevalence of PTSD and major depression will likely remain high unless greater efforts are made to enhance systems of care for these individuals.

Survey respondents identified many barriers that inhibit getting treatment for their mental health problems. In general, respondents were concerned that treatment would not be kept confidential and would constrain future job assignments and military-career advancement. About 45 percent were concerned that drug therapies for mental health problems may have unpleasant side effects, and about one-quarter thought that even good mental health care was not very effective. These barriers suggest the need for increased access to confidential, evidence-based psychotherapy, to maintain high levels of readiness and functioning among previously deployed servicemembers and veterans.

What are the costs of these mental health and cognitive conditions to the individual and to society?

Unless treated, each of these conditions (PTSD, depression, and diagnosed TBI) has wide-ranging and negative implications for those afflicted. We considered a wide array of consequences that affect work, family, and social functioning, and we considered co-occurring problems, such as substance abuse, homelessness, and suicide. The presence of any one of these conditions can impair future health, work productivity, and family and social relationships. Individuals afflicted with any of these conditions are more likely to have other psychiatric diagnoses (e.g., substance use) and are at increased risk for attempting suicide. They have higher rates of unhealthy behaviors (e.g., smoking, overeating, unsafe sex) and higher rates of physical health problems and mortality. Individuals with any of these conditions also tend to miss more days of work or report being less productive. There is also a possible connection between having one of these conditions and being homeless. Suffering from these conditions can also impair relationships, disrupt marriages, aggravate the difficulties of parenting, and cause problems in children that may extend the consequences of combat experiences across generations.

Associated Costs. In dollar terms, the costs associated with PTSD, depression, and diagnosed TBI stemming from the conflicts in Afghanistan and Iraq are substantial. We estimated costs using two separate methodologies. For PTSD and major depression, we used a microsimulation model to project *two-year costs*—costs incurred within the first two years after servicemembers return home. Because there were insufficient data to simulate two-year-cost projections for TBI, we estimated one-year costs for TBI using a standard, cost-of-illness approach. On a per-case basis, two-year costs associated with PTSD are approximately \$5,904 to \$10,298, depending on whether we include the cost of lives lost to suicide. Two-year costs associated with major depression are approximately \$15,461 to \$25,757, and costs associated with co-morbid PTSD and major depression are approximately \$12,427 to \$16,884. One-year costs for servicemembers who have accessed the health care system and received a diagnosis of traumatic brain injury are even higher, ranging from \$25,572 to \$30,730 in 2005 for mild cases (\$27,259 to \$32,759 in 2007 dollars), and from \$252,251 to \$383,221 for moderate or severe cases (\$268,902 to \$408,519 in 2007 dollars). However, our cost figures omit current as well as potential later costs stemming from substance abuse, domestic violence, homelessness, family strain, and several other factors, thus understating the true costs associated with deployment-related cognitive and mental health conditions. Translating these cost estimates into a total-dollar figure is confounded by uncertainty about the total number of cases in a given year, by the little information that is available about the severity of these cases, and by the extent to which the three conditions co-occur. Given these caveats, we used our microsimulation model to predict two-year costs for the approximately 1.6 million troops who have deployed since 2001.

We estimate that PTSD-related and major depression–related costs could range from \$4.0 to \$6.2 billion over two years (in 2007 dollars). Applying the costs per case for TBI to the total number of diagnosed TBI cases identified as of June 2007 (2,726), our analyses estimates that total costs incurred within the first year after diagnosis could range from \$591 million to \$910 million (in 2007 dollars). These figures are for diagnosed TBI cases that led to contact with the health care system; they do not include costs for individuals with probable TBI who have not sought treatment or who have not been formally diagnosed. To the extent that additional troops deploy and more TBI cases occur in the coming months and years, total costs will rise. Because these calculations include costs for servicemembers who returned from deployment starting as early as 2001, many of these costs (for PTSD, depression, and TBI) have already been incurred. However, if servicemembers continue to be deployed in the future, rates of detection of TBI among servicemembers increase, or there are costs associated with chronic or recurring cases that linger beyond two years, the total expected costs associated with these conditions will increase beyond the range.

Lost Productivity. Our findings also indicate that lost productivity is a key cost driver for major depression and PTSD. Approximately 55 to 95 percent of total costs can be attributed to reduced productivity; for mild TBI, productivity losses may account for 47 to 57 percent of total costs. Because severe TBI can lead to death, mortality is the largest component of costs for moderate to severe TBI, accounting for 70 to 80 percent of total costs.

Providing Evidence-Based Treatment for PTSD and Depression. Certain treatments have been shown to be effective for both PTSD and major depression, but these *evidence-based treatments* are not yet available in all treatment settings. We estimate that evidence-based treatment for PTSD and major depression would pay for itself within two years, even without considering costs related to substance abuse, homelessness, family strain, and other indirect consequences of mental health conditions. Evidence-based care for PTSD and major depression could save as much as \$1.7 billion, or \$1,063 per returning veteran; the savings come from increases in productivity, as well as from reductions in the expected number of suicides. Given these numbers, investments in evidence-based treatment would make sense from DoD’s perspective, not only because of higher remission and recovery rates but also because such treatment would increase the productivity of servicemembers. The benefits to DoD in retention and increased productivity would outweigh the higher costs of providing evidence-based care. These benefits would likely be even stronger (higher) had we been able to capture the full spectrum of costs associated with mental health conditions. However, a caveat is that we did not consider additional implementation and outreach costs (over and above the day-to-day costs of care) that might be incurred if DoD and the VA attempted to expand evidence-based treatment beyond current capacity.

Cost studies that do not account for reduced productivity may significantly understate the true costs of the conflicts in Afghanistan and Iraq. Currently, information is limited on how mental health conditions affect career outcomes within DoD. Given the strong association between mental health status and productivity found in civilian studies, research that explores how the mental health status of active duty personnel affects career outcomes would be valuable. Ideally, studies would consider how mental health conditions influence job performance, promotion within DoD, and transitions from DoD into the civilian labor force (as well as productivity after transition).

What are the existing programs and services to meet the health-related needs of servicemembers with PTSD or major depression? What are the gaps in the programs and services? What steps can be taken to close the gaps?

To achieve the cost savings outlined above, servicemembers suffering from PTSD and major depression must be identified as early as possible and be provided with evidence-based treatment. The capacity of DoD and the VA to provide mental health services has been increased substantially, but significant gaps in access and quality remain.

A Gap Between Need and Use. For the active duty population in particular, there is a large gap between the need for mental health services and the use of such services—a pattern that appears to stem from institutional and cultural factors barriers as well as from structural aspects of services (wait times, availability of providers). Institutional and cultural barriers to mental health care are substantial—and not easily surmounted. Military servicemembers expressed concerns that use of mental health services will negatively affect employment and constrain military career prospects, thus deterring many of those who need or want help from seeking it. Institutional barriers must be addressed to increase help-seeking and utilization of mental health services. In particular, the requirement that service usage be reported may be impeding such utilization. In itself, addressing the personal attitudes of servicemembers about the use of mental health services, although important, is not likely to be sufficient if the institutional barriers remain in place.

Quality-of-Care Gaps. We also identified gaps in organizational tools and incentives that would support the delivery of high-quality mental health care to the active duty population, and to retired military who use TRICARE, DoD's health insurance plan. In the absence of such organizational supports, it is not possible to provide oversight to ensure *high quality of care*, which includes ensuring both that the treatment provided is evidence-based and that it is patient-centered, efficient, equitable, and timely. DoD has initiated training in evidence-based practices for providers, but these efforts have not yet been integrated into a larger system redesign that values and provides incentives for quality of care. The newly created Defense Center of Excellence for Psychological Health and Traumatic Brain Injury, housed within DoD, represents a historic opportunity to prioritize

a system-level focus on monitoring and improving quality of care; however, continued funding and appropriate regulatory authority will be important to sustain this focus over time. The VA provides a promising model of quality improvement in mental health care for DoD. Significant improvements in the quality of care the VA provides for depression have been documented, and efforts to evaluate the quality of care provided within the VA for PTSD remain under way. However, it too faces challenges in providing access to OEF/OIF veterans, many of whom have difficulty securing appointments, particularly in facilities that have been resourced primarily to meet the demands of older veterans. Better projections of the amount and type of demand among the newer veterans are needed to ensure that the VA has the appropriate resources to meet the potential demand. At the same time, OEF/OIF veterans report feeling uncomfortable or out of place in VA facilities (some of which are dated and most of which treat patients who are older and chronically ill), indicating a need for some facility upgrades and newer approaches to outreach.

Going Beyond DoD and the VA. Improving access to mental health services for OEF/OIF veterans will require reaching beyond DoD and VA health care systems. Given the diversity and the geographic dispersal of the OEF/OIF veteran population, other options for providing health services, including Vet Centers, nonmedical centers that offer supportive counseling and other services to veterans, and other community-based providers, must be considered. Vet Centers already play a critical role and are uniquely designed to meet the needs of veterans. Further expansion of Vet Centers could broaden access, particularly for veterans in underserved areas. Networks of community-based mental health specialists (available through private, employer-based insurance, including TRICARE) may also provide an important opportunity to build capacity. However, taking advantage of this opportunity will require critical examination of the TRICARE reimbursement rates, which may limit network participation.

Although Vet Centers and other community-based providers offer the potential for expanded access to mental health services, ways to monitor performance and quality among these providers will be essential to ensuring quality care. Although ongoing training for providers is being made broadly available, it is not supported with a level of supervision that will result in high-quality care. Systems for supporting delivery of high-quality care (information systems, performance feedback) are currently lacking in these sectors. Commercial managed health care organizations have some existing approaches and tools to monitor quality that may be of value and utility, but many of the grassroots efforts currently emerging to serve OEF/OIF veterans do not.

What are the existing programs and services to meet the health-related needs of those with traumatic brain injuries? What are the gaps in care? What steps can be taken to close those gaps?

The medical science for treating combat-related traumatic brain injury is in its infancy. Research is urgently needed to develop effective screening tools that are both valid and sensitive, as well as to document what treatment and rehabilitation will be most effective. For mild TBI (or concussion), a head injury that may or may not result in symptoms and long term neurocognitive deficits, we found gaps in access to services stemming from poor documentation of blast exposures and failure to identify individuals with probable TBI. These gaps not only hamper provision of acute care but may also place individuals at risk of additional blast exposures. Servicemembers with more severe injuries face a different kind of access gap: lack of coordination across a continuum of care. Because of the complex nature of health care associated with severe combat injuries, including moderate and severe TBI, an individual's need for treatment, as well as for supportive and rehabilitative services, will change over time and involve multiple transitions across systems. Task forces, commissions, and review groups have already identified multiple challenges arising from these complexities; these challenges remain the focus of improvement activities in both DoD and the VA.

Summary

Our study revealed a high prevalence (18.5%) of current PTSD and depression among servicemembers who had returned from OEF or OIF, as well as significant gaps in access to and the quality of care provided to this population. Too few of those with PTSD and depression were getting help, and among those that were getting help too few were getting even minimally adequate care. If left untreated or under-treated, these conditions can have negative, cascading consequences and result in a high economic toll. Investing in evidence-based care for all of those in need can reduce the costs to society in just two years.

With respect to TBI, we found that approximately 19% report having experienced a probable TBI during deployment but that 57% of them had not been evaluated by a physician for a head injury. While the majority of these cases were likely to be mild, similar to a concussion, the extent of impairment in this group remains unknown. At the same time, the science of treating combat-related traumatic brain injury remains in its infancy leaving many unknowns for planning and delivering high quality care to those suffering from long-term impairments associated with TBI.

Thank you again for the opportunity to testify today and to share the results of our research. Additional information about our study findings and recommendations can be found at <http://veterans.rand.org>.

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