RAPID REPORT

Is There an Epidemic of Suicides among Current and Former U.S. Military Personnel?

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INTRODUCTION:

Recently, there have been reports in the news media of increased risk of suicide among current and former U.S. military personnel, particularly those who are serving or have served in either Afghanistan or Iraq, as part of Operations Enduring Freedom or Iraqi Freedom (OEF/OIF) (1). This review examines relevant published studies and government reports that address suicide among current and former U.S. military and summarizes literature of suicide among the general population to provide some context.

EPIDEMIOLOGY OF SUICIDE:

In 2005 suicide was the third leading cause of death for all males between 20 and 29 years of age, for a rate of 19.8/100,000 persons (2). Men are at higher risk than women across all age and race groups, with white males having the highest suicide rate. Risk factors for suicide include mental disease (3, 4), chronic physical illness (5), and exposure to a traumatic event (4). That suicide is a leading cause of death among younger U.S. adult males should be of interest to the military, as 51% of those who served in either Iraq or Afghanistan through May 2008 were 20 to 29 years old in 2003 (6). Because mental disease is a risk factor for suicide, the fact that 22.6% of OEF/OIF veteran patients were diagnosed with potential posttraumatic stress disorder (PTSD) by the Department of Veterans Affairs suggests that a significant number of OEF/OIF veterans may be at risk for suicide (6).

VIETNAM WAR VETERANS:

Table 1 summarizes mortality studies of various U.S. military cohorts. The first three studies did not report a statistically significant increased risk of suicide among Vietnam veterans when their mortality was compared to that of Vietnam-era veterans or the U.S. general population (7–9). While Vietnam veterans in general did not have an increased risk of suicide, two studies found that specific groups of Vietnam veterans were at increased risk of suicide. In one study, Vietnam veterans with a diagnosis of PTSD, when compared to the U.S. general population, had an almost seven-fold statistically significant increased risk of suicide (SMR, 6.74; 95% confidence interval [CI], 4.40–9.87) (4). Vietnam veterans who were hospitalized because of a combat wound or wounded more than once also had statistically significant increased risks of suicide (10). A study from the Centers for Disease Control and Prevention (CDC) assessing 30 years of mortality follow-up data for a sample of Army Vietnam veterans also reported that Vietnam veterans were not at increased risk for suicide compared to either the U.S. general population or Vietnam-era veterans (11). The crude annual suicide mortality rates per 100,000 persons for some of the Vietnam veterans groups in the table are 25.5 for Army Vietnam veterans (24.7 for non-deployed veterans) (11), 20.8 for Marine Vietnam veterans (18.1 for non-deployed veterans) (8), and 36.5 for wounded Vietnam veterans (10).

GULF WAR VETERANS:

A study that compared the mortality of 621,902 Gulf War veterans to that of 746,248 Gulf War-era veterans did not find an increased risk of suicide among that war's veterans (12, 13). Compared to the U.S. general population, neither group of veterans had an increased risk of suicide. Another study of all U.S. military personnel on active duty during the Gulf War also did not find an excess risk of suicides among those who served in the Gulf theater when their mortality was compared to those who served elsewhere (14).

OEF/OIF VETERANS:

Among OEF/OIF veterans as a whole, the risk of suicide after deployment was higher, but not statistically significantly different than that in the general population (SMR, 1.15; 95% CI, 0.97–1.35) (15). However, suicide risk among former active duty unit OEF/OIF veterans was significantly higher than that of the general population (SMR, 1.33; 95% CI, 1.03–1.69). In addition, OEF/OIF veterans diagnosed with...
### TABLE 1. Risk of Suicide among Current and Former U.S. Military Personnel

<table>
<thead>
<tr>
<th>Authors</th>
<th>Study design</th>
<th>Description</th>
<th>Results, suicide</th>
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<tr>
<td>Watanabe et al.(^7) (J Occup Med., 1991)</td>
<td>Proportionate mortality</td>
<td>Compared mortality of 24,145 deceased Army Vietnam veterans to that of 27,917 deceased Army Vietnam-era veterans (PMR); compared mortality of 5,501 deceased Marine Vietnam veterans to that of 4,505 deceased Vietnam-era veterans (PMR); included deaths through 12/31/1984</td>
<td>PMR = 0.96 Vietnam Army PMR = 0.99 Vietnam Marine</td>
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<tr>
<td>Watanabe and Kang(^8) (Ann Epidemiol., 1995)</td>
<td>Retrospective cohort mortality</td>
<td>Compared mortality of 10,716 Marine Vietnam veterans to that of 9,346 Marine Vietnam-era veterans (RR). The mortality of both groups also compared to that of U.S. general population (SMR). Mortality followed from end of service through 12/31/1991</td>
<td>RR = 1.19 (0.78–1.83) SMR = 0.91 (0.67–1.21) Marines Vietnam veteran SMR = 0.79 (0.56–1.09) Marines Vietnam-era veterans</td>
</tr>
<tr>
<td>Cypel and Kang(^9) (Ann Epidemiol., 2008)</td>
<td>Retrospective cohort mortality</td>
<td>Compared mortality of 4,586 female Vietnam veterans to that of 5,325 female non-Vietnam veterans (RR) and the U.S. population (SMR)</td>
<td>RR = 0.90 (0.44–1.85) SMR = 1.22 (0.67–2.04)</td>
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<tr>
<td>Bullman/Kang(^4) (J Nerv Ment, Dis., 1994)</td>
<td>Retrospective cohort mortality</td>
<td>Compared mortality of 4,247 Vietnam veterans diagnosed with PTSD on AOR to that of 12,010 Vietnam veterans on the AOR with no clinical diagnosis (RR); mortality of both groups also compared to that of U.S. general population (SMR); mortality followed from date of AOR exam through 8/16/1990</td>
<td>RR = 3.97 (2.20–7.03) SMR = 6.74 (4.40–9.87) PTSD dx SMR = 1.67 (1.05–2.53) no PTSD Dx</td>
</tr>
<tr>
<td>Bullman/Kang(^10) (Am J Public Health., 1996)</td>
<td>Retrospective cohort mortality</td>
<td>Risk of suicide for 34,534 Army Vietnam veterans who received non-lethal wound in Vietnam was assessed relative to severity of wounds and number of times wounded; severity based on whether or not veteran was HOSP and number of times wounded, once vs. two or more (2+); mortality of veterans also compared to that of U.S. general population (SMR); mortality followed from date received first wound through 12/31/1990</td>
<td>RR = 1.25 (0.91–1.17) HOSP RR = 1.50 (1.01–2.24) 2+ SMR = 1.22 (1.00–1.46) HOSP SMR = 1.58 (1.06–2.26) 2+</td>
</tr>
<tr>
<td>Boehmer et al.(^11) (Arch Intern Med., 2004)</td>
<td>Retrospective cohort mortality</td>
<td>Compared mortality of 9,324 Army Vietnam veterans to that of 8,989 Army Vietnam-era veterans, stratified by years since discharge; mortality followed from date of discharge through 12/31/2000</td>
<td>RR = 1.72 (0.76–3.88) 0–5 yr since discharge RR = 0.93 (0.64–1.34) &gt; 5 yr since discharge</td>
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</table>

(Continued)
Selected Abbreviations and Acronyms:

OEF/OIF = Operation Enduring Freedom/Operation Iraqi Freedom
PTSD = posttraumatic stress disorder
SMR = standardized mortality ratio
CDC = Centers for Disease Control and Prevention
CI = 95% confidence interval

A selected mental disorder had a higher suicide risk than the general population (SMR, 1.77; 95% CI, 1.01–2.87).

**ACTIVATED MILITARY PERSONNEL:**

Four of the studies presented in Table 1 examined suicide risk and/or rates among groups of activated military personnel (14, 16–18). One study reported a suicide rate of 9.96/100,000 person-years among all active duty military personnel between August 1990 and July 1991 (14). Another study compared the cause-specific mortality rates of Army personnel in 1986 to that of the U.S. general population and found no increased risk of suicide (16). Comparing suicide rates between 1980 and 1992 among US military personnel to national rates, a study reported lower rates among the military (17). The final study looked at the suicide rates among all U.S. military personnel between 1993 and 2003 (18). The rates, while initially decreasing over time, increased between 2002 and 2003. This trend of increasing military suicides seems to be continuing. According to a report released by the U.S. Army in January 2009, the rate of suicide among Army personnel was 20.2/100,000 in
2008, compared to a rate of 16.8/100,000 in 2007 (19). However, this rate remains near that of U.S. males.

**SUMMARY:**

Published studies do not suggest that the risk of suicide among veterans of the Vietnam War or the 1991 Gulf War, as a whole, is significantly higher than non-deployed veterans or than the U.S. general population. Their crude annual suicide mortality rates ranges from 15.3 to 25.5/100,000, while a comparable general population rates range from 20 to 24/100,000 (2). However, since historically the rates of suicide among veterans in general have been lower than that of the U.S. population, the recent increased risk of suicide observed among OEF/OIF veterans when compared to the U.S. population (15), even though not statistically significant, warrants attention. Finally, while serving in a conflict by itself was not strongly associated with risk of suicide, level of combat trauma as indirectly measured by having PTSD and being wounded were positively associated with the risk of suicide. These associations are especially pertinent for OEF/OIF veterans as the number of those wounded was 33,907 through March 2009 (20). While the rate of suicide among all military is increasing, there does not seem to be a veteran/military suicide epidemic as reported by the media.

**REFERENCES**


