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Suicide risk in Iraq and Afghanistan veterans with mental health problems in VA care

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ABSTRACT

Suicide rates among U.S. military personnel and veterans are a public health concern, and those with mental health conditions are at particular risk. We examined demographic, military, temporal, and diagnostic associations with suicidality in veterans. We conducted a population-based, retrospective cohort study of all Iraq and Afghanistan war veterans who screened positive for posttraumatic stress disorder (PTSD) and/or depression, received a suicide risk assessment, and endorsed hopelessness about the present or future after their last deployment and between January 1, 2010 and June 29, 2014 ($N = 45{,}741$). We used bivariate and multivariate logistic regression analyses to examine variables associated with having endorsed suicidal thoughts and a plan. Multiple factors were associated with suicidality outcomes, including longer time from last deployment to screening (proxy for time to seeking VA care), an alcohol use disorder diagnosis, further distance from VA (rurality), and being active duty during military service. Hispanic veterans were at decreased risk of having suicidal ideation and a plan, compared to their white counterparts. In high-risk veterans, some of the strongest associations with suicidality were with modifiable risk factors, including time to VA care and alcohol use disorder diagnoses. Promising avenues for suicide prevention efforts can include early engagement/intervention strategies with a focus on amelioration of high-risk drinking.

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1. Introduction

Suicide rates among Operation Enduring Freedom (OEF), Operation Iraqi Freedom (OIF), and Operation New Dawn (OND) military personnel and veterans are a growing public health concern, with the U.S. Department of Defense (DoD) and Department of Veteran Affairs (VA) conducting several initiatives to decrease rising rates (Wiederhold, 2008). For example, in 2008 suicides among U.S. active-duty soldiers were the highest they have been in several decades, surpassing rates among civilians with similar demographics (Kuehn, 2009). Suicide risk is increased for OEF/OIF/OND veterans diagnosed with mental health disorders, including posttraumatic stress disorder (PTSD), depressive disorders, and alcohol problems (Jakupcak et al., 2009; Kang and Bullman, 2008; LeardMann et al., 2013; Nock et al., 2014; Pietrzak et al., 2010). Findings with OEF/OIF/OND veterans mirror past studies with Vietnam veterans that have also found a relationship between mental health symptoms and level of risk for suicide (Bullman and Kang, 1994; Boscarino, 2006; Fontana and Rosenheck, 1995; Hendin and Haas, 1991).

Given the increased risk in those with mental health disorders, the U.S. Veterans Health Administration implemented several initiatives to identify and track patients at risk for suicide (Department of Veteran Affairs 2007a,b, 2008, 2013). These initiatives included implementation of a suicide risk screen for veterans who screen positive for depression and/or PTSD. The screen asks about current hopelessness, suicidal ideation, suicide plan, and past suicide attempt to determine level of risk. If a veteran positively endorses any of the suicide screen items, a more comprehensive suicide risk assessment is conducted by a clinician. The suicide

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screen can be used to better understand associated risk factors in veterans who are already at high risk for suicide because of their mental health problems. OEF/OIF/OND veterans are also screened for alcohol use and traumatic brain injury, which are also known risk factors for suicide (Bryan et al., 2013; LeardMann et al., 2013).

There are additional modifiable risk factors that are important to examine in relation to suicide, including engagement in mental healthcare. Those endorsing mental health symptoms often report high stigma and barriers to seeking care (Hoge et al., 2004). Furthermore, even among OEF/OIF/OND veterans who seek mental healthcare, there is a significant lag time from end of last deployment to utilization of services (Maguen et al., 2012). It is unknown, however, whether time to seeking care is associated with suicide in veterans with mental health problems.

Another risk factor that has received attention is race/ethnicity, particularly with OEF/OIF/OND veterans who are a diverse group, with 45% of female and 28% of male OEF/OIF/OND veterans in VA care being members of racial/ethnic minority groups (Maguen et al., 2010). Although the majority of studies examining suicidal ideation have not found associations with race/ethnicity (Jakupcak et al., 2009; Lemaire and Graham, 2011; Pietrzak et al., 2010), at least one has found that suicidal ideation was less likely among non-Hispanic white OEF/OIF/OND veterans (Corson et al., 2013).

In this study, we aimed to examine OEF/OIF/OND veterans at high risk for suicide by virtue of screening positive on either depression and/or PTSD screens as well as endorsing hopelessness. Hopelessness has been defined as a consensus warning sign for suicide (Rudd et al., 2006), has been shown to be a sensitive indicator of suicide potential (Beck et al., 1990), and was a prevalent among 70% of veterans attending an urgent care psychiatric clinic (McClure et al., 2014). We further wanted to examine associations among those with suicidal ideation and a plan. We were particularly interested in modifiable variables, such as time to seeking care and high-risk drinking, as well as variables that have demonstrated mixed findings in prior studies such as race/ethnicity. The goal was to leverage clinical tools already used within the VA to examine these associations in a national, OEF/OIF/OND high-risk sample enrolled in VA care.

2. Methods

2.1. Study design

We conducted a population-based, retrospective cohort study of all Iraq and Afghanistan war veterans who screened positive for posttraumatic stress disorder (PTSD) and/or depression and received a suicide risk assessment between January 1, 2010, and June 29, 2014.

2.2. PTSD and depression screening in VA

Veterans in VA care are screened for PTSD and depression using the PC-PTSD and the PHQ-2, given annually and after each deployment, mainly in VA primary care settings, including integrated care settings. All Iraq and Afghanistan veterans are mandated to get these screenings. The PC-PTSD is a brief four-item screen, designed to detect possible PTSD symptoms (Calhoun et al., 2010; Prins et al., 2003). The screen yields binary responses (yes/no) for each of four PTSD symptom clusters: re-experiencing, avoidance, emotional numbing, and hyperarousal. A score of $\geq$3 designates a positive PTSD screen for veterans. The PHQ-2 is a two-item screen that assesses depressed mood and anhedonia over the past 2 weeks, and each item is scored from 0 (“not at all”) to 3 (“nearly every day; ” Kroenke et al., 2003). A score of $\geq$3 designates a positive depression screen for veterans.

2.3. Participants

We identified the study population by using the VA National OEF/OIF/OND Roster (current as of February 2014), an accruing database of veterans who have returned from recent military service in Iraq and Afghanistan and have enrolled in the VA health care system. We examined administrative data from 278,306 Iraq and Afghanistan veterans who received a post-deployment suicide risk screening between January 1, 2010 and June 29, 2014. We used January 1, 2010 as the conservative start date because by then, screening responses were being reliably stored in national VA databases. Clinicians are prompted to complete a suicide screen for veterans who either screen positive for depression and/or PTSD. The final study population was restricted to the 45,741 veterans who had complete data for age (at first suicide screen), gender, marital status, and military characteristics, and who had endorsed hopelessness since we were interested in the most at-risk veterans. The study was approved by the Committee on Human Research, University of California, San Francisco and the Human Research Protection Program at the San Francisco VA Medical Center.

2.4. Data source

The VA OEF/OIF/OND Roster includes information on veterans' demographic characteristics (e.g., age, race/ethnicity, marital status) as well as aspects of their military service, such as their rank and military branch. The Roster was linked to two other national administrative databases: (1) the VA National Patient Care Database (NPCD) to obtain information on VA clinic visits, associated clinical diagnoses, and additional race/ethnicity data; and, (2) the VA Corporate Data Warehouse (CDW) to obtain screening results.

The VA National Patient Care Database includes data from outpatient and inpatient visits to any of the approximately 150 VA hospitals and over 900 VA clinics nationwide. The VA electronic medical record includes the date of the visit, a code designating the type of visit, veteran race and ethnicity, and the diagnosis(es) associated with the visit classified using the International Classification of Diseases, Ninth Revision Clinical Modification (ICD-9-CM) codes. Data on the distance to and type of nearest VA medical facility based on each veteran's zip code (in Roster) were calculated by the VA Planning Systems Support Group.

Suicide screenings were extracted from the CDW, a national data repository comprising data from several Veterans Health Administration clinical and administrative systems.

2.5. Measures

2.5.1. Suicide risk assessment

When veterans screen positive for depression and/or PTSD, VA clinicians are prompted to ask four follow-up questions: (1) “Are you feeling hopeless about the present or future?” (2) “Have you had thoughts about taking your life?” (3) “Do you have a plan to take your life?” and (4) “Have you ever had a suicide attempt?”

We obtained veterans' responses to the questions on the suicide assessment. For veterans with multiple suicide screenings we used only the initial one after January 1, 2010. Given that we were interested in those at greatest risk, we included all veterans who endorsed hopelessness on the suicide screen, and we dichotomized our main dependent variable as those having both thoughts *and* a plan to take their life and those who did not have both.

2.5.2. Independent variables

We used the OEF/OIF/OND Roster to obtain dates of birth, gender, marital status, component type during their military service (active component versus National Guard or Reserve), military