

# Co-Occurring Medical, Psychiatric, and Alcohol-Related Disorders Among Veterans Returning From Iraq and Afghanistan

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**Background:** Soldiers often return from war with a variety of combat-related mental health conditions, including posttraumatic stress disorder, depression, and substance-use disorders. **Objective:** The authors investigated common co-occurring medical and psychiatric conditions and patterns of conditions among returning Iraq/Afghanistan veterans using the Veterans Administration (VA) healthcare systems. **Method:** Common clusters of ICD-9 diagnostic-related conditions among returning soldiers ( $N=293,861$ ) were extracted from the VA data center. **Results:** Diagnoses involving pain are extremely common among returning veterans seeking health care at the VA. In addition to pain-related conditions, psychiatric disorders rank second most prevalent. Psychiatric disorders, and in particular the multimorbid triad of pain, posttraumatic stress disorder, and depression frequently overlap. **Conclusion:** As more veterans return from war, there will be greater need for effective services. Given the findings of high rates of comorbidity and multimorbidity, VA services should be reorganized so as to co-locate psychiatric staff in pain centers, simultaneously targeting pain and psychiatric disorders. (Psychosomatics 2010; 51:503–507)

Soldiers often return from war with a variety of combat-related mental health conditions, including posttraumatic stress disorder (PTSD), depression, and substance-use disorders.<sup>1–7</sup> According to Hoge et al.,<sup>1</sup> soldiers who were screened immediately after returning from Iraq met screening criteria for PTSD (18%–20%), anxiety (16%–17%), and depression (14%–15%), and they have an increased alcohol intake (20%–30%). Prevalence rates for these disorders increase over time.<sup>8</sup> Despite the fact that 78%–86% of the soldiers screened acknowledged mental health symptoms, only 43%–45% reported an interest in receiving treatment, and only 21%–27% reported receiving treatment from a mental health professional in the past year.<sup>1</sup> When soldiers in Hoge et al.'s study reported being unlikely to seek

mental health treatment, the most frequent reason cited was perceived stigma.

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## Disorders in Returning Veterans

The prevalence of diagnosed mental health disorders presenting at the Veterans Administration (VA) as a result of wars in Iraq and Afghanistan was assessed between the years 2001 and 2005. Seal et al.<sup>9</sup> found that, of 103,788 users of VA services, 25% (N=25,396) had had a mental health outpatient visit. Of the 25%, 44% had a single mental health disorder identified on their medical record; 29% had two; and 27% had three-or-more different mental health disorders diagnosed. The most common mental health disorder seen was PTSD (13%).

PTSD has a high co-occurrence with other mental health diagnoses.<sup>10-12</sup> In epidemiological studies, rates of PTSD often co-occur with depression (48%–60%)<sup>10,12</sup> and substance-use disorders (34%–88%).<sup>10-12</sup> Among men with PTSD, substance use is the most prevalent comorbidity, and, among women, substance use is second only to depression. PTSD has also been associated with more physical health problems, especially chronic pain.<sup>13-15</sup>

Since many Iraq/Afghanistan veterans are presenting to the VA for treatment for mental health disorders post-deployment,<sup>9</sup> and PTSD often co-occurs with other mental health disorders,<sup>9,10,12</sup> we explored the pattern of co-occurring mental health disorders presenting to the VA. Dual diagnoses make treatment more difficult,<sup>14,16</sup> yet they are exceedingly common. Understanding patterns of the most common disorders presented by the Iraq/Afghanistan veteran may assist providers in reorganizing services and prioritizing implementation of evidence-based practices. The purpose of this study is to identify common co-occurring medical and mental health conditions and patterns of conditions among returning Iraq/Afghanistan veterans using the VA healthcare systems.

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### METHOD

Data were gathered from the Austin Automation Center, which houses national data for the VA. This database maintains diagnostic and demographic information for each inpatient stay and outpatient visit/encounter. Treatment locations are coded so that the databases can be queried by outpatient clinic or inpatient bed-section, such as Outpatient Mental Health or Surgical Inpatient. Scrambled social security numbers allow for identification of individual patients while protecting confidentiality.

*Sample and Measures* All Iraq/Afghanistan veterans enrolled in VA services were included in the cohort. Healthcare data were extracted from October 1, 2001 through

September 30, 2006. All diagnostic information regarding Iraq/Afghanistan veterans was extracted from the Austin data source. Diagnoses were identified in terms of the ICD-9 code, as well as the treatment setting. Outpatient utilization data (taken from the “SE” files in the VA Austin Automation Center) were divided into five categories according to the clinic stop-code: 1) primary care; 2) specialty medical; 3) specialty mental health; 4) ancillary; and 5) other. Inpatient utilization data (taken from “PM” and “PB” files) were categorized into Physical Health or Mental Health on the basis of primary diagnosis (i.e., general-medical, psychiatric, and substance-use settings) and whether care was received during an outpatient visit or inpatient stay.

Demographic measures of age, gender, race, home state, and marital status were obtained directly from the database. Age was measured continuously, and race was defined as Caucasian, African American, “other” (Hispanic, Asian-Pacific Islander, and Native American”), and “unknown race.” The last category, “unknown race” occurred when veterans did not report their race when asked about it during intake procedures for outpatient or inpatient service contacts.

*Data Analysis* The main purpose of this study was to identify common conditions reported to the VA among returning Iraq/Afghanistan veterans. Prevalence rates were calculated to assess the occurrence of psychiatric and medical diagnoses and comorbidity. Data were pooled over the course of a 5-year period, and therefore a diagnosis could have been documented in an individual’s record at any point during the post-deployment period. Once a diagnosis was made, it was counted as a single instance.

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### RESULTS

Characteristics of the sample are presented in Table 1. The mean age of Iraq/Afghanistan veterans seeking healthcare at the VA was 34 years, ranging between 21 and 70 years; the majority of patients were Caucasian (66%) and male (88%). More than half of the Iraq/Afghanistan veterans seen in the VA were reservists (56%).

The most common medical and psychiatric diagnoses are presented in Table 2. A diagnosis of pain was identified for almost half of the entire Iraq/Afghanistan cohort presenting for care at the VA. Interestingly, of the top five diagnoses recorded, three were mental health-related: depression (13%), PTSD (12%), and nicotine dependence (9%). Other anxiety disorders (i.e.,

**TABLE 1. Characteristics of the Sample (N=293,861)**

Age, mean	34.4 years
Gender	
Men	250,173 (88%)
Women	35,122 (12%)
Race	
White/Caucasian	189,576 (66%)
Black/African American	49,644 (17%)
Hispanic	30,629 (11%)
Other	7,139 (2.5%)
Unknown	8,349 (3%)
Type of service	
Active duty	124,246 (44%)
Reservists	161,091 (56%)

**TABLE 2. Top 10 Most Frequently-Occurring Diagnoses by ICD-9 Classification (N=293,861)**

Diagnosis	Frequency	Percentage
Pain	142,523	48.50
Depression	36,900	12.56
Posttraumatic stress disorder (PTSD)	35,153	11.96
Sinus/allergies/asthma	28,345	9.65
Nicotine	25,728	8.76
Cholesterol	25,488	8.67
Hypertension	21,038	7.16
Headache	18,077	6.15
Adjustment disorder	16,761	5.70
Gastroesophageal reflux disease (GERD)	16,328	5.56

ICD-9 codes used for diagnoses: Pain (717.7, 719.40, 719.41, 719.46, 719.47, 723.1, 724.2, 724.5, 729.1, 729.5, 786.50, 789.0); Depression (296.20, 296.30, 300.3, 311); PTSD (309.8); Sinus problem (461.9, 473.9, 477.9, 493.90); Nicotine dependency (305.1); Cholesterol level (272.0, 272.4); Hypertension (401.9); Headache (346.90, 784.0); Adjustment disorder (309.9, 309.28, 309.9); GERD (503.81).

**TABLE 3. Co-Occurring Psychiatric Diagnoses and Other Problems (N=118,332)**

	Percent	Alcohol	Pain	Sleep
PTSD	11.96	4.16	17.67	3.59
Depression	12.56	3.86	14.93	3.22
Adjustment disorder	5.7	1.50	7.13	1.42
Anxiety disorder	5.0	1.54	6.74	1.66

PTSD: posttraumatic stress disorder.

generalized anxiety disorder, panic disorder) were slightly less prevalent.

Table 3 includes the percentage of veterans diagnosed with a mental health problem (PTSD, depression, adjustment disorder, anxiety disorder), as well as other debili-

tating conditions (alcohol misuse, pain, and sleeping problems). As can be seen in Table 3, having PTSD is associated with a higher prevalence of problems with alcohol, pain, and sleep.

## DISCUSSION

Despite the likely stigma in reporting and seeking mental health treatment, diagnosed psychiatric disorders remain prevalent post-deployment for the Iraq/Afghanistan veterans using the VA healthcare system. Despite the potential underreporting of psychiatric problems, of the five most commonly-occurring diagnoses recorded at the VA, three were specific to mental health. The most prevalent diagnosis was pain, which was diagnosed for half of the sample. For veterans suffering from pain, multiple mental health disorders were common.

Suffering from symptoms of PTSD and/or depression is associated with higher rates of suicidality,<sup>17,18</sup> especially among individuals using drugs to cope with their symptoms.<sup>19</sup> Suffering from multimorbid psychiatric disorders in addition to PTSD will certainly negatively influence treatment and treatment progress.<sup>14,16</sup>

Our results are different from Seal *et al.*'s study<sup>9</sup> in that we investigated both medical and psychiatric conditions in Iraq/Afghanistan service members. This focus allowed us to identify the multimorbid triage of pain, depression, and PTSD that was identified in Seal's work. The VA may be interested in co-locating psychiatric staff in pain centers in order to better treat returning service members.

Our results are also different from Seal *et al.*'s study, in which PTSD prevalence was reported at 13%, whereas only 5% of veterans presented with depression. Although rates of PTSD remained consistent, rates of depression increased during the 2 years between reports, despite adequate screening for depression in the VA. The additional time may have simply given veterans more opportunity for symptoms to develop post-deployment. In fact, many of these veterans seeking care are likely to be re-deployed, increasing the likelihood of negative outcomes and increasing the need to develop treatment regimens designed for multimorbid complex presentations.

Although it is clear that some veterans are seeking mental health treatment post-deployment, the majority who screen positive for mental health problems are not seeking treatment.<sup>1,20,21</sup> Reasons for not seeking treatment revolve around issues of effectiveness and the impact treatment would have on work or on others.<sup>21,22</sup>

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Given that the majority of veterans with mental health concerns are not seeking treatment, it is likely that the prevalence of mental health diagnoses is underrepresented in this study.

It is also likely that the rates of substance-use disorders are underreported. General epidemiological studies suggest that rates of alcohol-use disorders approaches 15%, and drug-use disorders, 7% of the population.<sup>12,23,24</sup> Also, rates of co-occurring substance use disorders among persons with depression, PTSD, and other psychiatric disorders routinely occurs in 25%–33% of treatment-seeking individuals.<sup>25</sup> The clinical challenges for patients with co-occurring pain or sleep and substance-use disorders include the indication for pain-management using narcotics such as hydrocodone or oxycodone, or sleep-problem management using benzodiazepines such as alprazolam. Physicians must wrestle with appropriate symptom-man-

agement while not exacerbating the potential comorbid substance-use disorder condition. Protocols for management and monitoring of these complex multimorbidities need to consider this common interplay and guide care appropriately.

### Limitations

These results are not necessarily generalizable to all veterans who served in the wars in Iraq and Afghanistan, since we have only extracted data on service use and diagnoses for users of the VA healthcare system. Another limitation is that we relied on diagnoses recorded by VA clinicians, and not all disorders are detected. The VA conducts systematic screening instruments for depression, alcohol misuse, and PTSD; however, structured clinical interviews may not have occurred for all diagnoses.

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