

# Post-traumatic stress disorder in veterans of Operation Enduring Freedom/Operation Iraqi Freedom: Retrospective review of treatment received compared to evidence-based practice guidelines

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## ABSTRACT

**Background:** Post-Traumatic Stress Disorder (PTSD) is a syndrome that can emerge after exposure to a traumatic event. In the veteran population, the strongest predictor of developing PTSD is frequency and intensity of direct combat exposure. The 2010 Veterans Affairs (VA)/Department of Defense (DoD) guidelines for the treatment of PTSD published in 2010 recommend psychotherapy techniques and/or pharmacotherapy (selective serotonin reuptake inhibitor or venlafaxine) as initial management.

**Objective:** This study aimed to determine whether Operation Enduring Freedom (OEF) and Operation Iraqi Freedom (OIF) veterans received treatment for PTSD in concordance with VA/DoD guidelines.

**Methods:** A retrospective chart review was conducted for 400 patients at the South Texas Veterans Health Care System (STVHCS) with OEF/OIF service who had a PTSD-related encounter between September 1, 2011 and August 31, 2012. The primary outcome was the percentage of OEF/OIF veterans with PTSD who received treatment in concordance with VA/DoD guidelines. Secondary outcomes included length of time veterans waited to see mental health (MH) providers, and comparison of outcomes between patients who received evidence-based treatment to those that did not.

**Results:** Two-hundred and seventy-nine patients met the inclusion criteria and the majority of patients (n = 183, 65.5%) received treatment consistent with the VA/DoD Guidelines. The overall median wait time to see a MH provider was 10 +/- 26.64 days, and did not differ significantly between groups. Patients whose treatment did not follow guideline recommendations had statistically more psychiatric emergency department (ED) visits (10 vs. 17, p=0.0026).

**Conclusions:** The majority of patients at the STVHCS received treatment for PTSD in concordance with the VA/DoD guidelines, and 67.7% of patients saw MH providers within 14 days. Patients who did not receive guideline-supported treatment had more frequent ED visits, but the reason for this is unknown and may be due to a number of factors not accounted for in this review. The number of ED visits may be reduced by fully utilizing the processes in place that work to improve veteran access to MH care and the provision of guideline-based treatment. Prospective studies are needed to clearly elucidate the factors that may impact whether or not patients receive recommended treatment.

## KEYWORDS

post-traumatic stress disorder, veterans, operation enduring freedom

## BACKGROUND

Post-Traumatic Stress Disorder (PTSD) is a syndrome that can emerge after exposure to trauma and causes significant impairment in social or occupational

functioning. The Diagnostic and Statistical Manual of Mental Disorders (Fourth Edition) criteria for diagnosis of PTSD includes both exposure to a traumatic event where the person experienced or was confronted with a

situation that threatened death or serious injury and the person's response to the event involved fear, hopelessness, or horror. The person will often re-experience the event through distressing recollections, including nightmares, flashbacks, or intense psychological distress. There will also be evidence of persistent avoidance of activities or thoughts associated with the trauma, and symptoms of increased arousal evidenced by difficulty falling asleep or an exaggerated startle response will be observed. The symptoms described cause disturbances in social, occupational, or other areas of functioning, and must be seen for a period of longer than one month.<sup>1</sup>

In the veteran population, the strongest predictor of developing PTSD is frequency and intensity of direct combat exposure.<sup>2-5</sup> Exposures include being wounded, losing a fellow soldier, witnessing torture or killing, or killing an enemy.<sup>6</sup> Researchers of the U.S. Millennium Cohort study, a population-based, longitudinal investigation of active duty and Reserve/National Guard personnel found that 4.3% of personnel deployed to Afghanistan or Iraq developed PTSD.<sup>7</sup> In addition, the VA stated that 25% of the veterans returning from Operation Enduring Freedom (OEF) and Operation Iraqi Freedom (OIF) who have sought Veterans Administration (VA) care have a provisional PTSD diagnosis.<sup>8</sup> A provisional diagnosis code may be entered into a veteran's electronic medical record when further evaluation is required to confirm the diagnosis. In this case, 25% of veterans returning from OEF/OIF at time of the evaluation had a provisional diagnosis; it could be later found that the patient does not meet criteria for PTSD.

For all of the reasons aforementioned, the VA has announced its commitment to making the best treatments for PTSD available to veterans of the United States.<sup>9</sup> Since 2005, the VA has been making an effort to transform its mental health (MH) care delivery system.<sup>10</sup> Part of this transformation has included increasing the MH workforce by 6,000 staff, with the treatment of PTSD being an important area of emphasis during this expansion. The VA has implemented services to ensure that veterans with PTSD receive evidence-based psychotherapies, either prolonged exposure therapy (PE) or cognitive processing therapy (CPT), and has initiatives in place for both training of providers in their delivery as well as improved veteran access to MH care.<sup>12</sup> Veterans are able to receive medication management services through behavioral health in primary care, referral to MH, and/or PTSD clinical teams (PCT). In addition, VA policy requires all first-time patients referred to or requesting

MH services have a treatment planning evaluation within 14 days of the request and the VA has implemented this as a performance measure.<sup>11</sup>

The 2010 VA/Department of Defense (DOD) clinical practice guidelines for the management of PTSD present evidence-based recommendations that have been evaluated by practicing clinicians and reviewed by clinical experts in the VA and DoD. These guidelines indicate that initial treatment for PTSD should include evidence-based, trauma-focused psychotherapy techniques, depending on the severity of symptoms and clinician expertise, and/or pharmacotherapy (i.e., selective serotonin reuptake inhibitor [SSRI] or venlafaxine).<sup>1</sup>

The specific aim of this study was to determine whether the treatment of patients with an encounter coded for PTSD at the South Texas Veterans Health Care System (STVHCS) was consistent with guidelines. In addition, veteran wait time to a first MH appointment was calculated to evaluate achievement of the 14-day performance measure. Outcomes including Global Assessment of Functioning (GAF), change in PTSD Checklist-Military (PCL-M) scores, number of hospitalizations, psychiatric emergency department (ED) visits, and no-shows to general and MH appointments were compared between those who received guideline-recommended treatment and those who did not.

## METHODS

### Subjects

Patients who had a PTSD-related encounter between September 1, 2011 and August 31, 2012 at the STVHCS were identified using data from the VA Informatics and Computing Infrastructure (VINCI) system. Using the Computerized Patient Record System (CPRS), patients with OEF/OIF service were identified and charts reviewed for inclusion and exclusion criteria (Figure 1). Information regarding military tours was gathered using the Veterans Health Information Systems and Technology Architecture (Vista).

### Outcomes

The primary outcome was the percentage of OEF/OIF veterans with PTSD receiving treatment in concordance with VA/DoD clinical practice guidelines. Secondary outcomes included length of time to first MH visit, and comparison of outcomes including GAF and PCL-M scores, number of hospitalizations, ED visits, and no-shows to general and MH appointments between patients that received guideline-based treatment to those that did not.

**Figure 1: Inclusion and Exclusion Criteria**

<p><b>Inclusion criteria</b>                  Age ≥ 18 years old                  OEF/OIF service                  PTSD diagnosis</p>
<p><b>Exclusion criteria</b>                  Tour prior to OEF/OIF                  Cognitive deficits                  Psychotic disorder                  Bipolar disorder                  Obsessive-compulsive disorder                  Bulimia or anorexia nervosa                  Major depressive disorder, agoraphobia, or other major mental health illnesses not deemed secondary to PTSD                  PTSD related to factors prior to OEF/OIF service</p>

\*OEF/OIF: Operation Enduring Freedom/Operation Iraqi Freedom

**Data Collection**

The following patient information was retrospectively collected from VINCI using the Corporate Data Warehouse system and CPRS: demographics (age, sex race), social history (alcohol/drug use), and comorbid conditions (including psychiatric disorders, chronic pain and traumatic brain injury (TBI)). Concurrent psychiatric medications, GAF, PCL-M scores, number of psychiatric ED visits, number of hospitalizations related to psychiatric conditions, and number of no-shows to both general and MH appointments during the study time frame were also collected and analyzed. Any psychiatric or opioid medication that was filled at least once was reviewed. Information regarding military tours and combat exposure was gathered through VistA.

Patient charts were reviewed to determine the length of time patients waited to see MH providers for an initial visit to assess meeting the 14-day performance measure, and the actual time between request/referral and first visit was documented. Charts were also reviewed for adherence to treatment guidelines published by the VA/DoD (Figure 2). If patients were not receiving treatment as identified in "Step 1", their chart was further reviewed to determine that the treatment algorithm was followed. For example, if a patient was only on a tricyclic antidepressant (TCA) during the study time frame, their chart was reviewed to ensure that the patient had tried initial treatment, Step 1, and Step 2, before proceeding to Step 3. Patients could have received psychotherapy before the study time frame, which was considered to be in-line with VA/DoD guidelines, since this intervention is time-limited. The guidelines also specifically recommend against the use of benzodiazepines and state atypical antipsychotics have no benefit; therefore, patients on

these medications were categorized as not having received treatment according to guidelines.

**Figure 2: 2010 VA/DoD Stepped Care Treatment of PTSD<sup>1</sup>**

<b>Initial Treatment</b>	Psychotherapy or selective serotonin reuptake inhibitor (SSRI) or serotonin norepinephrine reuptake inhibitor (SNRI) (venlafaxine)
<b>Step 1</b>	Switch to another SSRI or SNRI and/or psychotherapy
<b>Step 2</b>	Add psychotherapy, and/or switch to mirtazapine
<b>Step 3</b>	Switch to alternative step 2, or to TCA, nefazadone, or phenelzine. Add psychotherapy.

**Statistical Analysis**

Baseline characteristics, primary outcome, and length of time to see MH providers were analyzed using descriptive statistics. Mann-Whitney tests were used for nominal data (non-normally distributed), and Fisher's exact tests were used for continuous data.

**RESULTS**

A total of 400 charts were reviewed, of which 279 met inclusion criteria (Figure 3). The most common reason for exclusion was a diagnosis of major depression, panic, anxiety, or mood disorder not deemed secondary to PTSD (n = 42).

**Baseline Characteristics**

Table 1 shows the baseline characteristics of study patients by those who received guideline-recommended treatment and those who did not. The majority of patients were white males, between the ages of 25-34 years old who served one tour and did not see combat (per VA records). Nearly 70% had issues with chronic pain, and 9% had a diagnosis of TBI. The only statistically significant difference between groups was that more patients in the age groups of 25-34 years and 35-44 years received treatment according to the guidelines compared to those aged 18-24, 45-54, or ≥ 55 years.

**Primary Outcome**

The majority of patients were found to be receiving treatment in concordance with treatment guidelines (n = 183, 65.5%), while 34.4% (n = 96) did not. Patients were determined as not receiving recommended treatment for varying reasons (Table 2). The majority of these patients (n = 38, 39.6%) did not have an initial trial with a SSRI or venlafaxine. Other reasons included receiving neither medications nor psychotherapy, receiving benzodiazepines or antipsychotic therapy, or inadequate SSRI or venlafaxine trial before switching, as defined by the guidelines as less than eight weeks. Six out of the

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Figure 3: Reasons for Exclusion

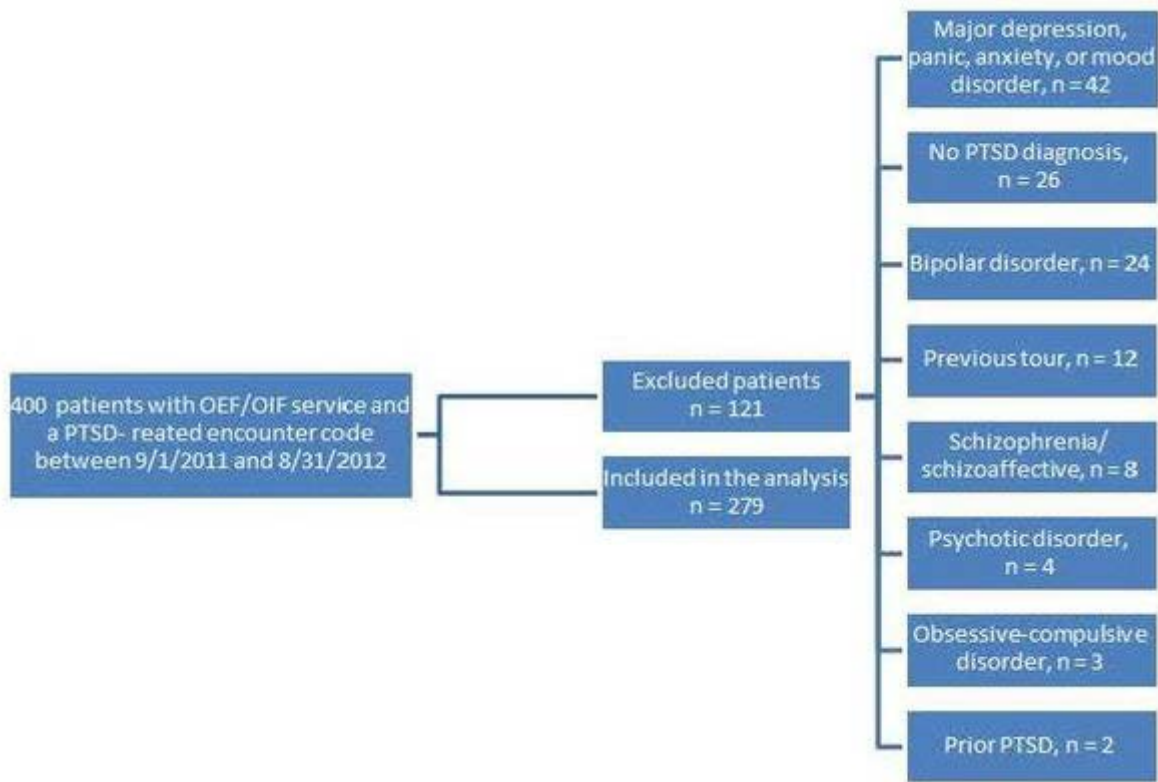


Table 1: Baseline Characteristics

Baseline characteristic	Total number of patients n = 279 (%)	Followed guidelines n = 183 (%)	Did not follow guidelines n = 96 (%)	p value
<b>Age<sup>a</sup></b>				
18-24	9 (3.2%)	5 (2.7%)	4 (4.2%)	0.50
25-34	152 (54.5%)	87 (47.5%)	65 (67.7%)	<b>0.0015</b>
35-44	76 (27.2%)	59 (32.2%)	17 (17.7%)	<b>0.011</b>
45-54	37 (13.3%)	28 (15.3%)	9 (9.4%)	0.20
≥ 55	5 (1.8%)	4 (2.2%)	1 (1.0%)	0.6628
<b>Sex<sup>a</sup></b>				
Male	254 (91.0%)	166 (90.7%)	88 (91.7%)	1.00
Female	25 (9.0%)	17 (9.3%)	8 (8.3%)	
<b>Race<sup>a</sup></b>				
White	133 (47.7%)	84 (45.9%)	49 (51.0%)	0.45
Black	26 (9.3%)	18 (9.8%)	8 (8.3%)	0.83
Multiracial	7 (2.5%)	6 (3.3%)	1 (1.0%)	0.43
Native Hawaiian/ Pacific Islander	1 (0.4%)	1 (0.5%)	0 (0%)	1.00
Unknown or missing	112 (40.1%)	74 (40.4%)	38 (40.0%)	0.90
<b>Tours (median, SD)<sup>b</sup></b>	1, 0.71	1, 0.72	1, 0.70	0.48
1	185 (66.4%)	124 (67.8%)	61 (63.5%)	
2	66 (23.7%)	42 (23.0%)	24 (25.0%)	
3	24 (8.6%)	13 (7.0%)	11 (11.5%)	
4	4 (1.4%)	4 (2.2%)	0 (0%)	
<b>Combat<sup>a</sup></b>				
No	224 (80.3%)	143 (78.1%)	81 (84.4%)	0.27
Yes	55 (19.7%)	40 (21.9%)	15 (15.6%)	
<b>Substance Abuse<sup>a</sup></b>	80 (28.7%)	49 (26.8%)	31 (32.3%)	0.33
Alcohol	54 (19.4%)	31 (16.9%)	23 (24%)	
Drugs	11 (3.9%)	6 (3.3%)	5 (5.2%)	
Both	15 (5.4%)	12 (6.6%)	3 (3.1%)	
<b>TBI<sup>a</sup></b>	25 (9.0%)	16 (8.7%)	9 (9.4%)	0.83
<b>Chronic Pain<sup>a</sup></b>	186 (66.7%)	128 (69.9%)	58 (60.4%)	0.11

<sup>a</sup> = Fisher's exact test (two-tailed); <sup>b</sup> = Mann-Whitney test (two-tailed)

seven patients receiving antipsychotics were prescribed risperidone, which is recommended against in the guidelines, and the seventh patient was using an antipsychotic for sleep.

The descriptive statistics outlining frequencies in which patients received certain medications or combinations of medications are outlined in Table 3. Out of the 279 patients reviewed, 40 patients (14.3%) received psychotherapy alone without any medication. Only 21 patients (7.5%) received SSRI monotherapy, but the majority of patients (n = 133, 47.4%) were receiving SSRI in combination with other medications.

**Table 2: Primary Outcome**

	Number of patients n = 279 (%)
Followed treatment guidelines	183 (65.5%)
Did not adhere to treatment guidelines	96 (34.4%)
<i>No SSRI/venlafaxine trial first</i>	38 (39.6%)
<i>No medication and no psychotherapy</i>	25 (26.0%)
<i>Benzodiazepine therapy</i>	24 (25.0%)
<i>Antipsychotic therapy</i>	7 (7.3%)*
<i>No adequate SSRI/venlafaxine trial before switch</i>	2 (2.1%)

\*6/7 were risperidone

**Table 3: Summary of Treatments Patients Received**

Group	Number of patients, n = 279 (%)
No medications	65 (23.3%)
No psychotherapy	86 (30.8%)
No medications and no therapy	25 (9.0%)
Psychotherapy alone	40 (14.3%)
SSRI or SNRI alone	21 (7.5%)
SSRI or SNRI in combination with other medication	162 (58.1%)
SSRI or SNRI in combination with prazosin	52 (18.6%)
Opioids alone	5 (1.8%)
Antipsychotic alone	0 (0%)
Antipsychotics in combination with other medication	11 (3.9%)
Risperidone	6 (2.2%)
Prazosin alone	0 (0%)
Benzodiazepine (any)	24 (8.6%)
Mirtazapine in combination with other medication	30 (10.8%)

### Secondary Outcomes

The median time that patients waited to see a MH provider was less than 14 days in both groups and the majority of patients met the 14-day performance measure (69.3% in the guidelines group, 64.6% in the

non-guidelines group, p=ns). There was no statistical difference between groups in number of no-shows, MH no-shows, psychiatric hospitalizations, or GAF or PCL-M scores. There was a large number of missing data for the GAF and PCL-M scores (127 and 163, respectively). There was a statistical difference between groups in emergency department visits, with significantly fewer visits occurring in the group of patients provided treatment that followed guidelines (p = 0.0026).

### DISCUSSION

As expected with the OEF/OIF population, the majority of patients included were males between the ages of 25-34. Most baseline characteristics were similar between groups. However, patients in the age groups of 25-34 and 35-44 were more likely than those aged 18-24, 45-54, or ≥ 55 years to receive guideline-recommend treatment. This may be due to increasing awareness of PTSD symptoms in this age group and the willingness to seek treatment, compared to younger or older patients. Approximately 28.7% of included patients also had a history of substance abuse, with no significant difference between groups.

Although the majority of patients did receive treatment in concordance with guidelines, it is still concerning that 34.4% of patients did not. Most interesting is that 26% of patients received neither medications nor psychotherapy for their PTSD. The reasons for this may be multifactorial. Previous reviews of treatment of PTSD in the OEF/OIF population have suggested that mental health stigma and barriers to care contribute to the decreased likelihood of receiving appropriate care.<sup>12,13</sup> Other barriers in this population include concerns about treatment (including use of medications), emotional readiness for treatment, and logistical issues.<sup>14</sup> In addition, patients may have been incorrectly diagnosed, symptoms may not have been severe enough to warrant therapy, patients may have refused treatment, been lost to follow-up, non-adherent with therapy, or most concerning, not appropriately screened and referred to the correct services. This study did not look at specific reasons for why these patients received neither of the initial treatment recommendations which is a major limitation; however, the increase in MH workforce and awareness of the prevalence of PTSD among OEF/OIF veterans may help decrease the number of those who go without the opportunity to receive PTSD treatment and may address some of the barriers which have been identified.

The reasons for why patients did not receive a SSRI or venlafaxine first may also be due to a number of patient-specific factors, and identifying these was beyond the scope of this study; alternate indications for psychotropic

**Table 4: Differences in Secondary Outcomes Between Groups**

Outcome	Total number of patients n = 279 (%)	Guideline-recommended therapy n = 183 (%)	Non-guideline-recommended therapy n = 96 (%)	p value
<b>No-shows – total (Median, SD)<sup>b</sup></b>	188 (67.4%) 1, 2.67	117 (62.2%) 2, 2.68	71 (37.8%) 1, 2.64	0.52
1	68 (36.2%)	44 (37.6%)	24 (33.8%)	
2-4	82 (43.6%)	51 (43.6%)	31 (43.7%)	
5-9	28 (14.9%)	16 (13.7%)	12 (16.9%)	
≥ 10	10 (5.3%)	6 (5.1%)	4 (5.6%)	
<b>MH no-shows (Median, SD)<sup>b</sup></b>	114 (40.9%) 0, 1.31	74 (64.9%) 0, 1.29	40 (35.1%) 0, 1.35	0.91
1	70 (61.4%)	45 (60.8%)	25 (62.5%)	
2-4	36 (31.6%)	24 (32.4%)	12 (30.0%)	
5-9	8 (7.0%)	5 (6.8%)	3 (7.5%)	
<b>Hospitalizations – psychiatry (Median, SD)<sup>b</sup></b>	0, 0.16	0, 0.15	0, 0.17	0.70
1	7 (2.5%)	3 (1.6%)	4 (4.2%)	
<b>ED visits – psychiatry (Median, SD)<sup>b</sup></b>	27 (9.7%) 0, 0.49	10 (37.0%) 0, 0.30	17 (63.0%) 0, 0.70	<b>0.0026</b>
1	18 (66.7%)	8 (80.0%)	10 (58.8%)	
2	7 (25.9%)	2 (20.0%)	5 (29.4%)	
3	1 (3.7%)	0 (0%)	1 (5.9%)	
4	1 (3.7%)	0 (0%)	1 (5.9%)	
<b>Wait time to MH provider (Median, SD)<sup>b</sup></b>	10, 26.64	10, 28.44	9, 22.59	0.79
≤ 14 days	189 (67.7%)	127 (69.3%)	62 (64.6%)	
≥ 15 days	76 (27.2%)	52 (28.4%)	24 (25%)	
Not seen by MH	14 (5%)	4 (2.2%)	10 (10.4%)	

<sup>b</sup> = Mann-Whitney test (two-tailed)

medications were not evaluated, such as use of bupropion for smoking cessation, or tricyclic antidepressant for neuropathic pain or chronic headaches. Treatment of psychiatric illnesses is quite complex, and there is need for individualized patient treatment. More alarming are the large number of those who were prescribed benzodiazepines and/or antipsychotic agents, which have not shown consistent benefit and may cause further harm. A review of over 300,000 patients within the VA system published in 2009 suggested that the majority of medications used in patients with PTSD that were inconsistent with guidelines were written by mental-health providers rather than those in primary care.<sup>15</sup> In addition, a review published in 2012 that examined prescribing patterns of medications in patients with PTSD reported declining use of benzodiazepines and antipsychotics within the past decade, highlighted limitations of administrative data, and recommended qualitative information to better understand provider strategies in the management of PTSD.<sup>16</sup> Continued patient and provider education regarding the lack of

benefit and potential harm these medications pose to those with PTSD is needed.

Regarding secondary outcomes, there was no statistical difference in the wait time to see MH providers between groups. The median wait time was less than 14 days for both groups, and the majority of patients did see a MH provider within 14 days. As discussed above, the reasons that some of patients may not have met the 14-day measure may be due to patients being lost to follow-up or non-compliance with scheduled appointments. In general, the majority of patients at the STVHCS are being seen within 14 days, in compliance with the performance measure.

The outcomes between groups did not significantly differ, except for increased number of ED visits for psychiatric problems in the group that did not receive guideline-recommended treatment. Although no differences were found for the other outcomes studied, this may be due to small numbers of patients in each group, especially for psychiatric hospitalization. Further, data for PCL and GAF scores were frequently missing. However, the increased

number of ED visits is an important finding. Although these veterans are aware that they can go to the ED for urgent needs, it is preferable to avoid psychiatric emergencies by having appropriate outpatient follow-up. It is important to identify veterans utilizing ED services and ensure that they are offered any and all guideline-based interventions.

### Limitations

There are several limitations to this study. Given the retrospective nature, no cause and effect relationships can be determined, and the results were dependent on accurate documentation. Inconsistencies in documentation may be of concern as problem lists were used to apply inclusion and exclusion criteria. Of particular interest are the 26 patients who were excluded due to not having a PTSD diagnosis but had a PTSD-related encounter code. Inaccuracies in the problem list may have allowed for inclusion of patients with other Axis I diagnoses that should have been excluded. The large number of patients who were missing GAF and PCL scores is another demonstration of inconsistencies in documentation.

Another limitation is the study's small sample size, resulting in skewed distributions and small numbers of patients in certain subgroups that were evaluated. Appropriate statistical tests were used for non-normally distributed data. In addition, the findings represent only a snapshot in time, and may not fully capture a patient's treatment course. Adherence to medication or therapy was not assessed, which is an important consideration and accounting for these factors may influence findings. Patients may also have chosen to receive psychotherapy at local veteran centers, which was not consistently documented in CPRS and could not be verified. In addition, non-VA or remote data from other VA hospitals was not considered in this review. Another complicating factor was that it was difficult to determine if patients' concurrent psychiatric illnesses were secondary to PTSD. Psychiatric disorders can be complex and require a large degree of patient individualization, so although patients may have been classified as not meeting treatment guidelines, the treatment they were receiving may have been most appropriate for that patient. TBI patients were particularly difficult to assess because these patients are frequently prescribed mood stabilizers or TCAs for chronic headaches, and this information had to be clarified through progress notes rather than simply the problem and medications lists.

In regards to the 14-day wait-time performance measure, many patients were non-compliant with assigned follow-

up. Therefore, although appointments are most often scheduled in order to meet the 14-day goal, if the patient canceled, no-showed, or simply requested a later appointment, the performance measure was not met. The reasons that patients did not meet the performance measure were not identified in this review, but may be worth evaluating in subsequent research addressing access to care.

### CONCLUSION

The majority of patients at the STVHCS are receiving treatment for PTSD in concordance with the 2010 VA/DoD guidelines and are seeing MH providers within 14 days of initial referral. However, there remain a number of patients not receiving guideline-based treatment, which may correlate with more frequent ED visits for this group.

Prospective studies are needed to clearly elucidate the factors that impact whether or not patients receive guideline-recommend treatment. This would include reasons why patients do not receive a SSRI or venlafaxine as initial pharmacotherapy for PTSD and why a MH provider does not evaluate patients within 14 days.

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