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The Applicability of Randomized Controlled Trials of Psychosocial Treatments for PTSD to a Veteran Population

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Abstract

The extent to which the results of randomized controlled trials can be expected to generalize to clinical populations has been the subject of much debate. To examine this issue among a population of individuals diagnosed with posttraumatic stress disorder (PTSD), the clinical characteristics of Veterans Affairs (VA) patients with PTSD were compared to the eligibility criteria for clinical trials of psychosocial treatments for PTSD. Administrative data for 239,668 patients who received a diagnosis of PTSD within the VA healthcare system during the 2003 fiscal year were compared with inclusion and exclusion criteria of 31 clinical trials for PTSD. Based on available data, all patients appeared to be eligible for at least one study, and half (50%) were eligible for between 16 and 21 (50% or more) of the 31 studies examined. The studies for which the most veterans with PTSD would have been eligible targeted combat-related trauma or did not specify type of trauma in their eligibility criteria. Veterans who exhibited psychotic symptoms (3% of the sample) were ineligible for most, but not all, of the studies. However, most veterans with comorbid Axis I conditions, such as depression, anxiety disorders, and substance use disorders, were eligible for multiple studies. These findings, which indicate that the existing literature on the efficacy of psychosocial treatment may inform the treatment of the majority of veterans who present with PTSD, have applications for the design of future clinical trials and for consultation of the literature regarding appropriate treatments for veterans with PTSD.

Keywords

posttraumatic stress disorder; randomized controlled trials; psychosocial treatments; veterans

INTRODUCTION

Posttraumatic stress disorder (PTSD) is one of the most common psychiatric disorders for which patients seek treatment, particularly among veteran populations.¹ Between 18.7% and 30.9% of Vietnam veterans meet criteria for PTSD at some point in their lives, with many more experiencing at least some PTSD symptoms^{2,3} The risk for PTSD from service in Operation Iraqi Freedom or Operation Enduring Freedom has been estimated to be between 4.8% and 20%.^{4,5} With the return of soldiers engaged in these conflicts, as well as increasing awareness of the effects of military sexual trauma,⁶ has come an increased recognition of the need to implement effective treatments for PTSD.

Thus far, pharmacological treatments alone appear to be less effective than psychosocial treatments or treatments involving a combination of psychosocial and pharmacological interventions. There is also evidence that adding psychosocial interventions to pharmacotherapy prevents relapse.^{7,8} Treatment guidelines for PTSD indicate that psychotherapy should be the first-line treatment for PTSD in a variety of patient populations.⁹ Several recent randomized controlled trials have established that a number of psychosocial treatment options are efficacious for individuals who suffer from PTSD.¹⁰ Reviews of the literature indicate extensive empirical support for exposure-based therapies, as evidenced by a number of studies that have shown moderate to large effects over comparison conditions.¹⁰ Exposure therapies, which include prolonged exposure and eye movement desensitization and reprocessing (EMDR), have been shown to be effective for treating PTSD resulting from a range of traumatic experiences.¹⁰ Cognitive-behavioral therapies and interpersonal psychotherapies have also demonstrated efficacy in the treatment of PTSD.⁷ Cognitive-behavioral therapies have resulted in good outcomes in clinical trials with rape survivors, victims of motor vehicle accidents, and individuals who have experienced assault, accidents, or combat.^{7,10}

Although a number of studies have indicated that cognitive-behavioral and exposure-based treatments are effective in the treatment of PTSD, the high rate of comorbidity and other complicating factors among those with PTSD^{2,10} has led some researchers and clinicians to question the applicability of treatments that have been studied using randomized controlled trials to individuals who present with more complicated symptom profiles.¹¹ The failure of many researchers to report rates of comorbidity among study participants makes it particularly difficult to determine whether results of a study can be generalized to a particular patient population. This lack of information has implications for those who work with veterans, since many veterans present with comorbid Axis I or II disorders,¹² comorbid medical conditions,¹³ and other characteristics that may complicate treatment. In addition, as the population of Vietnam veterans grows older, studies with specified age limitations that do not test interventions in older adults may not adequately inform the treatment of individuals who may be facing changes in cognitive functioning or memory as well as other issues that arise in therapy with older adults.

Because a significant proportion of Veterans Affairs (VA) patients suffer from PTSD, it is important to determine the extent to which the literature can reliably inform the treatment of this population. Making such determinations can be challenging not only because of the presenting characteristics discussed above, but also because many studies target survivors of very specific types of trauma. These studies may be relevant to veterans in some ways but not in others. For example, studies that target refugees may sample individuals that differ greatly from veterans in terms of demographic characteristics, but who may have engaged in, endured, or witnessed similar war-related traumatic events. Studies that target survivors of motor vehicle accidents or police officers may have samples that appear similar demographically, but the type or duration of the trauma may differ in important ways from combat exposure. The relationship between type of trauma exposure and treatment outcomes has not been determined with certainty, although there is evidence that factors such as exposure to violence in childhood and combat exposure predict greater symptomology.¹⁴ If veterans present with characteristics that differentiate them from other trauma survivors in clinically meaningful ways, (e.g., more prolonged or frequent exposure to trauma, more co-occurring diagnoses), it is possible that many veterans with PTSD would not have been eligible for the research conducted to date. In this case, the existing studies may provide little guidance for treatment of PTSD in VA settings. If, on the other hand, veterans do not present with characteristics that differentiate them substantially from other populations with PTSD, it is possible that this literature can, in fact, provide guidance regarding the treatment of PTSD in this population.

One method of estimating the generalizability of the PTSD literature to veteran populations is to assess the likelihood that individual patients would have been eligible for existing studies by comparing their diagnostic and demographic characteristics to the inclusion and exclusion criteria of existing studies.^{15,16} If an individual meets inclusion criteria and does not display any of the characteristics that are listed in a particular study's exclusion criteria, it is reasonable to assume that individuals with similar characteristics may be represented in that study. Such patients would presumably have the same chance of benefiting from treatment as the study participants. Although the estimates of treatment efficacy vary by study, a review of the psychotherapy outcome literature indicates that across studies, 67% of those who completed treatment no longer met criteria for PTSD post-treatment.¹⁰

Based on the logic described above, the purpose of this study was to examine the extent to which the existing PTSD literature can be expected to generalize to a veteran population, and to identify studies in the existing literature for which the largest number of VA patients were most likely to have been eligible. Because particular characteristics, such as comorbidity and type of trauma, may have an impact on treatment, the rate of eligibility for each study among patients who exhibit these characteristics was also determined. The results will be presented in a manner that will allow busy clinicians to easily determine which studies may best serve as a starting point for their work with the individuals they typically see in their practices.

METHODS

Study Selection

To obtain the sample of randomized controlled trials, a search was conducted on PSYCINFO and Medline using the keywords *PTSD* and *posttraumatic stress*. In addition, the indices of high impact psychology and psychiatry journals that publish psychotherapy outcome research were reviewed, as well as the reference sections of published meta-analyses and reviews. Published studies were included in the sample if they met criteria for a well-controlled study¹⁷ and included enough patients to randomly assign at least 10 patients to each treatment condition.¹⁰ To be included, studies were required to test at least one active treatment condition and one comparison group, randomize subjects, employ a reliable method of diagnosing PTSD, use blind assessors to evaluate outcomes, and employ at least one objective outcome measure.¹⁷ Forty-nine published studies were reviewed, 18 of which were excluded because they tested medications without a psychosocial treatment condition, did not treat adult patients, did not have a comparison or control group, had small sample sizes, reported secondary analyses of larger controlled trials, or provided treatments that did not involve face-to-face contact with a clinician (e.g., Internet-based treatments). Thirty-one studies, published between 1989 and March, 2005 when the literature search was conducted, were selected for review.¹⁸⁻⁻⁴⁸

Patient Population

De-identified records were obtained for patients who presented for at least one outpatient encounter at a VA treatment facility and were given an International Classification of Diseases, 9th Revision, Clinical Modification (ICD-9-CM) code for PTSD (300.81)⁴⁹ between October 1, 2002, and September 30, 2003 (VA fiscal year 2003). Outpatient utilization data were obtained from the National Patient Care Database through the Austin Automation Center (AAC) in Austin, Texas. The files contain demographic characteristics and ICD-9-CM diagnoses from all clinic stops and visit dates. The files also contain all procedures performed, information regarding patients' branch and era of service, and whether the patient had experienced military sexual trauma or had been a prisoner of war.

A total of 239,668 patients (5% of the 4,694,401 unique Veteran outpatients identified in the database) were assigned a diagnosis code for PTSD during fiscal year 2003. The mean age of

the patients in the sample was 55 years (SD 13 years), 88% were male, 47% were married, and 49% were white. The average income of the patients was \$19,500 (SD \$35,000). Thirty-nine percent had at least one additional Axis I diagnosis, most commonly a substance use or depressive disorder, a rate that is in the mid-range of estimates of comorbidity for individuals with PTSD.¹¹ Four percent were given a diagnostic code for an Axis II disorder. Seventy percent of the patients were Vietnam veterans, 3% were prisoners of war, and 0.5% had experienced military sexual trauma. Fewer than 1% of the sample had received a diagnostic code for intentional self-injurious behavior or a suicide attempt.

Coding of Clinical Characteristics

Based on inclusion and exclusion criteria listed for each study, dummy variables for presence or absence of each criterion were generated for each veteran using a statistical software program (SAS). Table 1 presents a list of common exclusion criteria, the number of studies that listed these criteria, and the method of operationalization and coding for each criterion.

Because of the limitations associated with using administrative databases, the coding of certain criteria required the creation of some decision rules. Patients were considered to have a diagnosis of a psychiatric or medical disorder if they received at least one ICD-9 code indicating that diagnosis. Where the type of trauma was listed as an inclusion criterion, ICD-9 codes indicating a rape or motor vehicle accident, and an internal code for military sexual trauma, prisoner of war status, or deployment during a war or conflict were used to determine the type of trauma. This method may lead to underestimates of non-military-related traumas, particularly when the trauma occurred prior to the year for which records were obtained, but it allows an estimate of the number of VA patients who may not have been eligible for studies because they did not experience the type of trauma that was the focus of a particular study. Suicide attempts were determined by the presence or absence of an ICD-9 code for suicide. Some studies specified that “depression with suicide ideation severe enough to warrant concern for the patient’s safety” was an exclusion criterion.²⁸ For studies that specified an exclusion criterion of “severe suicidal ideation,” the more specific description above was used and patients were considered suicidal if they had been hospitalized on an inpatient unit with a diagnosis code of depression for that visit. This method was used to assign a proxy rating for suicidal ideation because depression severity and suicidal ideation are strongly associated with the decision to hospitalize after psychiatric evaluations,⁵¹ and depression with suicidal ideation has been identified as a primary reason for which depressed individuals should be admitted to an inpatient psychiatric unit.⁵²

Determination of Eligibility

After dummy variables were assigned, each patient’s profile was compared to the inclusion and exclusion criteria for each study in the sample using an algorithm generated using the SAS system. For each patient, the algorithm generated a code for each exclusion criterion the patient met or inclusion criterion that was not met. The presence of any exclusion criterion that was met or inclusion criterion that was not met resulted in a code of 0 or “not eligible” for any study that listed those criteria; conversely, if patients met all inclusion criteria for a study and did not meet any exclusion criteria for that study, this resulted in a code of 1 or “eligible” for a study.” After this step, patients also received an overall code of 0, “not eligible for any studies,” or 1, “eligible for one or more studies.” All reasons for which a patient was ineligible for each study were also categorized, and the most commonly met exclusion criteria for each study were determined by generating frequencies for each study and exclusion criterion.

RESULTS

All patients (100%) would have been eligible for at least one study, and half (50%) of the patients were eligible for between 16 and 21 (50% or more) of the 31 studies. Table 2 lists the most inclusive studies (those for which over 50% of the sample were determined to be eligible based on the available data), along with the treatment modality, type of trauma addressed in the study, the outcome measure used, study results, and, when available, the diagnostic and demographic characteristics of the study's sample. The most common reasons that VA patients in the sample would have been ineligible for each study are also listed. Not surprisingly, the studies for which the most VA patients would have been eligible targeted combat-related trauma or did not specify type of trauma in their eligibility criteria. Several of the more inclusive studies described samples with a variety of comorbid diagnoses. The effect sizes in these studies ranged from "no effect" to very large effects.⁵³ Table 3 lists studies for which VA patients with particular characteristics appear to have been eligible, based on the data available in the administrative database. Patients who exhibited psychotic symptoms (3% of the sample) were ineligible for most studies, but most patients with comorbid Axis I conditions such as depression, anxiety disorders, and substance use disorders were eligible for multiple studies. Because few studies specified age-related exclusion criteria, many of the veterans who were over 65 years of age appear to have been eligible for the studies in the sample.

DISCUSSION

Based on the information available in a large administrative database, most of the patients in this sample of veterans appear to have been eligible for multiple studies, indicating that, particularly in the case of studies that included combat veterans, those studies may have included patients with similar symptom profiles. Although some of these studies provided few details about the clinical characteristics of their participants, those that did so indicated that the participants had relatively high rates of comorbidity, recent hospitalizations, or multiple traumas. However, many studies did exclude patients on the basis of Axis I comorbidity. The most common diagnoses listed as exclusion criteria included psychosis (listed in 87% of the studies), substance use disorders (64% of the studies), and bipolar disorder (15% of the studies).

Clinically, it is appropriate to use caution and carefully consider the potential impact of each treatment modality for individuals with some co-occurring diagnoses. For example, substance abuse has been shown to interfere with exposure-based treatments.⁵⁸ Given the overlap between substance use disorders, severe mental illness, and PTSD, the common exclusion of substance use disorders is a serious limitation in the existing literature, as it is important to develop treatments that can address the clinical phenomena that are common in this population. Fortunately, in recent years, researchers have begun to conduct such research, although results were not available at the time that the literature review for the current study was conducted. For example, a recent, small pilot study found symptom reduction and decreased drug use among men with dual diagnoses.⁵⁹

Caution is also advised in interpreting the findings regarding veterans with psychosis or bipolar disorder. Most psychotic patients in the sample were eligible for only one study,³⁸ and the authors of that study noted that many of the patients in their study endorsed a high level of distress and required concurrent pharmacological and psychosocial treatments.³⁸ Patients with psychotic or bipolar diagnoses comprised 3% of the total VA sample examined here, and it is for such patients that the least is known about potentially effective treatments. In practice, exposure-based treatments are not often used as a first-line treatment with such individuals,⁹ and clinicians may be reluctant to use these treatments with patients who are not stable on medications or who are judged to have inadequate coping strategies and support to tolerate intensive treatment for PTSD. In light of these challenges, efforts are underway to develop and

test treatments for individuals with PTSD and severe mental illness, with promising preliminary results.^{60,61}

Axis I diagnoses other than those mentioned above were listed as exclusion criteria in only 6% of the studies. It is possible that the presence of particular coexisting psychiatric disorders may have been associated with poor outcome or dropout in these studies. However, data regarding the relationship between clinical characteristics of patients and outcome were rarely published in the papers describing randomized controlled trials examined in this study. To address this lack of data, in future studies researchers are encouraged to report secondary analyses that examine whether particular clinical characteristics that are common among patients with PTSD predict clinical outcomes.

The low rates of Axis II comorbidity found in this VA sample are most likely an underestimate. The low rate may reflect VA clinicians' tendency to report diagnostic codes only for disorders that were targeted at each visit. However, 74% of the studies did not list Axis II diagnoses as exclusion criteria and it is likely, therefore, that the samples included in the study included some patients who had Axis II diagnoses. Little is known about the effectiveness of treatments for PTSD in individuals diagnosed with personality disorders, although one study that tested a treatment for women with PTSD and borderline personality disorder found that, although patients with borderline personality disorder did benefit from treatment, they were less likely to achieve high end-state functioning.⁶²

Limitations of the current research include those inherent in the use of administrative data. The use of data obtained from an administrative database may have obscured some clinical characteristics that would affect eligibility, such as personality disorders or suicidal intent, characteristics that would have been apparent to researchers and clinical interviewers. Individuals with bipolar, psychotic, or substance use disorders who were hospitalized for suicidal ideation may not have been identified using administrative data, if they were hospitalized for reasons other than suicidal ideation, and the method of operationalizing "severe suicidal ideation" as an inpatient stay with a diagnostic code for major depression may have led to an underestimate of this clinical feature. In other cases, diagnostic codes may have led to the unnecessary exclusion of some patients. For example, the presence of diagnostic codes for medical disorders may have led to the exclusion of cases in which the study researchers would have made judgments regarding the extent to which the severity of the disorder would prevent participation in the study (e.g., a diagnosis associated with organic brain syndrome, but not causing severe enough impairment to warrant exclusion). Another example of a potential overestimate of the number of patients who would have been excluded might relate to trauma type. Patients with PTSD secondary to sexual trauma or a motor vehicle accident may not have had ICD codes listed for those traumas, as they may have happened years before the patient presented for treatment. In addition, using only one fiscal year's worth of data rather than multiple years may have led to an underestimate of the prevalence of PTSD among veterans by failing to account for veterans with PTSD who may not have sought treatment that year. Despite these limitations, administrative data offer rich opportunities to estimate the applicability of the treatment outcome literature to a large sample of patients, and can inform the development of treatments for under-studied populations, particularly when used in conjunction with other studies that estimate the applicability of the literature using other methods such as comparing data obtained by a thorough chart review or a structured assessment of a sample of patients to see if they would meet the inclusion and exclusion criteria of studies for a particular diagnosis^{15,16}

With these considerations in mind, clinicians who seek guidance from the literature regarding the treatment of individuals who present with PTSD may find that some of the studies in the existing treatment outcome literature can provide them with a starting point for working with

even those patients who present with co-occurring psychiatric or medical disorders. Among the more inclusive studies were those that used exposure therapies or cognitive-behavioral therapies. However, the findings do not indicate whether a particular modality would be most effective with the population of veterans that were the subject of this research. A recent meta-analysis did not demonstrate evidence of the superiority of one modality over another in the treatment of PTSD, but the authors did note lower rates of efficacy (45%–63%) among studies that targeted combat veterans.¹⁰ The relationship between VA disability benefits and outcomes in treatment studies may also account for differences in outcomes. It has been suggested that the prospect of losing VA disability benefits may serve as a disincentive for fully engaging in treatment, or for accurately reporting symptoms, improvements, or trauma exposure.^{63,64} These outcomes may also be due to the possibility that during the course of treatment veterans frequently employ avoidant coping strategies that they found effective in dealing with combat situations and thus do not fully engage in treatments, or to the high likelihood that many combat veterans were exposed to multiple traumas that could not be adequately addressed in the time frame allotted for treatment. Although most of the studies for which this sample of veterans would have been eligible included an exposure component, the more inclusive studies tested therapies with different “doses” of exposure, which were delivered in different ways and with varying degrees of intensity. Given these differences, clinicians need to use their judgment and conceptualization of individual patients to determine the most appropriate therapy from among the more inclusive studies. Similarly, when determining training needs for clinicians who work with veterans in different settings, the clinical features of the individuals seen in these settings should be taken into account along with the efficacy and inclusiveness of the available research.

More research is needed to determine the impact of particular comorbid diagnoses on treatment outcomes. Future outcome research should include rates of some of the more common comorbid psychiatric diagnoses so that clinicians can determine whether study samples included patients with characteristics similar to those individuals that they treat in their own practices. Although more research is needed to address these clinically important issues, the current findings indicate that the existing PTSD treatment outcome literature may well be more inclusive of patients with complicated clinical presentations than was previously hypothesized, and that the treatments tested to date may in fact be viable treatment options for veterans who suffer from PTSD.

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Table 1

Exclusion criteria listed by studies and methods of coding

Criterion	Number (%) of studies (n = 31)	Codes/decision rules used
Bipolar disorder	5 (16%)	ICD codes for bipolar disorder
Substance abuse or dependence	20 (64%)	ICD codes for specific disorders when listed, otherwise codes for abuse and/or dependence for all substances
Personality disorder	8 (26%)	ICD codes for specific disorders when listed, otherwise codes for all personality disorders
Trauma type	24 (77%)	ICD codes for motor vehicle accident, sexual assault, and other traumas and/or internal codes for combat, military sexual trauma, prisoner of war status
Suicidal (e.g., suicide attempt or severe suicidal ideation)	12 (39%)	ICD codes for self-harm when recent suicide attempt listed as a criterion; inpatient hospitalization with a diagnosis of major depressive disorder for "severe suicidal ideation"
Medical comorbidity	6 (19%)	ICD codes for all specific medical disorders listed in studies that included medical comorbidity among exclusion criteria
Axis I comorbidity (other than psychotic disorders, substance dependence, and psychosis)	2 (6%)	ICD codes for specified disorders
Psychosis	27 (87%)	ICD codes for schizophrenia, schizoaffective disorder, major depressive disorder with psychotic features, bipolar disorder with psychotic features, psychosis not otherwise specified
Organic brain syndrome or cognitive impairment	13 (42%)	ICD codes for conditions associated with organic brain syndrome ⁵⁰
Age	2 (6%)	Age
Gender	6 (19%)	Administrative gender code
Time since trauma (e.g., trauma required to be recent)	3 (10%)	ICD code for trauma/injury type (e.g., sexual assault, motor vehicle accident) within specified time frame of index visit

Table 2

PTSD Studies for which VA patients were most likely to be eligible (for which more than 50% were determined to be eligible based on available data)

Study	% Eligible	Trauma	Outcome measure	Modality and result (effect size)*	Comorbidity/clinical issues	Demographics	Common exclusion**
Schnurr et al. 2003 ¹⁹	51	Combat	CAPS ⁵⁴	Trauma focused therapy > present focused therapy (d = 0.22)	67% had a comorbid Axis I condition	52% married 66% white Mean age = 51 (SD = 3.7) years	Trauma type ²¹ , SUD, medical
Glynn et al. 1999 ³¹	68	Combat	PTSD positive symptoms	PE+BFT > PE (d = 0.03)	Not listed	45% white 24% employed Mean age = 47 (SD 3.1) years	Trauma type ²¹ , SUD, medical
Keane et al. 1989 ³⁸	70	Combat	MMPI PTSD Scale ⁵⁵	Flooding > wait list (d = 0.23)	Not listed	100% male 79% white 54% married Mean age = 34 years	Gender, trauma type
Carlson et al. 1998 ³³	75	Combat	CAPS	EMDR > relaxation (d = 2.10)	71% recently hospitalized	50% white 25% married 30% employed Mean age = 48 years	SUD
Lee et al. 2002 ²³	82	Unspecified	SI-PTSD ⁵⁶	EMDR > SI (d = 0.61)	71% experienced > one trauma	54% male 62.5% unemployed	SUD
Devilly and Spence 1999 ²⁸	94	Assault, accident, combat	PTSD interview (DSM-III) ⁵⁷	CBT > EMDR (d = 0.81)	Not listed	35% male 35% married Mean age = 38 (SD 13) years	Psychosis
Vaughn et al. 1994 ⁴⁶	93	Unspecified	SI-PTSD	EMDR > image habituation d = 0.73	Not listed	64% female Mean age = 32 (SD 15) years	Psychosis
Taylor et al. 2003 ²⁰	95	Multiple trauma, assault, accident, witnessed homicide or death	PTSD diagnosis	PE > EMDR d = 0.10	42% MDD 31% panic disorder 12% social anxiety disorder	75% female 42% employed 42% married 77% Caucasian Mean age = 37 (SD 10) years	Psychosis

BFT = behavioral family therapy; CAPS = Clinician Administered PTSD Scale; CBT = cognitive-behavior therapy; EMDR = eyemovement desensitization and reprocessing; MDD = major depressive disorder; PE = prolonged exposure; SI = stress inoculation; SI-PTSD = Structured Interview for PTSD; SUD = substance use disorder

* Effect sizes (Cohen's d^2) were calculated between active treatments in papers in which two active treatments were compared, otherwise they were calculated between active treatment and control treatments, with 0.2 = small effect; 0.5 = medium effect, and 0.8 = large effect

** Most common reasons patients in the VA sample would have been ineligible for the study

Table 3
Most inclusive PTSD studies by comorbidity, gender, and minority status

Status	Study/Year	% of VA patients with PTSD who appear to meet criteria
Substance Use Disorders (<i>n</i> = 38,686)		
	Keane et al. 1989 ³⁸	76
	Devilly and Spence 1999 ²⁸	87
	Vaughn et al. 1994 ⁴⁶	88
	Taylor et al. 2003 ²⁰	90
Axis I comorbidity---psychotic or bipolar (<i>n</i> = 7,749)		
	Keane et al. 1989 ³⁸	64
Axis I comorbidity---anxiety, depression, and other nonpsychotic, non-substance use disorders (<i>n</i> = 92,380)		
	Carlson et al. 1998 ³³	91
	Lee et al. 2002 ²³	97
	Devilly et al. 1998 ³⁴	97
	Taylor et al. 2003 ²⁰	97
	Vaughn et al. 1994 ⁴⁶	97
Axis II comorbidity (<i>n</i> = 9,403)		
	Keane et al. 1989 ³⁸	61
	Vaughn et al. 1994 ⁴⁶	64
	Devilly and Spence 1999 ²⁸	82
	Taylor et al. 2003 ²⁰	86
Medical comorbidity (<i>n</i> = 23,807)		
	Boudewyns et al. 1990 ⁴²	61
	Keane et al. 1989 ³⁸	64
	Renfrey and Spates, 1994 ⁴⁵	66
	Carlson et al. 1998 ³³	84
	Lee et al. 2002 ²³	88
	Devilly and Spence 1999 ²⁸	95
	Vaughn et al. 1994 ⁴⁶	95
	Taylor et al. 2003 ²⁰	96
Female (<i>n</i> = 14,647)		
	Ironson et al. 2002 ²²	78
	Lee et al. 2002 ²³	79
	Brom et al. 1989 ⁴³	79
	Foa et al. 1999 ³⁰	79
	Zlotnick et al. 1997 ³⁶	81
	Vaughn et al. 1994 ⁴⁶	85
	Resick et al. 2002 ²⁴	90
	Devilly and Spence 1999 ²⁸	91

Status	Study/Year	% of VA patients with PTSD who appear to meet criteria
Minority ($n = 42,306$)	Taylor et al. 2003 ²⁰	93
	Keane et al. 1989 ³⁸	74
	Devilly et al. 1998 ³⁴	90
	Vaughn et al. 1994 ⁴⁶	90
	Taylor et al. 2003 ²⁰	91
Over 65 ($n = 50,331$)	Ironson et al. 2002 ²²	86
	Carlson et al. 1998 ³³	93
	Lee et al. 2002 ²³	95
	Devilly and Spence 1999 ²⁸	97
	Taylor et al. 2003 ²⁰	97