

## Documented combat exposure of US veterans seeking treatment for combat-related post-traumatic stress disorder<sup>†</sup>

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**Background** There are concerns regarding the validity of combat exposure reports of veterans seeking treatment for combat-related post-traumatic stress disorder (PTSD) within US Veterans Affairs Medical Centers.

**Aims** To verify combat exposure history for a relevant sample through objective historical data.

**Method** Archival records were reviewed from the US National Military Personnel Records Center for 100 consecutive veterans reporting Vietnam combat in a Veterans Affairs PTSD clinic. Cross-sectional clinical assessment and 12-month service use data were also examined.

**Results** Although 93% had documentation of Vietnam war-zone service, only 41% of the total sample had objective evidence of combat exposure documented in their military record. There was virtually no difference between the Vietnam 'combat' and 'no combat' groups on relevant clinical variables.

**Conclusions** A significant number of treatment-seeking Veterans Affairs patients may misrepresent their combat involvement in Vietnam. There are implications for the integrity of the PTSD database and the Veterans Affairs healthcare system.

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There is extensive documentation of the prevalence, severity and correlates of post-traumatic stress disorder (PTSD) in Vietnam veterans exposed to the trauma of combat and war-zone service (Kulka *et al*, 1990). Research with Vietnam combat veterans has been used to create and refine the DSM criteria for PTSD (Shepherd, 2001), to expand our knowledge base on the disorder and to allocate fiscal resources for the US Veterans Affairs treatment and disability programmes. Unfortunately, there is growing concern that there may be distortions in the PTSD database due to exaggeration or malingering related to secondary gain incentives among veterans (McNally, 2003). Furthermore, several authors have presented limited but compelling evidence that some Veterans Affairs research participants and patients may misrepresent their actual combat exposure (Burkett & Whitley, 1998).

In our study we attempted to verify combat exposure history for a sample of individuals seeking treatment for Vietnam combat-related PTSD through objective historical data (i.e. US government military personnel files) available through the Freedom of Information Act. Historical government records have been used by others to address questions regarding the psychological consequences of war-zone experiences (Jones *et al*, 2002). Our study was conducted to determine whether there are treatment-seekers misrepresenting their Vietnam combat exposure in a Veterans Affairs specialty PTSD clinic. We also address questions about clinical symptom severity, symptom reporting style and use of Veterans Affairs services by veterans with and without documented combat exposure.

### METHOD

#### Study sample

Archival data were drawn from charts of 100 men (aged 18 years and over) claiming

to be Vietnam combat veterans, presenting to a clinical out-patient specialist programme for combat-related PTSD at a Veterans Affairs Medical Center in the south-eastern USA. Patients consecutively presented for treatment between November 1997 and November 1999. Institutional Review Board approval was obtained, with an exemption of informed consent owing to the archival nature of the study.

Sample demographic characteristics were as follows: mean age was 51.48 years (s.d.=4.29); mean completed years of education was 12.34 (s.d.=2.31); mean annual income was US\$21 430 (s.d.=\$16 770); 61% were White and 39% were African-American; 51% were unemployed and 46% were employed full-time; 70% were married, 23% were previously married but were currently divorced or widowed and 7% were single. Most participants reported serving in the Army (70%); service in the Marines (18%), Air Force (8%) and Navy (3%) was also represented. The majority (62%) reported applying or intending to apply for Veterans Affairs disability compensation.

#### Procedure and instruments

At the time of their clinical evaluation, the veterans were diagnosed according to DSM-IV criteria (American Psychiatric Association, 1994). The PTSD clinical team, consisting of a psychiatrist, a clinical psychologist and a social worker, formulated diagnoses by team consensus after a chart review, a military history interview and a structured PTSD clinical interview – the Clinician-Administered PTSD Scale (CAPS; Blake *et al*, 1995). Team members were trained in CAPS administration and scoring and routinely met to discuss coding issues.

More than nine-tenths (94%) of the sample were diagnosed with PTSD. Additional (non-mutually exclusive) Axis I diagnoses were based on non-standardised clinical interviews, and included major depressive disorder (88%), substance abuse disorder (42%), anxiety disorder other than PTSD (15%) and psychotic disorder (7%). These rates are consistent with previous comorbidity findings of veterans with combat-related PTSD. The instruments are described in detail below.

#### Clinician-Administered PTSD Scale

The CAPS (Blake *et al*, 1995) is a structured clinical interview designed to rate the

<sup>†</sup>See invited commentary, pp. 473–475, this issue

frequency and intensity of the 17 symptoms of PTSD based on DSM-IV criteria. Strong interrater reliability (0.92–0.99), high internal consistency (0.73–0.85) and high convergent validity have been reported for this measure (Weathers *et al*, 2001). The original CAPS scoring rule (item frequency  $\geq 1$  and intensity  $\geq 2$ ) was used for diagnosing PTSD. The CAPS total severity score (frequency plus intensity, summed for criteria B, C and D) was used in analyses to assess for group differences.

#### *Minnesota Multiphasic Personality Inventory*

The Minnesota Multiphasic Personality Inventory – 2 (MMPI-2; Butcher *et al*, 2001) is a 567-item true-false questionnaire which assesses psychopathology, and is one of the most widely used psychological tests. Test-retest reliability estimates range from 0.58 to 0.92 for its clinical scales. Raw scores, *k*-corrected, were used for the clinical and validity scales. Clinical scales included ‘depression’, ‘psychopathic deviate’ (measuring anger and hostility), ‘paranoia’, ‘psychoasthenia’ (measuring anxiety) and ‘schizophrenia’ (tapping cognitive and perceptual difficulties). Validity scales assessing symptom overreporting included ‘infrequency-psychopathology’ and ‘infrequency-post-traumatic stress disorder’ (Elhai *et al*, 2002).

#### *Beck Depression Inventory*

The Beck Depression Inventory (BDI; Beck *et al*, 1988) is a widely used 21-item self-report measure of depressive symptoms. It has demonstrated good reliability, yielding mean internal consistency estimates of 0.86 across studies, and has been well validated, with concurrent validity ranging from 0.55 to 0.96 (Beck *et al*, 1988).

#### *Mississippi Combat PTSD Scale*

The Mississippi Combat PTSD Scale (M-PTSD) is a 35-item, Likert format self-report measure of combat-related PTSD symptoms. In the National Vietnam Veterans Readjustment Study (Kulka *et al*, 1990) the M-PTSD served as a primary indicator and the best self-report measure of PTSD. Psychometric properties have been reported for this measure, with excellent sensitivity (0.93) and specificity (0.89), and an overall ‘hit rate’ of 0.90 in predicting PTSD diagnoses (Keane *et al*, 1988).

#### *Chart review: health service use, medications and combat exposure*

Each participant’s computerised medical chart was examined for the types of Veterans Affairs health services used within the 365 days following the initial PTSD evaluation. Information on the number of clinic visits (out-patient PTSD, primary care and specialty care clinics) and number of psychiatric medications prescribed was examined. We also examined self-reports of combat exposure as noted in the clinicians’ progress notes, focusing on reports of specific combat experiences and details that were described.

#### *Military personnel records review*

We officially requested patients’ publicly accessible military personnel records through the Freedom of Information Act. Requests were sent to the US National Personnel Records Center, Military Personnel Records, 9700 Page Avenue, St Louis, Missouri 63132-5100, USA. Details on Freedom of Information Act procedures are explained in detail on the US National Archives and Records Administration’s internet website: [http://www.archives.gov/research\\_room/foia\\_reading\\_room/foia\\_reading\\_room.html](http://www.archives.gov/research_room/foia_reading_room/foia_reading_room.html).

We received a 100% response. Most records arrived within 1–2 months, although some took as long as 8 months. In eight cases we did not initially receive a response and filed a second request. Once all responses were in, the military records were carefully reviewed to ensure that identifying data (names, social security numbers and birth dates) matched those of our sample, and all identifying data were then removed before any historical review or analyses were conducted. We have since destroyed the identifying link to further protect the veterans’ anonymity. Each record was reviewed by two independent raters, B.C.F. and B.G.B. (an Army veteran with Vietnam war-zone service and extensive professional experience of analysing military personnel records). Based on these record reviews, the sample was classified into six military/combat status categories representing a continuum of combat involvement (see Table 1). These classifications were made on the basis of available documentation indicating military service, advanced individual training, transit records, Vietnam war-zone service, military occupational specialty, duty assignments, medals and badges, and any other relevant

information included in the record such as conduct or legal problems. Interrater agreement on these classifications was 90%, and the  $\kappa$  coefficient was 0.85, which indicates a high degree of correspondence (Landis & Koch, 1977). All but one interrater discrepancy occurred between the categories of ‘unclear combat’ and ‘no combat’ status. In each instance, the most conservative classification (i.e. ‘unclear combat’) was used in subsequent reporting and analyses, to give the individual the benefit of the doubt.

## RESULTS

### **Preliminary military record findings**

Almost all of the sample (98%) had documentation of some form of military service, and 93% had objective documentation of Vietnam service during the war era. All four primary branches of the military were represented: the Army (69%), the Marine Corps (20%), the Air Force (5%) and the Navy (3%). There was no officer in the sample. The average length of service was 6.54 years (*s.d.* = 6.86). Five of the sample had documented evidence of military legal problems (e.g. Article 15, absent without leave charges), although none had received a court martial. A review of medals and badges showed that 92% of the sample had received some type of Vietnam service medal, indicating service in Vietnam during the war era: 7% had received a valorous medal (e.g. Bronze Star); 39% had received a non-valorous combat badge (e.g. Combat Infantryman’s Badge); 21% had received a Purple Heart, for combat wounds; and a combined total of 41% had received at least one type of combat medal or badge.

### **Combat classification and group differences**

Based on our classification of the sample into six military/combat status categories (Table 1), we found that 41% of the sample had served in Vietnam, with objective evidence of combat exposure (Vietnam ‘combat’ group). An additional 20% had served in Vietnam during the war era, but it was unclear whether they had combat exposure (Vietnam ‘unclear combat’ group). Veterans classified in this group generally had combat training and a military occupational specialty, but did not have documentation of the expected combat medals or badges or other indicators of combat

**Table 1** Combat exposure status classification results

Status	%
Served in Vietnam, with documented evidence of combat exposure	41
Served in Vietnam, combat exposure status unclear	20
Served in Vietnam, although no evidence of combat exposure	32
Served in the military, but unclear if served in Vietnam	2
Served in the military, but never in Vietnam	3
Never served in the military	2

exposure. Another 32% had served in Vietnam but did not appear to have been involved in combat (Vietnam 'no combat' group). Many of the veterans in this category were clerks or mechanics serving at large airbases. Two per cent had documentation of military service, but it could not be determined from the records whether they had served in Vietnam ('unknown' group). Another 3% had served in the military, but had never served in Vietnam ('no Vietnam' group). Last, 2% had no documentation of any military service ('no military' group).

We compared the military records with the medical record charts of self-reports of combat exposure in clinicians' progress notes. Results from the chart review showed that clinician descriptions of patients' combat reports varied widely. Specific examples of traumatic combat stressors were located for two-thirds of the total sample, whereas virtually no details were reported for the remaining third other than to indicate general 'Vietnam combat experiences'. For the Vietnam 'no combat' group, 22 out of 32 (69%) reported specific combat stressors such as seeing other soldiers wounded or killed in action, enemy firefight, witnessing or committing atrocities, receiving fire from rockets, mortars or snipers, and long-range reconnaissance patrols behind enemy lines. In the majority of cases in which such details were noted, a number of events were recorded, indicating that the patient had reported extensive combat experiences. Seven individuals from the Vietnam 'unclear combat' and 'no combat' groups reported being wounded in combat, although none had a Purple Heart in their military records. Two individuals reported

prisoner-of-war captivity in Vietnam, and five reported 'classified' combat activities in Vietnam, Cambodia or Laos, although none of these experiences was documented in military records and all were reported by individuals classified in the Vietnam 'no combat' group. Further, these individuals were not on an accepted registry of repatriated prisoners of war (Burkett & Whitley, 1998). Those in the Vietnam 'no combat' group were also more likely to report witnessing or committing battlefield atrocities (28%; 9/32) compared with those in the Vietnam 'combat' group (12%; 5/41).

We compared the three groups with documented Vietnam war era service ('combat',  $n=41$ ; 'unclear combat',  $n=20$ ; 'no combat',  $n=32$ ) on demographic variables (other groups were not included, owing to limited cell sizes). Groups did not statistically differ ( $P<0.05$ ; effect size  $f$  ranged from 0.09 to 0.26) on continuous variables of age, educational level or annual income, or on categorical variables (effect size  $w$  ranged from 0.07 to 0.16) of ethnic group membership, employment status, marital status or intent to seek disability compensation. Military branch reported was significantly different between groups, with an unexpectedly high number of veterans in the 'no combat' group self-reporting service in the Army. Groups did not differ (effect size  $w$  ranged from 0.07 to 0.27) on any of the diagnostic variables (PTSD, major depressive disorder, substance abuse disorder, anxiety disorder other than PTSD and psychotic disorder).

Next, we compared the three Vietnam groups on clinical and Veterans Affairs health service use variables (Table 2). Groups were compared on relevant MMPI-2 scales and on scores on the CAPS, BDI and M-PTSD. The only significant difference was found on the CAPS, with higher scores in the Vietnam 'unclear combat' group. In the comparison of indices of health service use, the three groups were not statistically different in terms of number of PTSD, primary care or specialty clinic visits or number of psychiatric medications prescribed in the year after their initial evaluation.

*Post hoc* power analysis with these variables (assuming  $\alpha=0.05$ , minimum power of 80%, using effect size  $f$  for analyses of variance and effect size  $w$  for  $\chi^2$ -tests) indicated the following. First, for demographic and diagnostic variables – aside from military branch (which had adequate power) – only one variable (education

level) reached the minimum threshold for producing a medium effect size. However, even that variable would have required a total sample size of at least 153 (nearly three times the analysed sample size) to obtain sufficient power to detect true differences (with remaining variables averaging a required sample size of 731 to detect differences). Second, for the primary clinical and service use variables (Table 2) – aside from the CAPS (which approximated adequate power) – only four variables (MMPI-2 'psychasthenia' and 'schizophrenia', M-PTSD score and primary care clinic service use) obtained at least medium effect sizes. However, these variables would have required an average of 116 total participants (nearly twice the analysed sample sizes) to obtain sufficient power to detect true differences (with remaining variables averaging a required sample of 1636). The power analyses provided further evidence that the non-significant results demonstrated a lack of true group differences.

## DISCUSSION

Archival review of the publicly available military personnel records of 100 men seeking Veterans Affairs specialty care for combat-related PTSD revealed that the vast majority (93%) had clear documentation of military service in Vietnam during the war era. However, only 41% had specific documentation of combat exposure while serving in Vietnam, and 32% served in Vietnam but did not serve in a combat role and had no documentation of combat exposure. A small, but potentially significant, percentage of these treatment-seekers (5%) appear to have made false claims of Vietnam service or military service altogether. In combination, these results suggest that a meaningful number of people may be exaggerating or misrepresenting their involvement in Vietnam, raising concerns regarding the integrity of the PTSD database with studies that include veteran samples; that is, an accurate diagnosis of PTSD is dependent on a valid index trauma (DSM-IV criterion A for PTSD; American Psychiatric Association, 1994). The discrepancies between self-reports and documented evidence of traumatic combat exposure raise questions about the validity of studies using veteran samples that have not sought objective confirmation of combat exposure, and highlight the difficulty of conducting

**Table 2** Comparison of the Vietnam service groups on clinical measures and Veterans Affairs health service use

	Combat		Unclear combat		No combat		F	d.f.	f <sup>2</sup>
	Mean	(s.d.)	Mean	(s.d.)	Mean	(s.d.)			
<b>Clinical measures</b>									
MMPI-2 score <sup>2</sup>									
Depression	34.31	(6.87)	36.18	(6.42)	34.16	(6.83)	0.52	2,65	0.14
Psychopathic deviate	31.83	(5.57)	34.07	(6.77)	32.79	(3.52)	0.39	2,65	0.14
Paranoia	18.59	(6.14)	20.41	(4.86)	18.16	(3.76)	0.94	2,65	0.18
Psychasthenia	40.97	(7.66)	44.88	(7.11)	40.74	(5.33)	2.12	2,65	0.36
Schizophrenia	49.88	(12.25)	55.35	(10.20)	49.63	(8.11)	1.72	2,65	0.37
Infrequency – PTSD	3.97	(3.61)	3.88	(2.69)	3.21	(2.20)	0.39	2,65	0.03
F–K index	9.06	(11.97)	12.47	(7.87)	8.21	(9.33)	0.86	2,65	0.18
CAPS score <sup>3</sup>	76.10	(22.65)	93.64	(13.57)	79.00	(15.22)	3.41	2,55*	0.38
BDI score <sup>4</sup>	26.10	(12.43)	31.19	(8.39)	25.53	(9.37)	1.50	2,63	0.24
M–PTSD score <sup>5</sup>	120.14	(23.52)	128.00	(15.58)	115.32	(19.70)	1.72	2,62	0.25
<b>Health service use variables<sup>6</sup></b>									
Number of clinic visits									
PTSD clinic	12.41	(13.25)	8.71	(11.38)	12.12	(11.44)	0.46	2,57	0.14
Primary care	1.62	(2.13)	6.29	(15.12)	2.71	(4.09)	1.76	2,57	0.26
Specialty care	3.31	(3.57)	3.79	(3.17)	3.06	(3.58)	0.17	2,57	0.09
Number of medications	2.72	(2.14)	2.43	(1.60)	2.35	(1.32)	0.26	2,57	0.09

BDI, Beck Depression Inventory; CAPS, Clinician-Administered PTSD Scale; F–K index, malingering index (higher scores suggest malingering or exaggerating); MMPI-2, Minnesota Multiphasic Personality Inventory – 2; M–PTSD, Mississippi Combat PTSD Scale; PTSD, post-traumatic stress disorder.

\* $P < 0.05$ .

1. Effect size for analysis of variance (0.10 small, 0.25 medium, 0.40 large).

2. Owing to missing or invalid responses, sample sizes are 32, 17 and 19, respectively; 5 'combat', 3 'unclear combat' and 5 'no combat' Vietnam veterans were excluded because they did not complete the MMPI-2. Additionally, veterans were excluded from subsequent analyses if their MMPI-2 profiles met at least one of the following criteria: True Response Inconsistency scale  $T$  scores  $\geq 100$  (suggesting a mostly random response trend) or Cannot Say raw scores  $\geq 15$  (suggesting a significant number of missing responses); these criteria resulted in the exclusion of an additional 4 'combat' and 8 'no combat' Vietnam veterans.

3. Owing to missing data, CAPS sample sizes are 29, 11 and 18, respectively; 'combat' and 'unclear combat' group scores are significantly different.

4. Owing to missing data, BDI sample sizes are 31, 16 and 19, respectively.

5. Owing to missing data, M–PTSD sample sizes are 29, 17 and 19, respectively.

6. Sample sizes are 29, 14 and 17, respectively.

accurate assessments and implementing effective treatment practices within the Veterans Affairs healthcare system.

Results further indicate that veterans presented in a similar manner for treatment services regardless of combat exposure classification. Virtually no between-group difference was found on demographic, clinical or Veterans Affairs service use variables, suggesting that those in the Vietnam 'unclear combat' or 'no combat' groups were no different with regard to reported symptom severity or use of Veterans Affairs healthcare services from the 'combat' group. Concerns that exaggerated or false reports of combat exposure are at least in part associated with financial incentives are supported by our findings that the 'no combat' group appeared to be applying or intending to apply for disability benefits at the same rate as the 'combat' group. That is, all groups were seeking benefits, including veterans whose military records did not support their reports of combat exposure.

### Concerns about the PTSD database

Although disconcerting, results from our study can be used to clarify other troubling findings in the PTSD research literature regarding the assessment and treatment of veterans, including the following:

- the extreme symptom reporting patterns found across PTSD studies using veteran samples, which are characterised by diffuse elevations across psychiatric domains and validity scale elevations suggestive of malingering or symptom overreporting (Frueh *et al*, 2000);
- the finding that symptom overreporting patterns are associated with PTSD disability compensation-seeking (Frueh *et al*, 2003);
- the general lack of treatment efficacy for combat-related PTSD, which stands in contrast to the relative success of treatment studies with

non-combat-related PTSD (Charney *et al*, 1998);

- the finding that self-reports of combat histories are subject to change over time (Southwick *et al*, 1997; Wessely *et al*, 2003).

### The disability benefit incentive

The financial incentive to present as psychiatrically disabled with PTSD within the US Veterans Affairs healthcare system is significant. Veterans may obtain monetary compensation if they are rated as 'service-connected' for PTSD. A veteran with a 100% service-related disability rating for PTSD receives approximately US\$36 000 per year (tax-free) in total Federal benefits (Oboler, 2000). Furthermore, 69–94% of veterans seeking treatment within Veterans Affairs specialty PTSD clinics apply for psychiatric disability (Frueh *et al*, 2003). Evidence from the Veterans Affairs system indicates that PTSD disability claims

among veterans reporting combat exposure have risen dramatically since 1985 (Murdoch *et al*, 2003), representing the largest number of claims for any psychiatric condition (Oboler, 2000). Such financial compensation may provide incentive for some to falsely report combat exposure and/or overreport psychiatric symptoms. Placing our findings within this context, it seems likely that secondary gain incentives may be clouding clinical results and research findings obtained with veterans. This amplifies the recommendation by Charney *et al* (1998) that perhaps disability-seeking veterans should be excluded from clinical trials and other phenomenological and epidemiological research.

### Study limitations

All the individuals investigated in our study were drawn from one Veterans Affairs Medical Center PTSD clinic. Thus, the generalisability of these results is unknown and there is a need for multisite replication studies. Moreover, the data were drawn from a relatively small sample ( $n=100$ ), which also affects generalisability and power. However, this concern is muted because our power analyses provided evidence that the non-significant results demonstrate a lack of meaningful group differences. Another concern is that military personnel files are not necessarily error-proof, and some veterans might have been misclassified.

It is possible that some of the 'no combat' veterans in our study experienced isolated, undocumented combat-related trauma, such as receiving incoming mortar fire while stationed at a large airbase. Furthermore, it is likely that many of the veterans in our 'no combat' group experienced acute stress and fear in an unpredictable war-zone environment. Nevertheless, such experiences are quite different from the descriptions of direct and heavy combat exposure, such as infantry 'search and destroy' missions and multiple firefights, typically reported by veterans seeking Veterans Affairs care for PTSD and specifically documented in the medical records of two-thirds of our sample. In fact, many in the 'no combat' group reported one or more of the following dramatic experiences: witnessing or committing battlefield atrocities, being wounded in combat, 'classified' combat activities or being a prisoner of war. Thus, it is evident that a considerable percentage of those seeking

### CLINICAL IMPLICATIONS

- People attending Veterans Affairs clinics may be misrepresenting the extent of their combat involvement in Vietnam.
- Careful evaluation procedures should routinely be used to verify combat exposure reports, especially among those seeking disability benefits.
- These results should not be interpreted to deny that many combat veterans suffer from severe and debilitating post-traumatic stress disorder.

### LIMITATIONS

- The study sample was drawn from a single specialty clinic and the results may not be more widely generalisable.
- The sample was relatively small, which also affects generalisability and power. However, power analyses provided evidence that the non-significant results demonstrate a lack of meaningful group differences.
- Errors in military personnel files might have led to misclassification in some cases.

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treatment and disability for 'combat-related' PTSD do not have documented exposure to the specific combat experiences that they report to clinicians. It is improbable that US military records would be so inaccurate as to offer no reflection of these experiences for such a considerable percentage of our sample. Future research might benefit from a comparison of individuals' specific self-reports of combat experiences, using a standardised measure such as the Combat Exposure Scale (Keane *et al*, 1989), and objective military records, including research on unit records and casualty reports.

However, these findings must be kept in perspective. Certainly, these results should not be interpreted to deny that many combat veterans do suffer from severe and debilitating symptoms of PTSD. A balanced

perspective must acknowledge that, although this study focuses on the possibility of false positives, there are strong data to suggest that false negatives are also a significant problem within and outside the Veterans Affairs system.

### Implications of the study

It appears that a number of veterans in our sample were misrepresenting the extent of their combat involvement in Vietnam. This complicates accurate clinical assessment and appropriate treatment. Clinicians, disability raters and investigators should consider these findings when evaluating how best to meet the needs of veterans within the US Veterans Affairs system at both the individual and the systemic level. Careful evaluation procedures should routinely be

used to verify combat exposure reports among veterans seeking treatment and disability benefits. Ultimately it is hoped that the Department of Veterans Affairs will take steps to ensure that its scarce resources are directed towards people who are both deserving and in need. Such efforts are essential to guard the legacy of actual combat veterans from being trivialised.

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