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Probable Posttraumatic Stress Disorder in the US Veteran Population According to *DSM-5*: Results From the National Health and Resilience in Veterans Study

Blair E. Wisco, PhD[a,*]; Brian P. Marx, PhD[b]; Mark W. Miller, PhD[b]; Erika J. Wolf, PhD[b]; Natalie P. Mota, PhD[c]; John H. Krystal, MD[c]; Steven M. Southwick, MD[c]; and Robert H. Pietrzak, PhD, MPH[c]

ABSTRACT

Objective: With the publication of *DSM-5*, important changes were made to the diagnostic criteria for posttraumatic stress disorder (PTSD), including the addition of 3 new symptoms. Some have argued that these changes will further increase the already high rates of comorbidity between PTSD and other psychiatric disorders. This study examined the prevalence of *DSM-5* PTSD, conditional probability of PTSD given certain trauma exposures, endorsement of specific PTSD symptoms, and psychiatric comorbidities in the US veteran population.

Methods: Data were analyzed from the National Health and Resilience in Veterans Study (NHRVS), a Web-based survey of a cross-sectional, nationally representative, population-based sample of 1,484 US veterans, which was fielded from September through October 2013. Probable PTSD was assessed using the PTSD Checklist-5.

Results: The weighted lifetime and past-month prevalence of probable *DSM-5* PTSD was 8.1% (SE = 0.7%) and 4.7% (SE = 0.6%), respectively. Conditional probability of lifetime probable PTSD ranged from 10.1% (sudden death of close family member or friend) to 28.0% (childhood sexual abuse). The *DSM-5* PTSD symptoms with the lowest prevalence among veterans with probable PTSD were trauma-related amnesia and reckless and self-destructive behavior. Probable PTSD was associated with increased odds of mood and anxiety disorders (OR = 7.6–62.8, $P < .001$), substance use disorders (OR = 3.9–4.5, $P < .001$), and suicidal behaviors (OR = 6.7–15.1, $P < .001$).

Conclusions: In US veterans, the prevalence of *DSM-5* probable PTSD, conditional probability of probable PTSD, and odds of psychiatric comorbidity were similar to prior findings with *DSM-IV*–based measures; we found no evidence that changes in *DSM-5* increase psychiatric comorbidity. Results underscore the high rates of exposure to both military and nonmilitary trauma and the high public health burden of *DSM-5* PTSD and comorbid conditions in veterans.

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[a]Department of Psychology, University of North Carolina at Greensboro

[b]National Center for PTSD, VA Boston Healthcare System and Department of Psychiatry, Boston University School of Medicine, Massachusetts

[c]National Center for PTSD, VA Connecticut Healthcare System, and Department of Psychiatry, Yale University School of Medicine, New Haven, Connecticut

**Corresponding author:* Blair E. Wisco, PhD, University of North Carolina at Greensboro, Department of Psychology, PO Box 26170, Greensboro, NC 27402 (bewisco@uncg.edu).

Posttraumatic stress disorder (PTSD) is a debilitating condition that represents a significant public health burden worldwide.[1,2] US veterans represent a population at heightened risk for PTSD resulting from military-related combat and other trauma exposures.[3] Estimates of the prevalence of PTSD among US veterans have ranged widely (5%–32%),[4–7] partly due to the recruitment of samples (eg, Vietnam-era veterans or veterans deployed to Iraq or Afghanistan) who are not representative of the entire current US veteran population. In a recent survey of a nationally representative US veteran sample,[3] we found that 8.0% screened positive for lifetime PTSD using the recommended cutoff point of 50 on the PTSD Checklist (PCL),[8,9] a self-report measure based on the *Diagnostic and Statistical Manual of Mental Disorders*, Fourth Edition, Text Revision (*DSM-IV-TR*).[10]

With the recent publication of the fifth edition of the *DSM* (*DSM-5*),[11] several important changes were made to the PTSD diagnosis. Among other revisions, 3 new symptoms—persistent and exaggerated negative beliefs about oneself, others, or the world; persistent distorted cognitions about the cause or consequences of the trauma; and reckless or self-destructive behavior—were added to the diagnostic criteria, increasing the total number of PTSD symptoms from 17 to 20. Significant wording changes were also made to several symptoms carried over from *DSM-IV-TR*. Finally, the diagnostic criteria were divided into 4, instead of 3, symptom clusters—intrusions, avoidance, negative alterations in cognitions and mood, and alterations in arousal and reactivity.

Although some recent studies suggest that estimates of the prevalence of PTSD may be similar when using *DSM-5*– and *DSM-IV-TR*–based instruments,[12–14] these studies have been conducted only in select cohorts of military personnel or veterans (ie, a single brigade of active-duty US infantry soldiers, Iraq and Afghanistan veterans, or veterans seeking Veterans Health Administration health care services). Thus, these findings may not be representative of the entire US veteran population, which comprises predominantly older white Vietnam-era veterans.[3] Additionally, prior head-to-head comparisons of *DSM-IV-TR* and *DSM-5* PTSD instruments indicate that there can be discordance in who receives a PTSD diagnosis.[13–17] This discordance raises concerns about the comparability of *DSM-IV-TR*– and *DSM-5*–based prevalence estimates of PTSD. Thus, to inform public policy and health care planning, it is important to establish the current prevalence of *DSM-5*–based PTSD in a contemporary, nationally representative sample of US veterans.

The *DSM-5* criteria for PTSD have been criticized for including a relatively large number of symptoms compared with other

Clinical Points

- *DSM-5* introduced important changes to diagnostic criteria for posttraumatic stress disorder (PTSD); the effects of these changes on the epidemiology of PTSD among US veterans are unknown.
- Prevalence of PTSD and comorbidities in veterans is similar across *DSM-IV* and *DSM-5* PTSD.
- Results underscore the importance of assessing for suicidality and common comorbidities (mood, anxiety, and substance use disorders) in veterans with *DSM-5* PTSD.

disorders in *DSM-5*, which may increase the heterogeneity of the PTSD diagnosis.[18] Some have also questioned the necessity of adding 3 new PTSD symptoms in *DSM-5* and/or suggested that some of the *DSM-IV-TR* symptoms should not have been retained.[18,19] For example, recent data suggest that the symptoms of trauma-related amnesia (retained from *DSM-IV-TR*) and reckless and self-destructive behavior (new to *DSM-5*) are relatively infrequently endorsed and do not load as strongly as other symptoms on their respective factors that underlie *DSM-5* symptom clusters.[14,15,20] To date, however, no population-based study of which we are aware has evaluated the frequency of endorsement of individual *DSM-5* symptoms among individuals with and without probable PTSD (probable PTSD refers to screening positive for PTSD on a self-report measure, instead of being diagnosed with PTSD using a clinician-administered interview). Finally, some have also argued that the changes in *DSM-5* will further increase already high rates of psychiatric comorbidities among individuals diagnosed with PTSD.[21,22] Therefore, there is a need for data on psychiatric comorbidity of *DSM-5*–based probable PTSD, which can be compared with prior estimates using *DSM-IV-TR*–based instruments.

To address the aforementioned gaps in the literature, we had 4 objectives in the current study: (1) to evaluate the prevalence of *DSM-5* probable PTSD in US veterans; (2) to examine patterns of individual *DSM-5* PTSD symptom endorsement among individuals with and without probable PTSD; (3) to assess the conditional probability of probable PTSD given exposure to different types of trauma; and (4) to assess rates of psychiatric comorbidity among veterans with probable PTSD. To ensure generalizability to the entire US veteran population, we examined these questions in a large, contemporary, and nationally representative sample of veterans.

METHODS

Participants and Procedure

We analyzed data from the second baseline cohort of the National Health and Resilience in Veterans Study (NHRVS), which surveyed a nationally representative sample of 1,484 US veterans (a separate baseline cohort of 3,157 veterans is being followed over time, with data collection commencing in 2011).[3] This NHRVS cohort was recruited in September and October 2013 from a research panel of US households developed and maintained by GfK Knowledge Networks, Inc (Menlo Park, California). Data from the first baseline cohort of the NHRVS,[3] collected from October to December 2011, were not analyzed in this study. Panel members were recruited using a sampling procedure that includes listed and unlisted phone numbers; telephone, non-telephone, and cell-phone–only households; and households with or without Internet access, offering coverage of approximately 98% of US households. Post-stratification weights were applied based on demographic distributions (gender, age, race/ethnicity, education, census region, and metropolitan area) of US veterans in the GfK Knowledge Networks survey panel,[23] a probability-based sample of the entire US population weighted based on US Census Data (2013 Current Population Survey).[24] Table 1 compares demographic characteristics of veterans in our sample with US Census data for veterans (2013 American Community Survey). Of the 1,602 veterans who were in the survey panel at the time the second NHRVS cohort was recruited, 1,484 (92.6%) participated in the NHRVS and completed a confidential, 60-minute Web-based survey. All participants provided informed consent, and the Human Subjects Subcommittee of the Veterans Affairs (VA) Connecticut Healthcare System and VA Office of Research & Development approved the study.

Table 1. Sample Characteristics in Comparison With Contemporaneous US Census Data for US Veterans

Variable	NHRVS, Unweighted %	NHRVS, Weighted %	Veterans in 2013 ACS, %[a]
Sex, male	89.4	89.7	92.1
Age[b]			
18–34 y	5.9	7.1	8.3
35–54 y	19.7	25.5	24.1
55–64 y	20.6	19.9	20.3
65–74 y	32.9	29.5	24.1
≥ 75 y	20.8	17.9	23.2
Race/ethnicity			
White, non-Hispanic	81.1	75.4	79.3
Hispanic	6.7	9.1	6.0
Education			
Less than high school	1.8	3.7	7.3
High school graduate	14.2	29.4	29.1
Associate's/some college	42.4	36.8	36.8
Bachelor's degree	41.6	30.1	26.8

[a]Only the race/ethnicity categories that are directly comparable to the ACS categories are presented here. ACS data were downloaded from http://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_10_1YR_S2101&prodType=table.
[b]Mean (SD) age: NHRVS unweighted: 62.8 (14.7) years, NHRVS weighted: 60.4 (15.3) years. Data for mean (SD) age in the ACS sample were not available.
Abbreviations: ACS = American Community Survey, NHRVS = National Health and Resilience in Veterans Survey.

Assessments

Demographic characteristics. A demographic questionnaire assessed age, gender, race/ethnicity, annual household income, and current marital and employment status.

Lifetime trauma exposure. The Trauma History Screen (THS) is a self-report measure that assesses the occurrence of 13 traumatic events.[25] Traumas across the lifespan such as physical or sexual assault during childhood or adulthood,

traumatic events during military service, accidents, and unexpected loss of a loved one were assessed. An additional potentially traumatic event—life-threatening illness or injury—was added in the NHRVS.

Combat exposure. A single item, "Did you ever serve in a combat or war zone? (Yes or No)" was used to classify veterans as combat or non-combat veterans. Because combat veterans do not necessarily experience traumatic events, combat veterans were classified as having "traumatic combat exposure" if they also endorsed the THS item "During military service—saw something horrible or was badly scared." All combat veterans also completed the Combat Exposure Scale (CES),[26] which was used to classify levels of combat exposure from "light" to "heavy" using standard cutoff points.

DSM-5 *PTSD symptoms.* The PTSD Checklist-5 (PCL-5) is a 20-item self-report questionnaire that assesses *DSM-5* PTSD symptoms experienced in the past month.[27] In the NHRVS, the PCL-5 was modified to include both lifetime and past-month ratings and participants were instructed to complete the PCL-5 in relation to their self-nominated "worst" stressful experience identified on the THS. Participants who endorsed no history of trauma on the THS were not administered the PCL-5 but were classified as having no probable lifetime or past month PTSD. Participants rated how much they have been bothered by each of the 20 symptoms ever in their lifetime (probable lifetime PTSD) and in the past month (probable past-month PTSD) on a scale from 0 (Not at all) to 4 (Extremely). The PCL-5 demonstrated excellent internal consistency (Cronbach = .95 for lifetime and past-month). Lifetime PCL-5 scores were missing for 28 (1.9%) participants and past-month scores were missing for 140 (9.4%); these participants were excluded from lifetime and past month analyses, respectively. Participants were classified as having probable PTSD if their PCL-5 score was ≥38. Prior research has indicated that a cutoff point of 38 on the PCL-5 corresponds most closely to a cutoff point of 50 on the *DSM-IV* version of the PCL, which has previously been recommended for population-based estimates of the prevalence of PTSD.[9]

Psychiatric comorbidities. Modules from the Mini-International Neuropsychiatric Interview (MINI; *DSM-IV/ICD-10* version)[28] were used to assess lifetime history of depression, social phobia, alcohol abuse/dependence, and drug abuse/dependence. The Fagerström Test for Nicotine Dependence[29] was used to assess nicotine dependence. The Patient Health Questionnaire-4 (PHQ-4)[30] was used to assess current depression and generalized anxiety symptoms. Current suicidal ideation was assessed using question 9 from the PHQ-9,[31] and lifetime suicide attempt was assessed using the yes/no question, "Have you ever tried to kill yourself?"

Table 2. Prevalence of Probable *DSM-5* PTSD in the Full Sample and Age- and Sex-Based Subsamples of US Veterans[a]

	Raw Frequency		Entire Sample (n = 1,484)				Trauma-Exposed (n = 1,268)[b]			
			Any PTSD		Past-Month PTSD		Any PTSD		Past-Month PTSD	
Variable	Any PTSD, n	Past-Month PTSD, n	%[c]	SE	%[c]	SE	%[c]	SE	%[c]	SE
Overall	101	51	8.06	0.71	4.70	0.58	9.47	0.83	5.60	0.69
Sex										
Female	27	7	14.76	2.89	4.42	1.72	17.46	3.37	5.28	2.04
Male	74	44	7.28	0.72	4.73	0.62	8.54	0.84	5.64	0.73
Age[d]										
18–29 y	13	8	28.38	6.06	21.60	5.57	32.93	6.82	25.10	6.33
30–44 y	16	8	12.29	2.36	6.70	1.82	14.91	2.82	8.17	2.20
45–59 y	34	17	11.45	1.65	6.09	1.28	13.70	1.94	7.40	1.55
≥60 y	38	18	4.15	0.69	2.26	0.55	4.79	0.80	2.66	0.64

[a]Probable PTSD was operationalized as score of 38 or higher on the PCL-5. Any PTSD referred to any lifetime PTSD; past-month PTSD refers to PTSD within the past month. Lifetime PCL-5 scores were missing for 28 (1.9%) participants, and past-month PCL-5 scores were missing for 140 (9.4%). Raw frequencies are reported; percentages and standard errors of percentages were calculated using post-stratification weights to permit generalizability to the US Veteran population.

[b]Trauma exposure was defined as endorsement of any traumatic event on the THS. Because the THS includes events that may not clearly map onto *DSM-5* Criterion A, we ran additional analyses excluding participants who endorsed "sudden death of a close family member or friend," "suddenly abandoned by spouse, partner, parent, or family," or "sudden move or loss of home and possessions" as their worst traumatic experience. This resulted in a trauma-exposed sample of 764 participants; lifetime PCL-5 scores were missing for 15 participants (2.0%); past-month PCL-5 scores were missing for 76 (9.9%). With the stricter definition of trauma exposure, weighted lifetime probable PTSD prevalence was 11.92% (SE = 1.19); weighted past-month probable PTSD prevalence was 7.27% (SE = 1.00).

[c]Weighted percentage.

[d]We chose to report data using the same age distributions as those reported by Wisco and colleagues (2014)[3] to facilitate comparison across the 2 studies. These distributions differ from the ones reported in Table 1, which were chosen to correspond to the 2013 American Community Survey.

Abbreviations: *DSM-5* = *Diagnostic and Statistical Manual of Mental Disorders*, Fifth Edition; PCL-5 = PTSD Checklist-5; PTSD = posttraumatic stress disorder, THS = Trauma History Screen.

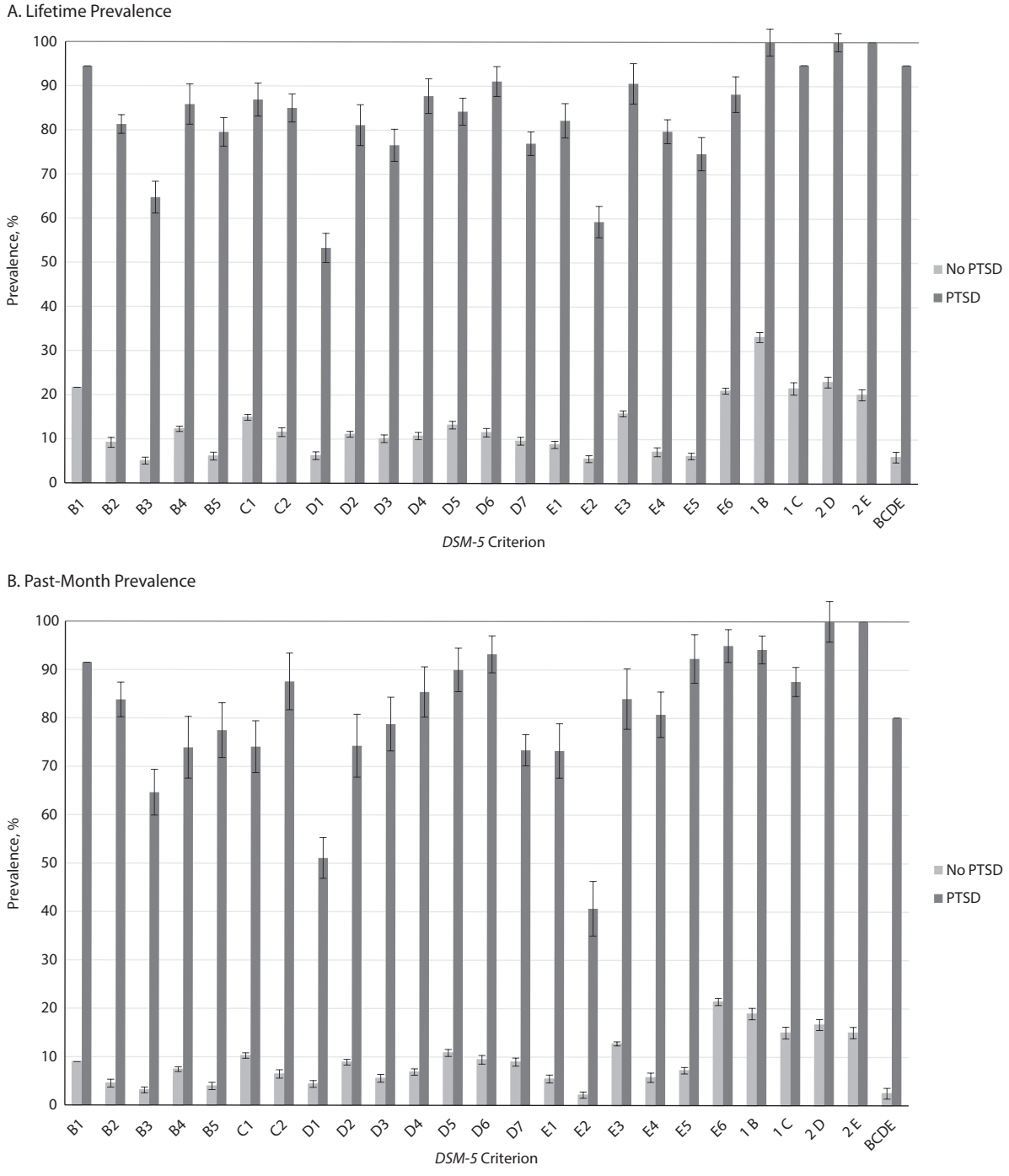
Data Analysis

Data analyses proceeded in 4 steps. First, we computed the weighted prevalence of probable lifetime and past-month *DSM-5* PTSD in the overall sample and in the trauma-exposed sample stratified by sex and age. Second, we computed item-level descriptive statistics and the lifetime and current prevalence of each *DSM-5* PTSD symptom individually (defined as being bothered "moderately" or greater). Third, we examined endorsement of exposure to different trauma types on the THS and the conditional probability of probable PTSD given exposure to different trauma types. Fourth, we conducted χ^2 analyses to examine psychiatric comorbidities associated with probable PTSD. All raw frequencies reported are unweighted; all means, percentages, and inferential statistics are weighted to reflect the general population of US veterans.

RESULTS

The weighted prevalence of probable lifetime and past-month *DSM-5* PTSD was 8.1% (SE = 0.7%) and 4.7% (SE = 0.6%; see Table 2), respectively. Table 2 lists the prevalence of probable PTSD in sex- and age-based subsamples. Probable lifetime PTSD was more common among female than male veterans ($\chi^2_1 = 9.71$, $P = .002$; n = 1,455) and among younger veterans relative to veterans

Figure 1. (A) Lifetime and (B) Past-Month Prevalence of Individual *DSM-5* Symptoms[a]



[a]The PCL-5 was used to assess endorsement of DSM-5 symptoms and was administered only to participants who reported exposure to at least 1 potentially traumatic event in their lifetimes. Participants with no lifetime history of trauma exposure were coded as not endorsing the symptom. Individual symptoms are labeled in accordance with DSM-5 diagnostic criteria (B1 through E6). B1 = Intrusive Thoughts, B2 = Nightmares, B3 = Flashbacks, B4 = Emotional cue reactivity, B5 = Physiological cue reactivity, C1 = Avoidance of Thoughts, C2 = Avoidance of Reminders, D1 = Trauma-related amnesia, D2 = Negative Beliefs, D3 = Self- and other-blame, D4 = Negative trauma-related emotions, D5 = Loss of interest, D6 = Detachment, D7 = Restricted affect, E1 = Irritability/anger, E2 = Self-destructive/reckless behavior, E3 = Hypervigilance, E4 = Exaggerated startle, E5 = Difficulty concentrating, E6 = Sleep disturbance. Endorsement of a symptom was defined as rating the item as "2" ("moderately") or higher. The percentage of veterans who endorsed at least 1 B, 1 C, 2 D, and 2 E symptoms are provided, as well as the percentage of participants who met all B, C, D, and E criteria ("BCDE"). Lifetime PCL-5 scores were missing for 28 participants (1.9%), and past month PCL-5 scores were missing for 140 (9.4%); these participants were excluded from lifetime and past month PTSD analyses, respectively. Percentages were calculated using post-stratification weights to permit generalizability to the US veteran population.

Abbreviations: *DSM-5* = *Diagnostic and Statistical Manual of Mental Disorders*, Fifth Edition; PCL-5 = PTSD Checklist-5; PTSD = posttraumatic stress disorder.

Table 3. Trauma Exposure and Conditional Probability of Probable Lifetime PTSD

Trauma Type[a]	Raw Frequency, n (weighted %)[b]		Weighted %	
	Any Exposure	Endorsed as "Worst Trauma"	Probability of Lifetime PTSD, Conditional on any Exposure[c]	Probability of Past-Month PTSD, Conditional on any Exposure[b]
Sudden death of close family member or friend	885 (61.9)	388 (31.2)	10.1	6.6
Seeing someone die suddenly or get badly hurt or killed	548 (39.0)	82 (6.5)	15.3	9.3
A hurricane, flood, earthquake, tornado, or fire	504 (34.2)	87 (6.2)	13.1	7.8
During military service saw something horrible or was badly scared	434 (31.2)	98 (8.3)	18.8	11.1
Life-threatening illness or injury	419 (28.5)	197 (14.4)	10.3	5.1
A really bad car, boat, train, or airplane accident	329 (24.5)	81 (6.2)	15.9	10.3
Attacked with a gun, knife, or other weapon	317 (24.0)	35 (3.5)	18.0	9.3
Suddenly abandoned by spouse, partner, parent, or family	269 (21.5)	87 (6.6)	20.7	10.5
Sudden move or loss of home and possessions	253 (20.2)	29 (2.1)	26.1	14.7
Hit or kicked hard enough to injure—as an adult	224 (17.3)	13 (0.8)	16.6	7.0
Hit or kicked hard enough to injure—as a child	218 (16.4)	14 (0.9)	20.3	8.3
A really bad accident at work or home	162 (12.1)	26 (2.1)	17.9	12.3
Some other sudden event that made you feel very scared, helpless, or horrified	163 (11.9)	77 (6.0)	22.1	15.8
Forced or made to have sexual contact—as a child	103 (8.9)	36 (3.6)	28.0	11.2
Forced or made to have sexual contact—as an adult	62 (4.1)	11 (1.1)	26.8	9.3
Any combat exposure	554 (38.2)	…	13.3	8.1
Traumatic combat exposure[d]	266 (19.6)	…	23.1	14.1
Severity of combat exposure[e]				
Light	294 (19.4)	…	10.6	5.4
Light-to-moderate/moderate	171 (12.4)	…	16.0	12.7
Moderate-to-heavy/heavy	82 (5.8)	…	17.9	7.9

[a]All trauma types except any combat exposure were assessed with the THS; any combat exposure was assessed with a single item screen and was not included in the list of possible traumas that could be endorsed as the "worst trauma" experienced.
[b]Raw frequencies are unweighted. Percentages were calculated using post-stratification weights to permit generalizability to the US veteran population.
[c]Conditional probabilities of PTSD were calculated based on any exposure to that trauma type. Probable PTSD was defined as a score of 38 or higher on the PTSD Checklist-5.
[d]Traumatic combat exposure was defined as answering yes to both any combat exposure and the THS item "During military service saw something horrible or was badly scared."
[e]Severity of combat exposure was determined by participants' total score on the CES; only participants who endorsed any combat exposure were administered the CES.
Abbreviations: CES = combat exposure scale, PTSD = posttraumatic stress disorder, THS = trauma history screen.
Symbol: … = not applicable.

aged 60 years or older (ages 18–29 years: OR = 9.2, 95% CI = 4.7–18.0; ages 30–44 years: OR = 3.2, 95% CI = 1.9–5.6; ages 45–59 years: OR = 3.0, 95% CI = 1.9–4.8). Probable past-month PTSD did not differ by gender, ($\chi^2_1 < 1$, *NS*; n = 1,335) but was more common among younger veterans relative to veterans aged 60 years or older (OR range: 2.81–11.93, $P < .01$).

Figure 1 shows lifetime and past-month prevalence of each *DSM-5* PTSD symptom separately. Among veterans with probable lifetime or past-month PTSD, the most frequently endorsed symptoms were recurrent distressing memories of the trauma and feelings of detachment or estrangement (> 90% for both lifetime and past month). The least frequently endorsed PTSD symptoms were reckless or self-destructive behavior and trauma memory disturbance (40.7%–59.3% for lifetime and past month). We also computed corrected item-total correlations for the PCL-5, which ranged from $r = 0.49$ to $r = 0.79$ for lifetime symptoms and from $r = 0.46$ to $r = 0.78$ for past-month symptoms. The only symptoms with corrected item-total correlations less than $r = 0.60$ were lifetime trauma memory disturbance, past-month trauma memory disturbance, and past-month reckless and self-destructive behavior. The lifetime and past-month prevalence of the other 2 new PTSD symptoms in *DSM-5*—persistent and exaggerated negative beliefs and persistent distorted cognitions—ranged from 74.3% to 81.2%, and corrected item-total correlations for these symptoms ranged from $r = 0.64$ to $r = 0.74$.

A total of 85.4% of veterans reported a history of at least 1 traumatic event assessed by the THS and reported exposure to a mean (SD) of 3.31 (2.80) different traumatic event types in their lifetimes. As shown in Table 3, only 38.2% of veterans reported that they were exposed to combat, indicating that the majority of trauma-exposed veterans experienced traumas other than military combat. The most frequently endorsed trauma was the sudden death of a close family member or friend (61.9%). This item was also most commonly endorsed as the "worst trauma" that participants had experienced (31.2%), but conditional probability of probable PTSD given exposure to sudden death was relatively low (10.1%). In comparison, sexual abuse in childhood or adulthood was associated with particularly high conditional probability of probable lifetime PTSD (28.0% and 26.8%, respectively), with more modest estimates for probable past-month PTSD (11.2% and 9.3%, respectively; past-month estimates ranged from 5.1% to 15.8% across traumatic event types).

As shown in Table 4, probable PTSD was associated with increased odds of every comorbid psychiatric disorder

Table 4. Psychiatric Comorbidities and Suicidal Behaviors Associated With *DSM-5* PTSD in US Veterans[a]

Variable	Raw Frequency, n (weighted %) No Lifetime PTSD (n = 1,355)	Lifetime PTSD (n = 101)	χ^2	*P*	OR	95% CI
Lifetime major depressive disorder	90 (7.55)	42 (44.44)	155.65	<.001	7.64	4.92–11.88
Lifetime social anxiety disorder	19 (1.12)	17 (21.37)	164.96	<.001	15.47	7.48–32.02
Lifetime alcohol abuse/dependence	465 (35.10)	67 (69.23)	53.28	<.001	4.19	2.73–6.45
Lifetime drug abuse/dependence	158 (12.93)	35 (35.90)	45.07	<.001	3.88	2.50–6.02
Lifetime nicotine dependence	201 (16.82)	32 (41.03)	41.37	<.001	4.46	2.89–6.90
Lifetime suicide attempt	47 (4.50)	31 (32.76)	135.13	<.001	6.72	4.07–11.09
	No Past-Month PTSD[b] (n = 1,293)	Past-Month PTSD[b] (n = 51)				
Current major depression	56 (4.79)	33 (57.14)	244.33	<.001	26.51	14.05–50.02
Current generalized anxiety	58 (3.77)	39 (73.02)	440.05	<.001	62.80	31.44–125.45
Current suicidal ideation	77 (6.83)	28 (52.38)	152.33	<.001	15.07	8.24–27.55

[a]Percentages, χ^2 statistics, and odds ratios were calculated using post-stratification weights to permit generalizability to the US veteran population. Probable PTSD was defined as a score of 38 or higher on the PTSD Checklist-5. Odds ratios were calculated in separate models for each comorbidity and adjusted for the following sociodemographic and military variables: age, sex, race, military branch, and combat veteran status.
[b]Past-month PTSD scores were not available for 112 participants (7.7%); these participants were excluded from the past-month analyses.
Abbreviations: *DSM-5* = *Diagnostic and Statistical Manual of Mental Disorders*, Fifth Edition, PTSD = posttraumatic stress disorder.

assessed. Specifically, probable PTSD was associated with particularly high odds of mood and anxiety disorders (adjusted ORs: 7.6–62.8), including lifetime history of depression and social anxiety and current depression and generalized anxiety. Probable lifetime PTSD was also associated with increased odds of lifetime alcohol or drug use disorders and nicotine dependence, although these effect sizes were smaller in magnitude (adjusted ORs: 3.9–4.5). Probable PTSD was also associated with elevated odds of current suicidal ideation and lifetime suicide attempt (adjusted ORs: 6.7 and 15.1, respectively).

DISCUSSION

This is the first study of the prevalence and correlates of *DSM-5*–defined probable PTSD in a nationally representative sample of US veterans, allowing generalizability to the entire US veteran population. The overall prevalence of *DSM-5* probable PTSD observed in this study—8.1% lifetime, 4.7% past month—was remarkably similar to previous estimates in a Web-based survey of a different nationally representative sample of US veterans recruited from the GfK Knowledge Networks survey panel.[3] The previous study reported prevalence of 8.0% lifetime and 4.8% past-month using a *DSM-IV*–based measure of PTSD, the PTSD Checklist-Specific Stressor version (PCL-S).[3] Although prior studies have also indicated that the PCL-S and PCL-5 yield similar prevalence estimates, our study is the first to establish equivalence across 2 nationally representative samples of US veterans. An important caveat is that we were not able to examine the concordance between the *DSM-IV*–based version of the PCL and the PCL-5 or whether the 2 measures are identifying the same group of veterans as having probable PTSD. Prior head-to-head comparisons of *DSM-IV*– and *DSM-5*–based PTSD measures indicate that there can be discordance in who receives a PTSD diagnosis, even when prevalence estimates are similar.[13–16] Nevertheless, our study offers an up-to-date estimate of the prevalence of *DSM-5*–based probable PTSD in the US veteran population, which can inform health care planning. On the basis of the estimated size of the current US veteran population (approximately 19 million),[32] our findings indicate that there are now over 900,000 veterans living with *DSM-5*–defined PTSD in the United States. This staggering number underscores the tremendous public health burden of PTSD in this population.

Item-level analyses revealed that the least frequently endorsed PTSD symptoms among individuals with probable lifetime or past-month PTSD were reckless or self-destructive behavior and trauma memory disturbance (ie, trauma-related amnesia). These symptoms also demonstrated relatively low corrected item-total correlations, indicating that these symptoms are less strongly related to other PTSD symptoms. Taken together, these findings indicate that these 2 symptoms may not be characteristic of PTSD and add to a growing literature questioning the psychometric performance of these items.[14,15,20] Future research should continue to evaluate the incremental utility of these 2 symptoms in distinguishing individuals with and without PTSD, particularly given concerns regarding the relatively high total number of PTSD symptoms in *DSM-5*.[19]

Consistent with prior research,[3] over 85% of US veterans reported exposure to at least 1 traumatic event. Although veterans reported exposure to a wide range of trauma types, including combat and non-combat trauma, the majority of trauma-exposed veterans in our sample were not combat veterans, indicating that noncombat trauma is important to assess in this population. The most frequently endorsed traumatic event was sudden death of a family member or friend. However, sudden death of a family member or friend was associated with relatively low conditional probability of either probable past-month or lifetime PTSD. These results

support the decision in *DSM-5* to narrow the definition of this event type by requiring death of a family member or friend to be "violent or accidental" to meet PTSD Criterion A.[11] Prior research indicates that this more narrow definition may increase the conditional probability of PTSD associated with this traumatic event type,[16] suggesting that the narrower definition more accurately captures the types of events that are likely to lead to PTSD. In this study, sexual abuse in childhood or adulthood was associated with particularly high conditional probabilities of lifetime probable PTSD, but not past-month PTSD. Taken together, these findings indicate that US veterans should be assessed for a wide range of both military and nonmilitary trauma when screened for PTSD.

Consistent with prior research,[33] we found that mood and anxiety disorders, suicidal ideation and attempts, alcohol and drug use disorders, and nicotine dependence were all highly comorbid with probable PTSD. However, the effect sizes for substance use disorders were smaller than those found for mood or anxiety disorders, consistent with the pattern of findings in our prior study using *DSM-IV*–based assessment.[3] The non-overlapping confidence intervals indicate that clinicians treating veterans with PTSD are more likely to encounter comorbid social anxiety than substance use disorders, although all forms of comorbidity are important to assess and treat. These findings are consistent with prior research indicating that comorbidity is the norm rather than the exception when it comes to mental health,[33] and highlight the great burden facing veterans with PTSD, who are likely to be suffering from a number of additional mental health concerns. These findings also indicate that veterans with PTSD are at high risk for suicidal ideation and attempts. Among veterans with probable PTSD, close to a third (32.8%) reported that they had made a suicide attempt in the past and over half (52.4%) reported currently thinking about suicide. These elevated rates underscore the seriousness of suicidality among veterans with PTSD and highlight the importance of targeting this high-risk group in suicide screening and prevention efforts. Importantly, the odds ratios for every lifetime comorbidity assessed were comparable with those obtained in our prior study, as indicated by overlapping confidence intervals (the prior study did not report probable past-month PTSD comorbidity).[3] The comparable rates of psychiatric comorbidity across 2 investigations using *DSM-IV-TR*– and *DSM-5*–based PTSD measures in nationally representative samples of US veterans contradicts assertions that the changes in *DSM-5* will increase comorbidity between PTSD and other psychiatric disorders.[21,22]

This study had 5 notable limitations. First, we used self-report questionnaires to assess probable PTSD and other psychiatric comorbidities; questionnaires may be influenced by self-report biases or random responding, and different estimates might be obtained with structured interviews.[3] Second, the PCL-5 is a new questionnaire, and its psychometric properties are still under investigation. Following the most recent recommendations for population prevalence estimates, we used a cutoff point of 38.[23] However, our prevalence estimates must be interpreted in light of the specific cutoff point and population examined in this study.[9] Participants may score above a cutoff point without endorsing the requisite number of symptoms within each cluster to receive a PTSD diagnosis (see Figure 1). Additionally, these prevalence estimates will not generalize to specific subpopulations of veterans, such as users of Veterans Health Administration health care services or female veterans. Third, our measure of trauma history was developed prior to the release of *DSM-5*, and some of the events included in this screener (eg, sudden death of a family member or friend) might not meet *DSM-5* PTSD Criterion A. Fourth, data on comorbidity were limited to certain psychiatric disorders, and different measures were used for the assessment of lifetime and current depression. In future research, it will be important to examine other conditions that may co-occur with PTSD, such as bipolar disorder, attention-deficit/hyperactivity disorder, traumatic brain injury, chronic pain, and dementia. Fifth, the observational and retrospective nature of our study precludes us from making causal inferences. Longitudinal studies will be needed to evaluate prospective associations between *DSM-5* PTSD and other psychiatric disorders.

Despite these limitations, our study makes an important contribution to the literature on the epidemiology of *DSM-5* PTSD among US veterans. We found that the prevalence of *DSM-5*–defined PTSD was nearly identical to prior estimates using a *DSM-IV-TR*–based questionnaire in US veterans.[3] We also found that reckless and self-destructive behavior, a new symptom added in *DSM-5*, is infrequently endorsed among veterans with probable PTSD and has a relatively weak association with overall PTSD severity; further research should examine the utility of this new symptom. Conditional probability of probable PTSD varied depending on trauma type, with sexual abuse being associated with particularly high conditional probability for lifetime probable PTSD. Finally, estimates of psychiatric comorbidity were similar to those identified in prior research, contradicting assertions that changes to *DSM-5* would increase the comorbidity of PTSD.

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