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Psychiatric Comorbidity of Full and Partial Posttraumatic Stress Disorder among Older Adults in the United States: Results from Wave 2 of the National Epidemiologic Survey on Alcohol and Related Conditions

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Abstract

Objectives—To present findings on the prevalence, correlates, and psychiatric comorbidity of DSM-IV posttraumatic stress disorder (PTSD) and partial PTSD in a nationally representative sample of U.S. older adults.

Design, Setting, and Participants—Face-to-face interviews with 9,463 adults aged 60 years and older in the Wave 2 National Epidemiologic Survey on Alcohol and Related Conditions.

Measurements—Sociodemographic correlates, worst stressful experiences, comorbid lifetime mood, anxiety, substance use, and personality disorders, psychosocial functioning, and suicide attempts.

Results—Lifetime prevalences±standard errors of PTSD and partial PTSD were 4.5%±0.25 and 5.5%±0.27, respectively. Rates were higher in women (5.7%±0.37 and 6.5%±0.39) than men (3.1%±0.31 and 4.3%±0.37). Older adults with PTSD most frequently identified unexpected death of someone close, serious illness or injury to someone close, and own serious or life-threatening illness as their worst stressful events. Older adults exposed to trauma but without full or partial PTSD and respondents with partial PTSD most often identified unexpected death of someone close, serious illness or injury to someone close, and indirect experience of 9/11 as their worst events. PTSD was associated with elevated odds of lifetime mood, anxiety, drug use, and borderline and narcissistic personality disorders, and decreased psychosocial functioning. Partial PTSD was associated with elevated odds of mood, anxiety, and narcissistic and schizotypal personality disorders, and poorer psychosocial functioning relative to older adults exposed to trauma but without full or partial PTSD.

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Conclusions—PTSD among older adults in the United States is slightly more prevalent than previously reported and associated with considerable psychiatric comorbidity and psychosocial dysfunction. Partial PTSD is associated with significant psychiatric comorbidity, particularly with mood and other anxiety disorders.

Keywords

posttraumatic stress disorder; older adults; comorbidity

OBJECTIVE

Current estimates of the prevalence and psychiatric comorbidity of posttraumatic stress disorder (PTSD) in nationally representative samples of older adults are scarce. While data from the National Comorbidity Survey-Replication (NCS-R)¹ suggest that prevalence rates of PTSD are lower in older adults (2.5%) than among adults in general (6.8%), no published study has examined the prevalence of subsyndromal PTSD, which is more common in older adults,^{2, 3} or psychiatric comorbidity of full and subsyndromal PTSD, in a nationally representative sample of U.S. older adults.

Clinical and community-based studies of PTSD in older adults have found elevated rates of mood, anxiety, and substance use disorders,^{2, 4–7} with mood, anxiety, and substance use disorders typically developing after PTSD.⁴ While these studies provide an initial characterization of psychiatric comorbidity of PTSD in older adults, they are limited by small samples, predominant focus on veterans, and employment of outdated versions of the DSM or PTSD screening measures.

Subsyndromal or partial PTSD, which describes clinically significant PTSD symptoms in trauma-exposed individuals who do not meet full diagnostic criteria for PTSD,^{8, 9} is substantially more common than full PTSD in older adults.^{2, 3} For example, a study of 2,718 older primary care patients found that while only 1.2% met screening criteria for full PTSD, 14.1% met criteria for partial PTSD.² Despite considerable attention to and public health importance of partial PTSD, no study of which we are aware has examined its prevalence and psychiatric comorbidity in a nationally representative sample of U.S. older adults.

An up-to-date examination of the prevalence and comorbidity of full and partial PTSD in a nationally representative sample of older adults is important for several reasons. First, nationally representative data on DSM-IV Axis I and II disorders associated with full and partial PTSD in U.S. older adults are more generalizable to the broader population of older adults than those collected from select clinical or community samples. Second, traumatic events and Axis I and II disorders associated with PTSD may differ between older adults and the general population. Third, PTSD may be more chronic in older adults,^{10–13} so patterns of psychiatric comorbidity may differ from general adult samples in clinically meaningful ways. Finally, identification of psychiatric disorders that co-occur with full and partial PTSD will help characterize the clinical presentation of these conditions in contemporary U.S. older adults.

The present study examined the prevalence and comorbidity of DSM-IV PTSD and partial PTSD, and associated psychosocial dysfunction, in a large, nationally representative sample of U.S. older adults. Based on prior research,^{3–6, 14} we hypothesized that PTSD would be associated with elevated rates of comorbid mood, anxiety, substance use, and personality disorders, and suicide attempt, as well as poorer current psychosocial functioning; and that older adults with partial PTSD would experience intermediate levels of comorbidity and psychosocial dysfunction compared to older adults exposed to trauma but without full or partial PTSD and those with PTSD.

METHODS

Sample

The entire research protocol, including informed consent procedures, received full ethical review and approval from the U.S. Census Bureau and the U.S. Office of Management and Budget.

The 2004–2005 Wave 2 NESARC is the second wave follow-up of the Wave 1 NESARC conducted in 2001–2002.^{15, 16} The Wave 1 NESARC surveyed a representative sample of the civilian, noninstitutionalized adult population of the United States aged 18 and older (response rate=81%). Face-to-face reinterviews were attempted with all 43,093 Wave 1 respondents. Excluding those ineligible because they were deceased, mentally or physically incapacitated, deported, or on active military duty over the entire follow-up period, the Wave 2 response rate was 86.7%, reflecting 34,653 completed interviews (cumulative response rate=70.2%). Data were weighted to reflect the survey's design characteristics and account for oversampling. Adjustment for nonresponse across sociodemographic characteristics and the presence of any lifetime Wave 1 psychiatric disorder or substance use disorder was performed at the household and person levels to ensure that the sample approximated the target population. Weighted Wave 2 data were then adjusted to represent the civilian population on socioeconomic variables including region, age, race-ethnicity, and sex, based on the 2000 Decennial Census.

Posttraumatic Stress Disorder (PTSD)

Lifetime PTSD diagnoses were made in the Wave 2 NESARC using the NIAAA Wave 2 Alcohol Use Disorder and Associated Disabilities Interview Schedule-DSM-IV Version [AUDADIS-IV;¹⁷], a computerized, fully structured instrument designed for experienced lay interviewers. The PTSD section begins with an enumeration of 27 potentially traumatic event types that operationalize the DSM-IV Criterion A stressor definition. The 6 event types involving terrorism were subdivided into those that did and those that did not occur on September 11, 2001. Respondents endorsing multiple event types were asked to designate their most stressful event, consistent with DSM-IV PTSD Criterion A.

Diagnoses of PTSD required respondents to endorse at least 1 symptom within Criterion B, at least 3 within Criterion C, and at least 2 within Criterion D, lasting at least 1 month (Criterion E), *subsequent to* the worst event they experienced that involved intense fear, helplessness, or horror, and the belief that they or someone close to them might die or be seriously injured or permanently disabled. Diagnoses of full PTSD also required respondents to meet the DSM-IV clinical significance criterion of impairment or distress (Criterion F). Test-retest reliability of lifetime PTSD was good ($\kappa=0.64$).¹⁸

Respondents were classified with partial PTSD if they endorsed at least 1 symptom within each of Criteria B, C, and D, lasting at least 1 month, in response to the worst event they experienced that involved intense fear, helplessness, or horror, or actual or threatened death, serious injury, or threat to their or someone else's physical integrity.^{8, 9} Therefore, the present study's definition of partial PTSD is conservative relative to previous operationalizations.^{8, 9} Respondents who reported a potentially traumatic event but did not meet criteria for either PTSD or partial PTSD were classified as the no PTSD comparison group.

Other Psychiatric Disorders

Wave 2 AUDADIS-IV methods used to diagnose mood, anxiety, and substance use disorders were identical to those utilized in Wave 1.^{15, 19, 20} Wave 2 lifetime diagnoses

reflect disorders occurring at any time over respondents' lives, assessed over both waves. DSM-IV mood and anxiety disorder diagnoses reported herein are primary, excluding substance-induced disorders and those due to general medical conditions. Major depressive disorder (MDD) diagnoses also exclude bereavement.

Extensive questions operationalized DSM-IV criteria for alcohol and drug-specific abuse and dependence covering 10 classes of drugs, which are aggregated to yield diagnoses of any drug abuse and any drug dependence. Wave 2 lifetime abuse diagnoses required 1 or more of 4 abuse criteria, and dependence required 3 or more of 7 dependence criteria, to be met in the same 12-month period for the same substance at any time over respondents' lives. Nicotine dependence was diagnosed similarly.

DSM-IV personality disorders (PDs) were diagnosed on a lifetime basis.²¹ Avoidant, dependent, obsessive-compulsive, paranoid, schizoid, and histrionic PDs were assessed in Wave 1; antisocial PD was assessed at both waves; and schizotypal, narcissistic, and borderline PDs in Wave 2. To receive a PD diagnosis, respondents were required to endorse the specified number of DSM-IV symptom criteria, at least 1 of which must have caused occupational or social dysfunction.

Reliability and validity of AUDADIS-IV mood, anxiety, substance use, and personality disorder diagnoses were fair to good in both clinical and general population samples, and selected mood and anxiety disorder diagnoses showed good agreement with psychiatrist reappraisals.^{15, 18, 19, 21}

Psychosocial Functioning

Past-month psychosocial functioning was assessed using the Short-Form 12-Item Health Survey, version 2 (SF-12 v2).²² Standard norm-based techniques were used to transform each score (range, 0–100) to yield a mean of 50 and a standard deviation of 10 in the U.S. general population. Lower scores indicate poorer function.

Statistical Analysis

In the total sample of respondents aged 60 years and older (N=9,463), lifetime prevalences of PTSD and partial PTSD were 4.5% (SE= 0.25) and 5.5% (SE= 0.27), respectively. Rates were higher among women [(5.7% (SE= 0.37) and 6.5% (SE= 0.39)] than men [3.1% (SE= 0.31) and 4.3% (SE= 0.37)], $\chi^2(3)= 55.25, p<.0001$.

The sample for this report consists of Wave 2 NESARC respondents aged 60 years and older with full (n=469) and partial PTSD (n=545), and older adults exposed to trauma but with neither full nor partial PTSD (n= 7,519). Older adults endorsing no exposures to potentially traumatic events (n= 930) were excluded.^{8, 23, 24}

All analyses utilized SUDAAN, which uses Taylor series linearization to adjust for the NESARC's complex design characteristics. No adjustments were made for multiple comparisons. Sociodemographics, lifetime worst stressful event, clinical features of PTSD, and lifetime prevalences of comorbid mood, anxiety, substance use, and personality disorder diagnoses were compared by PTSD status using standard contingency table approaches and chi-square statistics. Where appropriate, *t*-statistics were used for pairwise comparisons of trauma exposures by PTSD status. Associations of PTSD with comorbid disorders were examined using two sets of logistic regression analyses.²⁵ The first adjusted for sociodemographics: sex, age, race or ethnicity, marital status, education, and past-year household income. The second additionally adjusted for all other psychiatric disorders. Control only for sociodemographic characteristics does not yield information on the unique relationships of PTSD to other disorders that themselves have considerable comorbidity.

Analyses adjusting for additional comorbidity control for this potential source of confounding and test the hypothesis that PTSD status is associated with the pure (noncomorbid) form of each target diagnosis.^{19, 20}

Weighted means on age at onset of first PTSD episode and duration of longest or only lifetime episode by PTSD status were compared using one-way normal-theory analyses of variance. Adjusted weighted means and standard errors were derived for each SF-12 v2 scale, and pairwise contrasts by PTSD status were computed, using multivariable linear regressions that controlled for sociodemographic variables.

RESULTS

Sociodemographic Characteristics and Psychosocial Functioning

Sociodemographic characteristics and SF-12v2 Mental Component Summary (MCS) scores by PTSD status are shown in Table 1. Odds of PTSD were lower among older respondents, men, Asian/Hawaiian/Pacific Islanders, and never married respondents, and higher among previously married and Hispanic respondents and those with lower incomes. Odds of partial PTSD were lower among older respondents and men, and higher among those previously married. The mean SF-12v2 MCS score for respondents with PTSD was lower than that in the no PTSD and partial PTSD groups; the mean among respondents with partial PTSD was lower than that among respondents with no PTSD.

Trauma Exposure and Clinical Characteristics

Lifetime traumas by PTSD status are available in Supplemental Digital Content, Table 1. PTSD and partial PTSD were associated with elevated odds of most traumas compared to the comparison group; odds of lifetime traumas did not differ between the full and partial PTSD groups. Men with PTSD had significantly greater odds of witnessing family violence before age 18 than women with PTSD.

Worst trauma exposures and clinical characteristics by PTSD status are shown in Table 2. The most commonly reported worst events in the PTSD group were unexpected death of someone close, serious illness or injury to someone close, and own serious illness. Among the no PTSD and partial PTSD groups, they were unexpected death of someone close, serious illness or injury to someone close, and indirect experience of 9/11 (e.g., TV or radio broadcast). Compared to those with no PTSD, respondents with full PTSD were more likely to endorse own serious illness, other trauma to self, being beaten up by intimate partner, and sexual assault, and less likely to endorse indirect experience of 9/11, as their worst event. Compared to those with no PTSD, respondents with partial PTSD were more likely to endorse unexpected death of someone close, other trauma to self, and sexual assault, and less likely to endorse indirect experience of 9/11, as their worst event. Compared to respondents with partial PTSD, those with full PTSD were more likely to endorse own serious illness and being beaten up by intimate partner as their worst event.

Women with PTSD were more likely than men with PTSD to report serious illness or injury to someone close (22.4% vs. 9.7%, $t(65)=3.29$, $p=0.0016$), unexpected death of someone close (29.8% vs. 17.5%, $t(65)=2.53$, $p=0.0138$), being beaten up by intimate partner (5.6% vs. 0.0%, $t(65)=3.59$, $p=0.0006$), and sexual assault (4.3% vs. 0.0%, $t(65)=3.73$, $p=0.0004$), whereas men with PTSD were more likely than women with PTSD to report military combat (25.2% vs. 0.0%, $t(65)=5.20$, $p < 0.0001$) as their worst stressful event. Women with partial PTSD were more likely than men with partial PTSD to report serious illness or injury to someone close (22.3% vs. 12.7%, $t(65)=2.45$, $p=0.0170$), unexpected death of someone close (34.5% vs. 23.2%, $t(65)=2.38$, $p=0.0202$), sexual assault (7.2% vs. 0.4%, $t(65)=3.94$, $p=0.0002$) and being beaten up by intimate partner (1.7% vs. 0.0%, $t(65)=2.22$, $p=0.0300$),

whereas men with partial PTSD were more likely than women with partial PTSD to report military combat (19.6% vs. 0.0%, $t(65)=5.31$, $p=0.0001$) and seeing someone badly injured or dead (8.1% vs. 2.5%, $t(65)=2.25$, $p=0.0281$), as their worst event.

Respondents with full PTSD were less likely than respondents with partial PTSD to report remission; age of onset and symptom duration did not differ (Table 2). Respondents with full PTSD were more likely than respondents with partial PTSD to endorse a direct (e.g., sexual assault) compared to indirect (e.g., witnessing violence) trauma as their worst stressful event (40.7% vs. 30.7%, $t(65)=2.57$, $p=.0125$). In the full PTSD group, respondents identifying a direct worst trauma reported a longer duration of episode of PTSD than those identifying an indirect worst trauma (263.1 ± 21.61 vs. 157.0 ± 16.25 months; $F(1,65)=16.44$, $p=0.0001$); rates of remission ($46.7\%\pm 4.62$ vs. $49.0\%\pm 3.39$; $\chi^2(1)=0.16$, $p=0.69$) and SF-12v2 MCS scores (45.8 ± 1.02 vs. 45.5 ± 0.88 ; $F(1,65)=0.06$, $p=0.81$) did not differ.

Psychiatric Comorbidity

Table 3 shows lifetime DSM-IV Axis I disorders and suicide attempt, and Table 4 shows lifetime DSM-IV Axis II disorders, by PTSD status.

In analyses adjusting for sociodemographic characteristics, respondents with PTSD were more likely than comparison group respondents to meet criteria for all assessed Axis I and Axis II disorders (ORs=1.4–12.2), except alcohol abuse/dependence, histrionic PD, and, among men, dysthymia; they were also more likely to report a lifetime suicide attempt (OR=3.1). Respondents with PTSD were more likely than those with partial PTSD to meet criteria for any other anxiety disorder and generalized anxiety disorder (GAD), as evidenced by nonoverlapping 95% confidence intervals. After further adjustment for additional psychiatric comorbidity, significant but reduced associations remained (ORs=1.6–2.9) with any mood disorder, MDD, any additional anxiety disorder, GAD and panic disorders, specific phobia, drug abuse/dependence, any PD, and narcissistic and borderline PDs.

In analyses adjusting for sociodemographic characteristics, respondents with partial PTSD were more likely than comparison respondents to meet diagnostic criteria for all disorders assessed except social phobia (ORs=1.5–7.2). After further adjustment for additional psychiatric comorbidity, associations with any mood, MDD, bipolar II, and any additional anxiety disorder, GAD and panic disorders, specific phobia, any PD, and schizotypal and narcissistic PDs remained significant (ORs=1.4–4.7).

Significant sex by PTSD status interactions indicated that men with PTSD had elevated odds (OR=5.7) of bipolar I; men with partial PTSD had increased odds (OR=2.6) of dysthymic disorder; and women with PTSD had greater odds (OR=2.0) of social phobia.

CONCLUSIONS

The prevalence of lifetime DSM-IV PTSD in this sample (4.5%) was lower than that in the full sample of NESARC respondents (6.4%; Pietrzak, Goldstein, Southwick, and Grant, 2010a, 2010b, under review) and slightly higher than that observed among older adults in the NCS-R¹ and recent community-based studies.^{3, 6} Potential explanations for lower rates of PTSD in older compared to younger adults include recall biases for trauma exposures and/or PTSD symptoms that occurred in the remote past; differential appraisals of events or symptoms as trauma-related; and/or mortality bias (i.e., differential survival of resilient individuals).²⁶ Discrepancies in prevalences across studies may be related to different age cut-offs to identify older adults (e.g., 60+ vs. 65+), as well as differences in study methodologies.

The finding that, in addition to the 4.5% of older adults who met criteria for PTSD, 5.5% had subthreshold symptoms replicates prior studies, which similarly found higher rates of subsyndromal/partial PTSD compared to full PTSD.^{2, 3} This finding also highlights the public health importance of subsyndromal PTSD symptoms in older individuals, especially given that partial PTSD is not a diagnosable condition and that older trauma survivors may have difficulty coping with psychological, cognitive, and social challenges associated with aging.^{11, 27}

Consistent with previous epidemiologic studies of general adult samples^{23, 28, 29} and a community sample of German elderly,⁶ older adults with PTSD most frequently identified unexpected death or serious illness/injury to someone close, and own serious illness, as their worst stressful events. Compared to the full NESARC sample (Pietrzak et al., 2010a, 2010b, under review), older adults with PTSD were more likely than those with partial PTSD to report direct traumas such as serious illness as their worst events. Age of onset of PTSD in older adults was also 15 years later (43.8 vs. 28.7 years) and the disorder had a more chronic course (16.7 vs. 11.2 years). These results corroborate previous reports that direct traumas are more strongly associated with PTSD than indirect traumas,^{14, 29} and that PTSD symptoms may be chronic in older adults.^{10–13, 30} Later age of onset of PTSD in older adults may also reflect a mortality bias²⁶ and/or “telescoping” effect in which older respondents date onsets of disorders later in life.³¹ Finally, as observed in previous studies of general adult^{8, 14, 24, 29, 32–34} and older adult^{4, 6} samples, respondents with PTSD had elevated odds of a broad range of Axis I and II disorders, most notably mood and other anxiety disorders. While about half the sample reported remission of their most recent or only episode, the chronicity of PTSD symptoms in older adults underscores the importance of comprehensive assessment and treatment, especially since older adults may receive symptomatic treatments (e.g., sedative-hypnotics for sleep difficulties) instead of interventions targeting the full range of PTSD symptoms.³⁵

Partial PTSD was associated with intermediate levels of co-occurring Axis I and II disorders relative to the no PTSD and PTSD groups. This finding is consistent with previous studies of general¹⁴ and older adult³ samples, which similarly found more modest associations between partial PTSD and comorbid disorders/symptoms. Age of onset of partial PTSD was 13 years later in older adults compared to respondents with partial PTSD in the full NESARC sample. Partial PTSD was also more chronic (14.9 vs. 9.7 years). However, the remission rate (56.8% vs. 56.5%) and ORs of comorbid disorders were comparable. Results of the current study replicate and extend previous research on older adults with partial PTSD^{2, 3} to suggest that partial PTSD is associated with a broad range of disorders, most notably major depressive, generalized anxiety, and narcissistic and schizotypal PDs, and that its association with dysthymic and bipolar I disorders, and social phobia, may differ by sex.

Several hypotheses may explain elevated rates of psychiatric comorbidity in full and partial PTSD, though little research has examined these hypotheses specifically in older adults. Risk factors for PTSD include genetic factors, disruptive childhood, premorbid neurotic personality, prior trauma(s), severity of trauma(s), exposure to reactivating stressors, and decreased social support.¹¹ Preexisting disorders, such as MDD, substance use disorders, and borderline, schizotypal, and narcissistic PDs may also increase risk of trauma exposure and PTSD.^{36–38} Alternatively, PTSD may be a risk factor for other disorders, as suggested by a study of World War II and Vietnam veterans, which found that alcohol abuse, MDD, and generalized anxiety and panic disorders developed several years after diagnoses of PTSD.⁴ Further, self-medication of PTSD symptoms with alcohol, drugs, and/or nicotine may lead to a substance use disorder.^{4, 39} Finally, common genetic and environmental underpinnings may explain elevated rates of co-occurring disorders in PTSD.⁴⁰ More

research is needed to determine the extent to which these hypotheses account for the development of PTSD and related disorders across the lifespan.

Methodological limitations include the inability to examine the longitudinal course of PTSD, as PTSD was not assessed in Wave 1 of the NESARC. Consequently, we cannot identify temporal associations among trauma exposure, PTSD, and comorbid disorders. Second, retrospective recall and reporting biases may have influenced the recollection or endorsement of trauma and/or psychiatric symptoms. Third, we employed a conservative definition of partial PTSD, so results may differ under other definitions. Nevertheless, our definition minimizes concerns regarding “conceptual bracket creep,” in which individuals with normative stress reactions may be labeled as having clinically significant PTSD symptoms. Finally, while differences in interpretations of “worst stressful event” (i.e., the severity of event impact on themselves or on significant others) may have influenced reporting of symptoms, impairment, and distress, previous epidemiologic studies have found that the prevalence of PTSD based on this approach is only modestly higher than that based on a randomly selected event and associations with key clinical characteristics are similar.²³

Despite these limitations, this study provides the largest, most comprehensive, and most up-to-date assessment of the prevalence and psychiatric comorbidity of DSM-IV PTSD and partial PTSD in a nationally representative sample of U.S. older adults. Both PTSD and partial PTSD were associated with elevated rates of co-occurring psychopathology, particularly mood and anxiety disorders. These findings underscore the importance of comprehensively assessing both trauma exposure and Axis I and II disorders in older adults. Additional research is needed to examine causal associations among trauma exposure, PTSD, and co-occurring disorders; identify risk and protective factors for the development, recurrence, and chronicity of PTSD symptoms; and determine the extent to which co-occurring disorders may inform studies on etiology, diagnostic classification, and treatment outcomes in older adults with PTSD and partial PTSD.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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Table 1

Sociodemographic characteristics and psychosocial functioning of NESARC respondents aged 60 years and older by PTSD status

Characteristic, % or Mean (SE)	No PTSD ^a (n=7519)	Partial PTSD ^b (n=545)	Full PTSD (n=469)	Overall		Partial PTSD vs. No PTSD		PTSD vs. No PTSD	
				χ^2 or F(df)	P Value	AOR (95% CI) ^c	AOR (95% CI) ^c	AOR (95% CI) ^c	
Age				15.35 (6)	0.0177				
60–69	44.9 (0.69)	51.1 (2.62)	51.0 (2.71)			1.0 (referent)		1.0 (referent)	
70–79	35.8 (0.68)	32.6 (2.29)	34.4 (2.61)			0.7 (0.57–0.93)		0.7 (0.52–0.88)	
80–89	17.0 (0.49)	13.7 (1.58)	12.7 (1.75)			0.6 (0.44–0.83)		0.5 (0.32–0.67)	
90+	2.3 (0.20)	2.5 (0.73)	1.9 (0.72)			0.7 (0.39–1.30)		0.4 (0.19–1.01)	
Sex				45.62 (2)	<0.0001				
Male	46.8 (0.66)	34.3 (2.45)	30.3 (2.47)			0.6 (0.49–0.78)		0.6 (0.45–0.75)	
Female	53.2 (0.66)	65.7 (2.45)	69.7 (2.47)			1.0 (referent)		1.0 (referent)	
Race/ethnicity				17.23 (8)	0.0278				
White	81.4 (1.32)	81.6 (1.94)	76.8 (2.56)			1.0 (referent)		1.0 (referent)	
Black	8.1 (0.59)	8.0 (1.09)	9.5 (1.65)			0.9 (0.63–1.16)		1.0 (0.65–1.45)	
Hispanic	5.3 (0.74)	6.3 (1.26)	9.7 (1.89)			1.1 (0.78–1.50)		1.6 (1.03–2.53)	
Asian/Hawaiian/Pacific Islander	3.1 (0.80)	2.6 (0.93)	0.9 (0.47)			0.8 (0.31–2.03)		0.3 (0.10–0.98)	
Native American	2.0 (0.23)	1.5 (0.68)	3.1 (0.98)			0.6 (0.25–1.71)		1.3 (0.69–2.51)	
Education				8.76 (4)	0.0673				
Less than high school	20.5 (0.69)	23.5 (2.10)	27.3 (2.53)			1.2 (0.87–1.57)		1.1 (0.82–1.53)	
High school	33.6 (0.83)	32.4 (2.46)	30.9 (2.57)			1.0 (0.73–1.25)		0.8 (0.62–1.10)	
Postsecondary	45.9 (0.93)	44.2 (2.57)	41.8 (2.97)			1.0 (referent)		1.0 (referent)	
Marital status				47.45 (4)	<0.0001				
Married/cohabiting	63.4 (0.64)	57.3 (2.37)	49.9 (2.71)			1.0 (referent)		1.0 (referent)	
Widowed/separated/divorced	32.6 (0.60)	40.3 (2.32)	48.3 (2.68)			1.3 (1.01–1.61)		1.5 (1.20–1.99)	
Never married	4.0 (0.25)	2.4 (0.57)	1.7 (0.49)			0.6 (0.36–1.05)		0.5 (0.26–0.80)	
Household income				29.85 (6)	<0.0001				
\$0–\$19,999	28.3 (0.70)	31.4 (2.26)	37.8 (2.77)			1.1 (0.73–1.56)		2.0 (1.27–3.00)	
\$20,000–\$34,999	24.7 (0.67)	23.7 (2.38)	30.3 (2.62)			1.0 (0.67–1.49)		2.0 (1.31–3.15)	
\$35,000–\$69,999	30.2 (0.72)	29.2 (2.50)	22.3 (2.43)			1.0 (0.70–1.51)		1.3 (0.79–2.02)	
\$70,000+	16.8 (0.74)	15.7 (2.02)	9.7 (1.82)			1.0 (referent)		1.0 (referent)	

Characteristic, % or Mean (SE)	Overall			Partial PTSD vs. No PTSD		PTSD vs. No PTSD	
	No PTSD ^d (n=7519) Mean (SE)	Partial PTSD ^b (n=545) Mean (SE)	Full PTSD (n=469) Mean (SE)	χ^2 or F(df)	P Value	AOR (95% CI) ^c	AOR (95% CI) ^c
SF-12v2 Mental component summary score ^e	52.8 (0.12)	50.1 (0.58)	46.4 (0.61)	58.08 (2,65)	<0.0001	<0.0001	<0.0001

^a Respondents in this group reported experiencing a traumatic event but had neither full nor partial PTSD.

^b Defined as experiencing a traumatic event; helplessness, horror, or fear of death or severe injury or disability; and at least one symptom each from Criteria B, C, and D and duration of at least one month (Criterion E).

^c Adjusted odds ratios and confidence intervals were derived from a single logistic regression model into which all sociodemographic variables were entered simultaneously. Statistically significant odds ratios are highlighted in bold font.

^e Mean SF-12v2 Mental Component Summary scores are adjusted for sociodemographic characteristics.

Table 2
Worst stressful events and clinical characteristics among NESARC respondents aged 60 years and older by PTSD status

Characteristic, % or Mean (SE)	No PTSD ^d (n=7519)	Partial PTSD ^b (n=545)	Full PTSD (n=469)	Overall	
				χ^2 or F (df)	P Value
Worst event ever experienced					
Unexpected death of someone close ^c	23.6 (0.68)	30.6 (2.27)	26.1 (2.21)	10.47 (2)	0.0053
Serious illness or injury of someone close	23.0 (0.72)	19.0 (1.99)	18.6 (2.16)	6.47 (2)	0.0394
Own serious or life-threatening illness ^{d,e}	6.2 (0.33)	4.2 (1.18)	9.5 (1.63)	6.39 (2)	0.0410
Military combat	4.5 (0.28)	6.7 (1.35)	7.6 (1.63)	5.43 (2)	0.0663
Seeing someone badly injured or dead	3.6 (0.25)	4.4 (1.11)	4.6 (1.12)	1.35 (2)	0.5093
Other trauma to self ^{e,f}	2.2 (0.20)	4.5 (0.89)	4.6 (1.11)	9.81 (2)	0.0074
Indirect experience of 9/11 (e.g., TV or radio broadcast) ^{g,h}	21.8 (0.93)	7.9 (1.64)	4.1 (1.26)	97.84 (2)	<0.0001
Being beaten up by intimate partner ^{d,i}	0.6 (0.11)	1.1 (0.52)	3.9 (1.10)	9.57 (2)	0.0084
Sexual assault ^{i,j}	0.7 (0.10)	4.9 (1.13)	3.0 (0.81)	19.60 (2)	0.0001
Other trauma to someone close	2.9 (0.24)	1.8 (0.71)	2.2 (0.74)	2.46 (2)	0.2917
Clinical characteristics					
Age at onset of first episode of PTSD symptoms, mean	N/A ^k	42.1 (1.23)	43.8 (1.14)	0.96 (1,65)	0.3300
Duration of longest or only episode, months	N/A ^k	178.2 (12.41)	200.4 (13.20)	1.39 (1,65)	0.2421
Most recent episode of PTSD remitted	N/A ^k	56.8 (2.48)	48.7 (2.73)	4.16 (2)	0.0415

^a Respondents in this group reported experiencing a traumatic event but had neither full nor partial PTSD.

^b Defined as experiencing a traumatic event; helplessness, horror, or fear of death or severe injury or disability; and at least one symptom each from Criteria B, C, and D and duration of at least one month (Criterion E).

^c Partial PTSD > no PTSD: $p < 0.01$.

^d Full PTSD > partial PTSD: $p < 0.05$.

^e Full PTSD > no PTSD: $p < 0.05$.

^f Partial PTSD > no PTSD: $p < 0.05$.

^g Partial PTSD < no PTSD: $p < 0.0001$.

^h Full PTSD < no PTSD: $p < 0.0001$.

ⁱ Full PTSD > no PTSD: $p < 0.01$.

^j Partial PTSD > no PTSD: $p < 0.001$.

^k N/A=not applicable.

Table 3

Lifetime DSM-IV Axis I disorders among NESARC respondents aged 60 years and older by PTSD status

Comorbid Disorder	Prevalence [% (SE)]		Odds Ratios (95% Confidence Intervals) Controlling for Sociodemographic Characteristics ^{a,b}		Odds Ratios (95% Confidence Intervals) Controlling for Sociodemographic Characteristics and Other Psychiatric Disorders ^{a,c}		
	No PTSD ^d (n=7519)	Partial PTSD ^e (n=545)	Full PTSD (n=469)	Partial PTSD vs. No PTSD AOR (95%CI)	PTSD vs. No PTSD AOR (95%CI)	Partial PTSD vs. No PTSD AOR (95%CI)	PTSD vs. No PTSD AOR (95%CI)
Any mood disorder	14.6 (0.47)	37.3 (2.54)	47.1 (2.71)	3.2 (2.49–4.04)	4.5 (3.50–5.66)	2.4 (1.83–3.15)	2.9 (2.22–3.75)
Major depressive disorder	11.4 (0.44)	25.5 (2.16)	32.2 (2.38)	2.4 (1.86–3.05)	3.1 (2.41–3.95)	1.8 (1.37–2.38)	2.0 (1.51–2.68)
Dysthymic disorder	2.5 (0.21)	6.6 (1.18)	10.0 (1.51)	<i>Men</i> 4.9 (2.46–9.84)	<i>Men</i> 1.9 (0.64–5.61)	<i>Men</i> 2.6 (1.12–6.03)	<i>Men</i> 0.7 (0.22–2.23)
Bipolar I disorder	1.6 (0.17)	6.5 (1.39)	10.2 (1.55)	<i>Women</i> 4.6 (1.65–12.68)	<i>Women</i> 3.6 (2.41–5.33)	<i>Women</i> 2.2 (0.62–7.79)	<i>Women</i> 1.5 (0.96–2.40)
Bipolar II disorder	0.3 (0.06)	2.2 (0.73)	1.7 (0.79)	<i>Men</i> 6.8 (2.85–16.02)	<i>Men</i> 12.2 (6.03–24.85)	<i>Men</i> 2.2 (1.24–4.00)	<i>Men</i> 5.7 (2.80–11.70)
Any anxiety disorder except PTSD	17.2 (0.60)	34.5 (2.23)	49.5 (2.67)	<i>Women</i> 2.3 (1.84–2.86)^f	<i>Women</i> 4.8 (1.72–13.69)	<i>Women</i> 4.7 (1.82–12.06)	<i>Women</i> 2.7 (0.74–9.73)
Generalized anxiety disorder	4.0 (0.27)	11.9 (1.53)	23.1 (2.21)	<i>Men</i> 2.8 (2.03–3.99)^f	<i>Men</i> 6.0 (4.48–8.04)^f	<i>Men</i> 1.5 (1.04–2.15)	<i>Men</i> 2.9 (2.06–4.09)
Panic disorder with or without agoraphobia	3.7 (0.27)	13.6 (1.72)	14.3 (1.84)	<i>Women</i> 3.6 (2.56–5.05)	<i>Women</i> 3.5 (2.53–4.95)	<i>Women</i> 2.2 (1.52–3.19)	<i>Women</i> 1.6 (1.05–2.41)
Agoraphobia without panic Disorder	0.1 (0.04)	0.8 (0.43)	0.8 (0.41)	<i>Men</i> 7.2 (1.87–27.54)	<i>Men</i> 7.3 (2.15–24.91)	<i>Men</i> 3.5 (0.88–14.27)	<i>Men</i> 2.5 (0.71–8.46)
Social phobia	4.2 (0.30)	6.6 (1.34)	13.8 (2.06)	<i>Women</i> 1.5 (0.98–2.42)	<i>Women</i> 3.4 (2.31–4.87)	<i>Women</i> 0.4 (0.11–1.16)	<i>Women</i> 0.6 (0.27–1.48)
Specific phobia	10.0 (0.45)	19.2 (1.65)	26.8 (2.32)	<i>Men</i> 1.9 (1.51–2.41)	<i>Men</i> 2.8 (2.18–3.60)	<i>Men</i> 1.4 (1.05–1.75)	<i>Men</i> 1.7 (1.26–2.25)
Any alcohol or drug use disorder	22.7 (0.65)	26.5 (2.14)	21.7 (2.16)	<i>Women</i> 1.6 (1.22–2.04)	<i>Women</i> 1.2 (0.91–1.66)	<i>Women</i> 1.2 (0.86–1.56)	<i>Women</i> 0.8 (0.58–1.13)
Alcohol abuse/dependence	22.2 (0.66)	25.2 (2.14)	19.9 (2.07)	<i>Men</i> 1.5 (1.17–1.98)	<i>Men</i> 1.1 (0.84–1.54)	<i>Men</i> 1.1 (0.79–1.48)	<i>Men</i> 0.7 (0.50–1.01)
Drug abuse/dependence	1.7 (0.19)	3.5 (0.93)	4.3 (1.08)	<i>Women</i> 2.4 (1.32–4.49)	<i>Women</i> 2.8 (1.55–4.92)	<i>Women</i> 1.7 (0.97–3.14)	<i>Women</i> 2.0 (1.07–3.78)
Nicotine dependence	14.9 (0.48)	23.6 (2.16)	20.3 (2.25)	<i>Men</i> 1.8 (1.39–2.31)	<i>Men</i> 1.4 (1.01–1.82)	<i>Men</i> 1.3 (0.97–1.79)	<i>Men</i> 0.9 (0.64–1.25)
Lifetime suicide attempt	1.0 (0.15)	3.6 (0.89)	4.6 (1.00)	<i>Women</i> 2.9 (1.59–5.37)	<i>Women</i> 3.1 (1.84–5.21)	<i>Women</i> 1.6 (0.81–3.20)	<i>Women</i> 1.4 (0.73–2.74)

^aStatistically significant odds ratios are highlighted in bold.^bAll sociodemographic covariates (sex, age, race/ethnicity, education, marital status, and past-year household income) were entered into these models simultaneously.^cAll sociodemographic covariates and controls for additional Axis I and II diagnoses were entered into these models simultaneously.

^d Respondents in this group reported experiencing a traumatic event but had neither full nor partial PTSD.

^e Defined as experiencing a traumatic event; helplessness, horror, or fear of death or severe injury or disability; and at least one symptom each from Criteria B, C, and D and duration of at least one month (Criterion E).

^f Odds ratios for comorbid associations, adjusted only for sociodemographics, of these disorders with full versus partial PTSD are statistically significantly different from each other as evidenced by nonoverlapping 95% confidence intervals.

Table 4
Lifetime DSM-IV Axis II disorders among NESARC respondents aged 60 years and older by PTSD status

	Prevalence [% (SE)]			Odds Ratios (95% Confidence Intervals) Controlling for Sociodemographic Characteristics ^{d,b}		Odds Ratios (95% Confidence Intervals) Controlling for Sociodemographic Characteristics and Other Psychiatric Disorders ^{d,c}	
	No PTSD ^d	Partial PTSD ^e	Full PTSD	Partial PTSD vs. No PTSD	PTSD vs. No PTSD	Partial PTSD vs. No PTSD	PTSD vs. No PTSD
Any personality disorder	12.1 (0.43)	23.7 (2.23)	32.5 (2.50)	2.3 (1.80–3.06)	3.5 (2.76–4.51)	1.5 (1.14–2.03)	2.0 (1.53–2.68)
Paranoid personality disorder	1.5 (0.18)	4.2 (0.99)	7.4 (1.34)	2.7 (1.57–4.57)	4.3 (2.76–6.69)	1.4 (0.76–2.46)	1.5 (0.89–2.69)
Schizoid personality disorder	1.6 (0.18)	3.4 (1.02)	6.7 (1.33)	2.1 (1.09–4.17)	4.0 (2.55–6.37)	1.0 (0.53–1.89)	1.5 (0.84–2.51)
Schizotypal personality disorder	1.6 (0.16)	6.2 (1.11)	7.2 (1.24)	4.0 (2.53–6.17)	4.1 (2.67–6.42)	1.9 (1.21–3.04)	1.4 (0.86–2.42)
Histrionic personality disorder	0.5 (0.09)	1.5 (0.61)	1.4 (0.62)	2.7 (1.10–6.55)	2.4 (0.85–6.86)	1.0 (0.45–2.29)	0.7 (0.27–1.81)
Narcissistic personality disorder	3.1 (0.24)	8.8 (1.44)	10.2 (1.60)	3.4 (2.35–5.02)	3.9 (2.61–5.77)	2.2 (1.42–3.26)	1.8 (1.13–2.81)
Borderline personality disorder	2.0 (0.17)	5.9 (1.05)	12.5 (1.81)	3.0 (1.94–4.68)	6.3 (4.22–9.40)	1.3 (0.82–2.20)	2.4 (1.52–3.73)
Antisocial personality disorder	1.2 (0.16)	4.0 (1.08)	4.0 (1.08)	4.5 (2.30–8.92)	4.5 (2.20–9.10)	2.1 (0.98–4.62)	2.1 (0.95–4.82)
Avoidant personality disorder	0.8 (0.13)	2.1 (0.66)	3.0 (0.81)	2.3 (1.12–4.67)	3.0 (1.63–5.56)	0.8 (0.35–1.66)	0.7 (0.33–1.33)
Dependent personality disorder	0.1 (0.04)	0.4 (0.29)	1.0 (0.51)	— ^f	— ^f	— ^f	— ^f
Obsessive-compulsive personality disorder	5.8 (0.31)	10.4 (1.55)	13.5 (1.83)	2.0 (1.38–2.77)	2.7 (1.93–3.77)	1.1 (0.77–1.60)	1.3 (0.86–1.86)

^a Statistically significant odds ratios are highlighted in bold.

^b All sociodemographic covariates (sex, age, race/ethnicity, education, marital status, and past-year household income) were entered into these models simultaneously.

^c All sociodemographic covariates and controls for additional Axis I and II diagnoses were entered into these models simultaneously.

^d Respondents in this group reported experiencing a traumatic event but had neither full nor partial PTSD.

^e Defined as experiencing a traumatic event; helplessness, horror, or fear of death or severe injury or disability; and at least one symptom each from Criteria B, C, and D and duration of at least one month (Criterion E).

^f Odds ratios not calculated because of zero cells in multiple covariates.