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Prevalence and Axis I Comorbidity of Full and Partial Posttraumatic Stress Disorder in the United States: Results from Wave 2 of the National Epidemiologic Survey on Alcohol and Related Conditions

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Abstract

The present study used data from the Wave 2 National Epidemiologic Survey on Alcohol and Related Conditions (n=34,653) to examine lifetime Axis I psychiatric comorbidity of posttraumatic stress disorder (PTSD) in a nationally representative sample of U.S. adults. Lifetime prevalences±standard errors of PTSD and partial PTSD were 6.4%±0.18 and 6.6%±0.18, respectively. Rates of PTSD and partial PTSD were higher among women (8.6%±0.26 and 8.6%±0.26) than men (4.1%±0.19 and 4.5%±0.21). Respondents with both PTSD and partial PTSD most commonly reported unexpected death of someone close, serious illness or injury to someone close, and sexual assault as their worst stressful experiences. PTSD and partial PTSD were associated with elevated lifetime rates of mood, anxiety, and substance use disorders, and suicide attempts. Respondents with partial PTSD generally had intermediate odds of comorbid Axis I disorders and psychosocial impairment relative to trauma controls and full PTSD.

Keywords

posttraumatic stress disorder; epidemiology; comorbidity; mood disorders; anxiety disorders; substance use disorders

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DECLARATION OF INTEREST

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1. Introduction

Posttraumatic stress disorder (PTSD) is characterized by persistent re-experiencing, avoidance, numbing, and hyperarousal symptoms following the experiencing, witnessing, or confrontation with actual or potential death, serious physical injury, or a threat to physical integrity (American Psychiatric Association, 2000). While PTSD has been included in the DSM since 1980, only one study (Kessler, Sonnega, Bromet, Hughes, & Nelson, 1995) has systematically examined its Axis I comorbidity in a nationally representative sample of U.S. adults.

In the National Comorbidity Survey (NCS), Kessler and colleagues (Kessler et al., 1995) found a lifetime PTSD prevalence of 7.8%. Women and previously married individuals were more likely to have PTSD according to the DSM-III-R (American Psychiatric Association, 1987), and PTSD was associated with increased odds of mood (odds ratios [ORs]=4.1–10.4), anxiety (ORs=2.4–7.1), alcohol abuse/dependence (ORs=2.1–2.5), drug abuse/dependence (ORs=3.0–4.5), and conduct disorders (ORs=2.9–3.1). More recently, the National Comorbidity Survey-Replication (NCS-R) found a lifetime DSM-IV PTSD prevalence of 6.8% (Kessler, Chiu, Demler, Merikangas, & Walters, 2005) and associations with lifetime suicidal ideation (OR=1.8) and attempts (OR=2.0; Cougle, Keough, Riccardi, & Sachs-Ericsson, 2009). Results consistent with the NCS and NCS-R have been found in epidemiologic studies conducted in specific U.S. regions (Breslau, Lucia, & Davis, 2004a; Lloyd & Turner, 2003), other countries (Creamer, Burgess, & McFarlane, 2001; Jeon, Suh, Lee, Hahm, Lee, Cho, Lee, Chang, & Cho, 2007; Sareen, Cox, Stein, Afifi, Fleet, & Asmundson, 2007), and individuals within specific age groups (Breslau, Davis, Andreski, & Peterson, 1991; Lloyd & Turner, 2003) or who experienced specific types of traumas (Tanielian & Jaycox, 2008). To our knowledge, the prevalence of comorbid DSM-IV Axis I disorders in PTSD has not been examined in the NCS-R sample.

“Partial PTSD” describes clinically significant PTSD symptoms in trauma-exposed individuals who do not meet full criteria for PTSD (Mylle & Maes, 2004; Weiss, Marmar, Schlenger, Fairbank, Jordan, Hough, & Kulka, 1992). Partial PTSD is typically identified when affected individuals meet Criterion B (re-experiencing) and either Criterion C (avoidance and numbing) or D (arousal), or if they meet Criterion B and endorse at least one symptom each from Criteria C and D (Kulka, 1990; Schnurr, Ford, Friedman, Green, Dain, & Sengupta, 2000). Studies of partial PTSD in veterans (Favaro, Tenconi, Colombo, & Santonastaso, 2006; Grubaugh, Magruder, Waldrop, Elhai, Knapp, & Frueh, 2005; Jakupcak, Conybeare, Phelps, Hunt, Holmes, Felker, Klevens, & McFall, 2007; Kulka, 1990; Pietrzak, Goldstein, Malley, Johnson, & Southwick, 2009; Schnurr et al., 2000; Watson & Daniels, 2008), ambulance workers (Berger, Figueira, Maurat, Bucassio, Vieira, Jardim, Coutinho, Mari, & Mendlowicz, 2007), and survivors of toxic chemical exposures, disasters, and other traumas (Adams, Boscarino, & Galea, 2006; Berger et al., 2007; Breslau et al., 2004a; Jeon et al., 2007; Lai, Chang, Connor, Lee, & Davidson, 2004; Marshall, Olfson, Hellman, Blanco, Guardino, & Struening, 2001; Pietrzak, Goldstein, Southwick, & Grant, in press; Schutzwohl & Maercker, 1999; Stein, Walker, Hazen, & Forde, 1997; Zlotnick, Franklin, & Zimmerman, 2002) have found intermediate levels of psychiatric comorbidity and functional impairment compared to trauma-exposed individuals without PTSD and those with full PTSD. Partial PTSD can persist for years (Jeon et al., 2007; Schnurr et al., 2003). Despite the public health importance of partial PTSD, its prevalence and Axis I comorbidity have not, to our knowledge, been examined in a large, nationally representative U.S. sample.

The last comprehensive examination of psychiatric comorbidity of PTSD in U.S. adults is now 15 years old and based on DSM-III-R criteria (Kessler et al., 1995). Given significant changes in diagnostic criteria from DSM-III-R to DSM-IV, most notably the broadening of the range of criterion A stressors and shift from objective to subjective experience of trauma (Breslau & Kessler, 2001), and recent national exposure to potentially traumatic events (e.g., 9/11 attacks), a more up-to-date assessment of Axis I comorbidity of PTSD in the U.S. population is indicated. Further, because PTSD is associated with a broad range of comorbid disorders (Kessler et al., 1995), a comprehensive assessment of specific co-occurring Axis I disorders that controls for additional psychiatric comorbidity will help quantify unique associations between PTSD, partial PTSD, and comorbid disorders in the general U.S. population.

The current study provides an up-to-date assessment of the prevalence and Axis I comorbidity of DSM-IV PTSD and partial PTSD in Wave 2 of the National Institute on Alcohol Abuse and Alcoholism (NIAAA) National Epidemiologic Survey on Alcohol and Related Conditions (NESARC). Axis II comorbidity will be examined in a separate study. The NESARC is one of the largest psychiatric epidemiology surveys ever conducted. Wave 2 assessed PTSD and a broad range of other disorders using DSM-IV criteria, allowing examination of DSM-IV Axis I disorders that co-occur with PTSD and partial PTSD. We hypothesized that (a) prevalences of PTSD and partial PTSD would be comparable to estimates from previous epidemiologic studies; and (b) respondents with partial PTSD would experience intermediate levels of co-occurring Axis I disorders compared to trauma controls and respondents with PTSD.

2. Methods and Materials

2.1. Sample

The 2004–2005 Wave 2 NESARC (Grant, Kaplan, & Stinson, 2005d) is the second wave follow-up of the Wave 1 NESARC conducted in 2001–2002 and described elsewhere (Grant, Dawson, & Hasin, 2004a; Grant, Dawson, Stinson, Chou, Kay, & Pickering, 2003). The Wave 1 NESARC surveyed a representative sample of the civilian, noninstitutionalized U.S. population aged 18 years and older, residing in households and group quarters. Blacks, Hispanics, and individuals 18 to 24 years old were oversampled. The housing unit sampling frame was the Census Supplementary Survey (C2SS), consisting of 655 primary sampling units (PSUs) reflecting counties and county equivalents. The NESARC drew a sample from each of the C2SS's 655 PSUs. A group quarters sampling frame was selected from the Census 2000 Group Quarters Inventory. Group quarters units were converted to housing unit equivalents and sampled together with other NESARC housing units. To ensure respondent confidentiality, smaller PSUs were collapsed so that the final NESARC data file shows 435 PSUs.

Face-to-face interviews were conducted with 43,093 respondents, yielding an overall response rate of 81.0%. NESARC interviewers were lay interviewers from the U.S. Census Bureau with, on average, 5 years of experience working on Census and other health-related surveys. They completed a rigorous 5-day self-study at home as well as a 5-day in-class training session at one of the Bureau's 12 regional offices.

In Wave 2, attempts were made to conduct face-to-face reinterviews with all 43,093 Wave 1 respondents. Excluding those ineligible because they were deceased, incapacitated, deported, or on active military duty throughout the follow-up period, the Wave 2 response rate was 86.7% ($n = 34,653$ completed interviews) and the cumulative response rate across the 2 waves was 70.2%. All NESARC data were weighted to reflect the survey's design characteristics and account for oversampling, and adjustment for nonresponse across

sociodemographics and any lifetime Wave 1 diagnosis was performed at the household and person levels. Weighted Wave 2 data were adjusted to represent the civilian population on characteristics including region, age, race-ethnicity, and sex, based on the 2000 Decennial Census.

All potential NESARC respondents were informed in writing about the nature of the survey, the statistical uses of the survey data, the voluntary aspect of their participation, and the Federal laws that rigorously provide for the strict confidentiality of identifiable survey information. Respondents consenting to participate after receiving this information were interviewed. The entire research protocol, including informed consent procedures, received full ethical review and approval from the U.S. Office of Management and Budget and the U.S. Census Bureau.

2.2. Assessment of Posttraumatic Stress Disorder (PTSD)

The diagnostic interview used in the Wave 2 NESARC was the NIAAA Wave 2 Alcohol Use Disorder and Associated Disabilities Interview Schedule-DSM-IV Version (AUDADIS-IV; (Grant et al., 2004a), a computerized, fully structured instrument designed for experienced nonclinician interviewers. PTSD was assessed on a lifetime basis, beginning with an enumeration of 27 types of potentially traumatic events operationalizing DSM-IV Criterion A. Of the 27 categories, 6 involved terrorism; respondents reporting any of these 6 were asked whether the events occurred on September 11, 2001. Respondents endorsing multiple event types were asked to designate the event they considered most stressful (“Which of these experiences would you single out as the WORST stressful event?”); consistent with Criterion A, they were further asked whether they felt extremely frightened, helpless, or horrified about that event, and whether they thought they or someone very close to them might die, be seriously injured, or become permanently disabled at the time that event happened. Additional items assessed impairment and distress due to PTSD symptoms, age at first onset (“About how old were you the FIRST time a stressful event caused you to have SOME of these reactions for at least 1 month?”), duration of their longest or only episode, and whether their most recent or only episode remitted (“Since that MOST RECENT time/that time BEGAN, have ALL of those reactions gone away completely?”).

Full PTSD was diagnosed when respondents endorsed 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 that the DSM-IV clinical significance criterion of impairment or distress be met. Test-retest reliability of lifetime PTSD was good ($\kappa=0.64$; (Ruan, Goldstein, Chou, Smith, Saha, Pickering, Dawson, Huang, Stinson, & Grant, 2008).

Partial PTSD was defined as endorsement of at least 1 symptom within each of Criteria B, C, and D, lasting at least 1 month (Criterion E), after the worst event that involved intense fear, helplessness, or horror, or actual or threatened death, serious injury, or threat to the respondent’s or someone else’s physical integrity (American Psychiatric Association, 1994). Respondents who reported a potentially traumatic event but who did not meet criteria for either PTSD or partial PTSD were classified as trauma controls.

2.3. Assessment of Other Psychiatric Disorders

Wave 2 AUDADIS-IV assessments of DSM-IV substance use (alcohol and drug-specific abuse and dependence and nicotine dependence), mood (primary major depressive [MDD], dysthymic, and bipolar I and bipolar II disorders), and anxiety (primary panic with and

without agoraphobia, agoraphobia without panic, social and specific phobias, and generalized anxiety [GAD]) disorders were identical to those utilized in Wave 1 except for time frames. AUDADIS-IV methods to diagnose these disorders are described in detail elsewhere (Grant, Hasin, Blanco, Stinson, Chou, Goldstein, Dawson, Smith, Saha, & Huang, 2005a; Grant, Hasin, Stinson, Dawson, Goldstein, Smith, Huang, & Saha, 2006; Grant, Hasin, Stinson, Dawson, Chou, June Ruan, & Huang, 2005c; Grant, Stinson, Dawson, Chou, Dufour, Compton, Pickering, & Kaplan, 2004d; Grant, Stinson, Hasin, Dawson, Chou, Ruan, & Huang, 2005e; Hasin, Goodwin, Stinson, & Grant, 2005; Stinson, Dawson, Chou, Smith, Goldstein, June Ruan, & Grant, 2007). DSM-IV primary diagnoses excluded substance-induced disorders and those due to general medical conditions. MDD diagnoses also excluded bereavement. Attention-deficit/hyperactivity disorder, which was included as a covariate in analyses of comorbidity, was assessed on a lifetime basis at Wave 2.

All DSM-IV personality disorders (PDs), which were included in analyses of comorbidity, were diagnosed on a lifetime basis as described elsewhere (Grant, Chou, Goldstein, Huang, Stinson, Saha, Smith, Dawson, Pulay, Pickering, & Ruan, 2008; Grant, Hasin, Stinson, Dawson, Chou, Ruan, & Pickering, 2004c). Paranoid, schizoid, histrionic, avoidant, dependent, and obsessive-compulsive PDs were assessed in Wave 1 (Compton, Conway, Stinson, Colliver, & Grant, 2005; Grant et al., 2004c; Grant et al., 2005c); antisocial PD was assessed at both waves (Goldstein & Grant, 2009); and schizotypal, narcissistic, and borderline PDs were assessed in Wave 2 (Grant et al., 2008; Stinson, Dawson, Goldstein, Chou, Huang, Smith, Ruan, Pulay, Saha, Pickering, & Grant, 2008).

Reliability (Canino, Bravo, Ramirez, Febo, Rubio-Stipec, Fernandez, & Hasin, 1999; Grant et al., 2003; Ruan et al., 2008) and validity (Canino et al., 1999; Grant et al., 2005a; Grant et al., 2004c; Grant et al., 2006; Grant, Hasin, Stinson, Dawson, June Ruan, Goldstein, Smith, Saha, & Huang, 2005b; Grant et al., 2005e; Hasin et al., 2005) of AUDADIS-IV mood, anxiety, and personality disorder diagnoses were fair to good in both clinical and general population samples. Selected mood and anxiety disorder diagnoses showed good agreement with psychiatrist reappraisals (Canino et al., 1999). The good to excellent reliability (Canino et al., 1999; Chatterji, Saunders, Vraiti, Grant, Hasin, & Mager, 1997; Grant et al., 2003; Grant, Harford, Dawson, Chou, & Pickering, 1995; Hasin, Carpenter, McCloud, Smith, & Grant, 1997) and validity (Canino et al., 1999; Cottler, Grant, Blaine, Mavreas, Pull, Hasin, Compton, Rubio-Stipec, & Mager, 1997; Hasin & Paykin, 1999; Hasin, Muthuen, Wisnicki, & Grant, 1994; Hasin, Schuckit, Martin, Grant, Bucholz, & Helzer, 2003; Pull, Saunders, Mavreas, Cottler, Grant, Hasin, Blaine, Mager, & Ustun, 1997) of AUDADIS-IV alcohol and drug use disorder diagnoses are documented in general population and clinical samples, including the World Health Organization/National Institutes of Health International Study on Reliability and Validity, which showed good validity of DSM-IV alcohol and drug use disorder diagnoses in clinical reappraisals (Canino et al., 1999; Cottler et al., 1997).

2.4. Assessment of Psychosocial Functioning

Past-month psychosocial functioning was assessed using the mental component summary scale (MCS) from the Short-Form 12-Item Health Survey, version 2 (SF-12v2; (Gandek, Ware, Aaronson, Alonso, Apolone, Bjorner, Brazier, Bullinger, Fukuhara, Kaasa, Leplege, & Sullivan, 1998). Standard norm-based scoring 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.

2.5. Statistical Analysis

The analysis sample for this report consists of all Wave 2 NESARC respondents with full (n=2,463) and partial PTSD (n=2,471), and trauma controls (n=26,716). Following previous

epidemiologic studies (Breslau, Lucia, & Davis, 2004b; Kessler et al., 1995), respondents who did not endorse any potentially traumatic exposures at the beginning of the PTSD section of the AUDADIS-IV were excluded from analyses. This permits examination of Axis I disorders associated uniquely with full and partial PTSD relative to traumatized individuals who did not meet criteria for these conditions.

Standard contingency table approaches and χ^2 statistics were used to compare sociodemographics, worst stressful experiences, and lifetime prevalences of comorbid Axis I diagnoses by PTSD status (Agresti, 1990). Where appropriate, *t*-statistics were used for pairwise comparisons of trauma exposures. Adjusted odds ratios (ORs) measuring associations of PTSD with sociodemographic characteristics were obtained from a single logistic regression into which all sociodemographic variables were entered simultaneously. Associations of PTSD with other psychiatric disorders were examined using 2 sets of logistic regressions (Hosmer & Lemeshow, 2000). The first controlled for sociodemographic characteristics. The second additionally controlled for all other Axis I and II disorders, addressing the fact that control only for sociodemographic characteristics does not reveal the unique relationships of PTSD to other disorders that themselves have considerable comorbidity (Compton, Thomas, Stinson, & Grant, 2007; Hasin, Stinson, Ogburn, & Grant, 2007). To assess whether comorbid associations of full and partial PTSD with other disorders varied by sex, sex $\times$ PTSD status product terms were tested in all multivariable models, with an alpha to stay of 0.05. Where statistically significant sex $\times$ PTSD status interactions were identified, sex-specific adjusted ORs were computed; otherwise, ORs were computed for the entire sample, controlling for sex and other covariates.

Sociodemographic-adjusted means for MCS scores were compared by PTSD status using normal-theory analyses of covariance. Weighted means for age at onset of first PTSD episode and duration of longest or only episode were compared using one-way normal-theory analyses of variance. All analyses were conducted using SUDAAN (Research Triangle Institute, 2006), which uses Taylor series linearization to adjust for design characteristics of complex surveys.

3. Results

3.1. Prevalence

In the total sample ($N=34,653$), lifetime prevalences of PTSD and partial PTSD were 6.4% ($SE=0.18$) and 6.6% ($SE=0.18$), respectively. Rates were higher among women [8.6% ($SE=0.26$) and 8.6% ($SE=0.26$)] than men [4.1% ($SE=0.19$) and 4.5% ($SE=0.21$)], $\chi^2(3)=167.02$, $p<0.0001$.

Sociodemographic characteristics by PTSD status are shown in Table 1. Odds of PTSD were greater for individuals who were younger, female, previously married, and with lower incomes, but lower among Asian/Hawaiian/Pacific Islanders and individuals who never married. Odds of partial PTSD were elevated among most groups who had elevated odds of full PTSD and lower among Hispanic respondents.

3.2. Trauma exposure and clinical characteristics

Types of traumas ever endorsed by PTSD status are shown in Table 2. After controlling for sociodemographic variables, respondents with full and partial PTSD were more likely than trauma controls to endorse most of the traumas assessed. Significant sex $\times$ PTSD interactions were observed for being kidnapped or held hostage, knowing someone close who directly experienced and who was injured in a terror attack including 9/11 or directly experiencing a terror attack including 9/11. The following traumas were more common among respondents with full PTSD than respondents with partial PTSD, as evidenced by

non-overlapping 95% confidence intervals around the associated ORs: military combat; own serious or life-threatening accident and illness; being beaten up by intimate partner; assaulted by someone else; being stalked, being mugged, held up, or threatened with a weapon; having someone close die in a terror attack; seeing someone badly injured or dead; and serious illness or injury to someone close. Women with full PTSD were more likely than women with partial PTSD to have been kidnapped or held hostage.

Respondents' worst traumatic exposures by PTSD status are shown in Table 3. The most commonly reported worst events in trauma controls were indirect experience of 9/11, serious illness or injury of someone close, and unexpected death of someone close. Among respondents with PTSD and partial PTSD, they were unexpected death of someone close, serious illness or injury to someone close, and sexual assault. Women with PTSD were more likely than men with PTSD to endorse sexual assault (12.8% vs. 1.0%, $t(65)=9.91$, $p<0.0001$), being beaten up by intimate partner (7.3% vs. 0.6%, $t(65)=7.45$, $p<0.0001$), unexpected death of someone close (25.6% vs. 20.8%, $t(65)=2.13$, $p=0.0366$), and serious illness or injury to someone close (17.0% vs. 12.8%, $t(65)=2.12$, $p=0.0378$) as their worst event. Men with PTSD were more likely than women with PTSD to endorse military combat (16.1% vs. 0.1%, $t(65)=8.47$, $p<0.0001$), seeing someone badly injured or dead (8.7% vs. 4.5%, $t(65)=2.72$, $p=0.0085$), and own serious or life-threatening accident (5.0% vs. 2.8%, $t(65)=2.07$, $p=0.0422$).

Women with partial PTSD were more likely than men with partial PTSD to endorse sexual assault (17.6% vs. 2.7%, $t(65)=10.47$, $p<0.0001$) and being beaten up by intimate partner (4.0% vs. 0.8%, $t(65)=3.72$, $p=0.0004$) as their worst event; men with partial PTSD were more likely than women with partial PTSD to report military combat (10.1% vs. 0%, $t(65)=7.40$, $p<0.0001$), own serious or life-threatening accident (5.1% vs. 1.4%, $t(65)=3.21$, $p=0.0021$), and seeing someone badly injured or dead (7.7% vs. 3.1%, $t(65)=3.69$, $p=0.0005$).

The full PTSD ($41.5\pm1.2\%$ vs. $17.4\pm0.3\%$, $t(65)=20.16$, $p<0.0001$) and partial PTSD ($38.9\pm1.2\%$ vs. $17.4\pm0.3\%$, $t(65)=17.25$, $p=0.0008$) groups were both more likely than the trauma control group to endorse a direct trauma (e.g., sexual assault) versus indirect trauma (e.g., unexpected death of someone close) as their worst stressful event; rates of endorsement of direct traumas as worst stressful events did not differ between the full and partial PTSD groups ($41.5\pm1.2\%$ vs. $38.9\pm1.2\%$, $t(65)=1.45$, $p=0.1525$).

As shown in Table 3, respondents with PTSD and partial PTSD scored lower than trauma controls on the MCS; respondents with PTSD scored lower than respondents with partial PTSD. Compared to respondents with partial PTSD, those with full PTSD reported longer duration of symptoms, and were less likely to report remission; age of onset did not differ. In the full PTSD group, respondents identifying a direct trauma as their worst event reported a longer duration of symptoms than those identifying an indirect worst trauma (171.8 ± 6.85 vs. 108.3 ± 4.87 months; $F(1,65)=59.69$, $p<0.0001$); rates of remission (44.9 ± 2.10 vs. 47.0 ± 1.53 ; $\chi^2(1)=0.74$, $p=.3913$) and MCS scores ($44.6\pm.48$ vs. $45.0\pm.38$; $F(1,65)=0.46$, $p=.4996$) did not differ between these groups.

3.3. Comorbidity

Lifetime Axis I comorbid disorders by PTSD status are shown in Table 4. After adjustment for sociodemographic characteristics, elevated odds of any mood disorder, MDD, dysthymic disorder, bipolar I and II disorders, any other anxiety disorder, GAD, panic disorder, agoraphobia without panic disorder, social and specific phobias, alcohol and drug abuse/dependence, and nicotine dependence (ORs=1.4–5.2), as well as lifetime suicide attempt (OR=5.1), were observed in respondents with full PTSD. After further adjustment for

additional comorbidity, almost all these associations remained significant, though reduced in magnitude (ORs=1.3–2.6). In analyses controlling for sociodemographics plus additional comorbidity, respondents with PTSD were more likely than those with partial PTSD to meet criteria for any additional anxiety disorder and GAD, as evidenced by non-overlapping 95% confidence intervals.

After adjustment for sociodemographic characteristics, elevated odds of any mood disorder, MDD, dysthymic disorder, bipolar I and II disorders, any additional anxiety disorder, GAD, panic disorder, social phobia, specific phobia, alcohol abuse/dependence, drug abuse/dependence, nicotine dependence (ORs=1.6–4.1), and lifetime suicide attempt (OR=3.5), were observed among respondents with partial PTSD. After further adjustment for additional comorbidity, most associations between partial PTSD and other disorders, and suicide attempts, remained significant, though reduced in magnitude (ORs=1.3–2.3).

In analyses adjusting for sociodemographic characteristics, significant sex $\times$ PTSD status interactions were noted for GAD, panic disorder, and specific phobia, with greater ORs among women than men with PTSD, but comparable odds between men and women with partial PTSD. After further adjustment for additional comorbidity, these interactions were no longer significant.

4. Discussion

The lifetime prevalence of PTSD (6.4%) observed in the current study is consistent with that reported in the NCS (7.8%; Kessler et al., 1995) and NCS-R (6.8%; Kessler et al., 2005). The higher prevalence of PTSD in women is also consistent with these surveys, though not entirely understood, as it is not fully explained by higher occurrences of sexual assault and rape, preexisting depression or anxiety disorders, or sex-related bias in symptom reporting (Chung & Breslau, 2008; Tolin & Foa, 2006). The present results replicate and extend findings from the NCS (Kessler et al., 1995) to suggest that PTSD is more common among younger, previously married, and lower-income individuals, and less common among never married and Asian/Hawaiian/Pacific Islanders.

Prevalences of lifetime trauma histories by PTSD status were comparable to those observed in previous epidemiologic surveys (Breslau, Kessler, Chilcoat, Schultz, Davis, & Andreski, 1998; Kessler et al., 1995). Most respondents with PTSD and partial PTSD endorsed as their worst stressful event a misfortune befalling someone else. This finding likely reflects the two-part DSM-IV operationalization of Criterion A, which broadens the range of stressors and emphasizes the victim's subjective experience (Breslau & Kessler, 2001). It is also consistent with evidence that indirect exposure to trauma is associated with the development of PTSD (Gil & Caspi, 2006; Kessler et al., 1995; Vila, Porche, & Mouren-Simeoni, 1999; Zimering, Gulliver, Knight, Munroe, & Keane, 2006), and that PTSD symptom structure following indirect exposure to trauma is similar to that following direct exposure (Suvak, Maguen, Litz, Silver, & Holman, 2008). Prior research has also similarly observed that specific types of traumas, such as unexpected death or serious illness or injury to someone close, as well as sexual assault are associated with increased risk of PTSD (Breslau et al., 1998; Hapke, Schumann, Rumpf, John, & Meyer, 2006; Jeon et al., 2007; Kessler et al., 1995). One explanation for the strong association between sexual assault and PTSD is that victims of interpersonal traumas such as sexual assault may be accompanied by physical injury (Tjaden & Thoennes, 2000), as well as self-blame and social stigma (Campbell, Dworken, & Cabral, 2009; Ullman & Filipas, 2005).

As observed in previous studies (Kessler et al., 1995; Lloyd & Turner, 2003), rates of direct traumas such as sexual assault were substantially higher among women with PTSD and

partial PTSD, and rates of military combat were substantially higher among men with PTSD and partial PTSD. A longer duration of symptoms among respondents with PTSD who reported a direct versus indirect worst trauma (14.3 vs. 9.0 years) replicates previous evidence from pediatric samples that direct exposure to a traumatic event is associated with a more severe and protracted clinical course (Kim, Kim, Kim, Shin, Cho, Choi, Ahn, Lee, Ryu, & Yun, 2009; Vila et al., 1999). The present results underscore the chronicity of PTSD, with the longest or only episode lasting, on average, 11.2 years. Nevertheless, consistent with previous longitudinal studies (Perkonig, Pfister, Stein, Höfler, Lieb, Maercker, & Wittchen, 2005), 46% of affected respondents reported remission.

PTSD was associated with nearly all assessed Axis I disorders, and lifetime suicide attempts, with magnitudes of associations comparable to those observed in the NCS and NCS-R (Kessler et al., 1995; Sareen et al., 2005), other nationally representative surveys (Creamer et al., 2001; Jeon et al., 2007), and the WHO World Mental Health Surveys (Nock, Hwang, Sampson, Kessler, Angermeyer, Beautrais, Borges, Bromet, Bruffaerts, de Girolamo, de Graaf, Florescu, Gureje, Haro, Hu, Huang, Karam, Kawakami, Kovess, Levinson, Posada-Villa, Sagar, Tomov, Viana, & Williams, 2009). PTSD was also associated with greater past-month psychosocial dysfunction, which replicates prior research (Stein et al., 1997; Schnurr et al., 2000; Breslau et al., 2004a; Jeon et al., 2007; Pietrzak et al., 2009). Consistent with previous studies (e.g., Kessler et al., 1995; Jeon et al., 2007), PTSD was associated with alcohol abuse/dependence in analysis adjusted for sociodemographic characteristics. After further adjustment for additional psychiatric disorders, however, the remaining unique association was no longer significant. This may be related to the more conservative estimation of odds ratios in the latter analyses, as well as the revised operationalization of Criterion A in DSM-IV, which broadens the range of stressors that may qualify for a diagnosis of PTSD (Breslau & Kessler, 2001).

Partial PTSD in the current study was chronic, persisting, on average, for nearly 10 years. The finding that types of worst traumas were similar between respondents with PTSD and partial PTSD underscores the importance of viewing PTSD symptoms along a continuum, as similar types of trauma exposures may give rise to varying degrees of PTSD-related symptomatology. Partial PTSD was also associated with elevated levels of Axis I comorbidity, lifetime suicide attempts, and past-month functional impairment, with patterns and magnitudes of lifetime comorbidity replicating previous findings (Jeon et al., 2007; Marshall et al., 2001). Respondents with partial PTSD had greater psychosocial dysfunction, as indicated by SF-12v2 mental component summary scores, which corroborates previous studies (Stein et al., 1997; Schnurr et al., 2000; Breslau et al., 2004a; Jeon et al., 2007; Pietrzak et al., 2009). Because partial PTSD is commonly overlooked in clinical settings and is not a formal diagnosis in DSM-IV, the present findings underscore the importance of careful assessment and possibly treatment of individuals with subsyndromal PTSD symptoms.

Numerous explanations have been proposed for the patterns of Axis I comorbidity with PTSD. First, preexisting disorders, such as MDD and substance use disorders, increase risk for PTSD. Among individuals with substance use disorders, this increased risk may reflect exposing themselves to situations carrying increased likelihoods of traumatic events (Breslau, 2009; Cottler et al., 1992). Second, mood and other psychiatric disorders may develop as complications of PTSD (Breslau, 2009). For example, self-medication of PTSD symptoms with alcohol, drugs, or nicotine may lead to the development of substance use disorders (Bremner, Southwick, Darnell, & Charney, 1996; Breslau, Davis, & Schultz, 2003). Third, high rates of Axis I comorbidity may reflect overlapping diagnostic criteria. For example, several Criterion C and D symptoms of PTSD overlap with symptoms of depression, and several Criterion C symptoms overlap with symptoms of GAD. Fourth,

traumatic stressors may precipitate PTSD as well as comorbid psychopathology including depression and substance use disorders, and may depend on preexisting genetic vulnerabilities (Breslau, 2009; Friedman & Yehuda, 1995). For example, while the association between PTSD and drug use disorders may be primarily causally driven by PTSD (Breslau et al., 2003; Chilcoat & Breslau, 1998; Lloyd & Turner, 2003), a shared genetic association has also been observed (McLeod, Koenen, Meyer, Lyons, Eisen, True, & Goldberg, 2001; Xian, Chantarujikapong, Scherrer, Eisen, Lyons, Goldberg, Tsuang, & True, 2000). Longitudinal studies are needed to evaluate causal mechanisms underlying comorbidity patterns of PTSD and partial PTSD.

Limitations of this study include the assessment of PTSD only in Wave 2. Consequently, causal associations among traumas, PTSD, comorbid psychiatric disorders, and the clinical course of PTSD, cannot be ascertained. Another consideration is that respondents may have differed in their interpretation of “worst stressful event” (i.e., the severity of event impact on themselves or on significant others). In addition, previous studies (e.g., Breslau, Peterson, Poisson, Schultz, & Lucia, 2004b) have assessed PTSD symptomatology with reference both to respondent-reported “worst” and to another randomly selected traumatic event to address concerns that using the respondents’ worst event might overestimate the prevalence of PTSD. As Breslau and colleagues (Breslau et al., 2004b) point out, however, the prevalence of PTSD based on worst event is only modestly higher than that based on a randomly selected event and associations with key clinical characteristics are comparable. Thus, when considerations such as interview length and respondent or interviewer burden make it impractical to assess PTSD separately for 2 or more events, the “worst event” approach is the appropriate way to assess trauma-related symptomatology (Breslau et al., 2004b). Another potential concern is that MCS scores reflect past-month psychosocial functioning. Because considerable proportions of respondents with full and partial PTSD reported remission, differences in scores among groups may underestimate impairment during symptomatic phases of these conditions.

5. Conclusions

This study extends previous epidemiologic research on PTSD by being the first to use DSM-IV criteria to diagnose comorbid disorders and providing up-to-date estimates of the prevalence of PTSD and comorbid Axis I disorders in a large, nationally representative U.S. sample. The NESARC’s high response rate and large sample permitted quantification of associations between PTSD and comorbid disorders while adjusting for sociodemographic characteristics and additional comorbidities. This study is also the first to examine the prevalence and Axis I comorbidity and functional impairment of partial PTSD in a nationally representative U.S. sample. The prevalence and comorbidity of partial PTSD underscore the need to screen for subthreshold PTSD symptoms in research and clinical practice. More research is needed to examine whether patterns of comorbidity may inform the etiology and nosology of PTSD and partial PTSD, whether direct versus indirect traumas are associated with different clinical profiles of full and partial PTSD, and whether characterization of comorbidity helps optimize treatment outcomes in affected individuals.

Research Highlights

- This study is the first to examine the prevalence and Axis I comorbidity of DSM-IV diagnosis posttraumatic stress disorder.
- The lifetime prevalence of posttraumatic stress disorder (PTSD) among U.S. adults was 6.4%.

- An additional 6.6% of U.S. adults had subthreshold, partial PTSD in their lifetimes.
- Lifetime full and partial PTSD are associated with elevated rates of Axis I disorders and suicide attempt.
- Lifetime full and partial PTSD are related to poorer past-month psychosocial functioning.

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Table 1

Sociodemographic characteristics of NESARC respondents by PTSD status

	No PTSD (Trauma Control) ^a	Partial PTSD ^b	Full PTSD	χ^2 (df)	P	Partial PTSD vs. No PTSD	PTSD vs. No PTSD
	(n=26,716)	(n=2,471)	(n=2,463)				
	% or mean (SE)	% or mean (SE)	% or mean (SE)			AOR (95% CI) ^c	AOR (95% CI) ^c
Age				81.25 (6)	<0.0001		
20–29	16.4 (0.37)	14.7 (0.94)	14.8 (0.91)			1.6 (1.30–2.02)	2.3 (1.87–2.90)
30–44	29.0 (0.39)	34.5 (1.25)	31.8 (1.04)			2.1 (1.76–2.49)	2.8 (2.33–3.41)
45–64	34.6 (0.37)	36.0 (1.36)	41.3 (1.20)			1.8 (1.47–2.10)	2.9 (2.43–3.47)
65+	19.9 (0.38)	14.9 (0.87)	12.2 (0.82)			1.0 (referent)	1.0 (referent)
Sex				166.24 (2)	< 0.0001		
Male	50.8 (0.38)	32.6 (1.20)	30.7 (1.10)			0.5 (0.43–0.54)	0.5 (0.42–0.51)
Female	49.2 (0.38)	67.4 (1.20)	69.4 (1.10)			1.0 (referent)	1.0 (referent)
Race/ethnicity				32.36 (8)	0.0001		
White	72.4 (1.56)	72.9 (1.51)	69.6 (1.63)			1.0 (referent)	1.0 (referent)
Black	10.3 (0.62)	11.4 (0.93)	13.6 (0.97)			1.0 (0.83–1.10)	1.1 (0.94–1.26)
Hispanic	10.9 (1.19)	10.3 (1.14)	11.4 (1.27)			0.8 (0.67–0.99)	0.9 (0.74–1.12)
Asian/Hawaiian/Pacific Islander	4.3 (0.56)	2.8 (0.50)	2.2 (0.45)			0.6 (0.44–0.90)	0.5 (0.34–0.79)
Native American	2.1 (0.17)	2.7 (0.42)	3.2 (0.51)			1.1 (0.82–1.56)	1.3 (0.95–1.77)
Education				21.65 (4)	0.0002		
Less than high school	12.7 (0.43)	15.2 (0.98)	16.3 (0.97)			1.3 (1.08–1.51)	1.1 (0.96–1.33)
High school	27.3 (0.58)	26.8 (1.11)	26.1 (1.30)			1.0 (0.88–1.12)	0.9 (0.77–1.01)
Postsecondary	60.0 (0.66)	58.0 (1.20)	57.7 (1.46)			1.0 (referent)	1.0 (referent)
Marital status				65.43 (4)	<0.0001		
Married/cohabiting	65.0 (0.48)	60.9 (1.18)	57.1 (1.25)			1.0 (referent)	1.0 (referent)
Widowed/separated/divorced	17.6 (0.28)	23.6 (0.94)	27.9 (1.03)			1.3 (1.14–1.49)	1.4 (1.26–1.66)
Never married	17.4 (0.49)	15.6 (0.88)	15.0 (0.91)			0.9 (0.79–1.09)	0.8 (0.70–0.96)
Household income				94.18 (6)	<0.0001		

	No PTSD (Trauma Control) ^a	Partial PTSD ^b	Full PTSD	χ^2 (df)	P	Partial PTSD vs. No PTSD	PTSD vs. No PTSD
	(n=26,716)	(n=2,471)	(n=2,463)				
	% or mean (SE)	% or mean (SE)	% or mean (SE)			AOR (95% CI) ^c	AOR (95% CI) ^c
\$0-\$19,999	16.8 (0.44)	20.0 (0.96)	26.8 (1.18)			1.3 (1.11-1.57)	2.3 (1.88-2.74)
\$20,000-\$34,999	17.7 (0.40)	19.1 (1.00)	21.5 (1.05)			1.3 (1.07-1.50)	1.8 (1.51-2.13)
\$35,000-\$69,999	33.5 (0.47)	33.7 (1.16)	28.5 (1.14)			1.2 (1.03-1.36)	1.2 (1.03-1.44)
\$70,000+	32.0 (0.82)	27.2 (1.21)	23.1 (1.38)			1.0 (referent)	1.0 (referent)

^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 were derived from a single logistic regression model into which all sociodemographic variables were entered simultaneously.

Table 2

Prevalences of potentially traumatic lifetime exposures by PTSD status

Event	No PTSD (Trauma (n=26,716)	Partial PTSD ^b (n=2,471)	Full PTSD (n=2,463)	Partial PTSD vs. No PTSD AOR (95% CI) ^c	PTSD vs. No PTSD AOR (95% CI) ^c
Military combat	4.6 (0.17)	5.7 (0.55)	8.2 (0.74)	2.2 (1.74–2.87)	4.3 (3.33–5.43)
Peacekeeper	1.1 (0.08)	1.9 (0.35)	2.3 (0.38)	2.6 (1.74–3.99)	3.4 (2.27–4.98)
Unarmed civilian in war or terror zone	2.0 (0.14)	2.8 (0.47)	3.6 (0.52)	1.7 (1.20–2.47)	2.2 (1.62–3.12)
Refugee	1.3 (0.22)	1.5 (0.37)	2.1 (0.38)	1.5 (0.87–2.61)	2.2 (1.50–3.25)
Own serious or life-threatening accident	16.7 (0.32)	21.8 (1.04)	30.0 (1.14)	1.6 (1.41–1.82)	2.4 (2.18–2.75)
Own serious or life-threatening illness	17.1 (0.37)	23.1 (1.13)	30.6 (1.22)	1.6 (1.41–1.88)	2.4 (2.15–2.77)
Natural disaster	16.0 (0.70)	21.1 (1.27)	25.6 (1.10)	1.5 (1.33–1.78)	2.0 (1.75–2.24)
Sexual assault	6.5 (0.23)	26.0 (1.09)	28.2 (1.28)	4.0 (3.47–4.52)	4.1 (3.56–4.71)
Physical abuse before age 18 yrs.	2.7 (0.11)	8.8 (0.67)	12.4 (0.76)	3.2 (2.66–3.82)	4.4 (3.75–5.11)
Neglect before age 18 yrs.	2.3 (0.12)	8.3 (0.66)	10.8 (0.74)	3.4 (2.77–4.25)	4.2 (3.52–5.05)
Witnessed family violence before age 18 yrs.	8.7 (0.25)	21.5 (1.02)	26.4 (1.13)	2.6 (2.29–3.00)	3.2 (2.85–3.64)
Being beaten up by intimate partner	4.6 (0.16)	15.5 (0.98)	22.6 (0.98)	2.8 (2.40–3.34)	4.0 (3.51–4.64)
Assaulted by someone else	7.1 (0.21)	13.1 (0.79)	18.9 (0.97)	2.5 (2.12–2.98)	4.0 (3.43–4.74)
Kidnapped or held hostage	0.5 (0.06)	1.8 (0.29)	4.7 (0.54)	Men 2.5 (1.20–5.17)	Men 4.1 (2.09–8.05)
Stalked	4.1 (0.16)	13.8 (0.81)	19.7 (1.04)	Women 3.1 (2.59–3.62)	Women 4.5 (3.83–5.31)
Mugged, held up, or threatened with a weapon	11.1 (0.33)	18.2 (1.08)	27.4 (1.09)	2.1 (1.84–2.43)	3.6 (3.18–4.08)
Someone close died in terror attack including 9/11	0.8 (0.09)	0.9 (0.24)	2.2 (0.37)	1.2 (0.69–2.08)	3.1 (2.18–4.35)
Happened specifically on 9/11	0.5 (0.07)	0.6 (0.19)	1.5 (0.31)	1.2 (0.67–2.29)	3.1 (2.11–4.62)
Someone close injured in terror attack including 9/11	0.8 (0.08)	1.3 (0.30)	2.6 (0.41)	Men 2.4 (1.23–4.62)	Men 6.0 (3.65–9.99)
Happened specifically on 9/11	0.4 (0.07)	0.7 (0.22)	1.3 (0.27)	Women 1.2 (0.63–2.38)	Women 1.9 (1.18–3.03)
Respondent injured in terror attack including 9/11	<0.1 (<0.01)	0.2 (0.12)	0.3 (0.15)	Men 2.1 (0.91–4.99)	Men 6.6 (3.77–11.60)
Happened specifically on 9/11	0.1 (0.01)	0.1 (0.07)	0.2 (0.10)	Women 1.7 (0.67–4.16)	Women 1.8 (0.97–3.14)
				9.6 (1.93–47.89)	14.0 (3.12–62.42)
				— ^d	— ^d

Event	No PTSD (Trauma (n=26,716)	Partial PTSD ^b (n=2,471)	Full PTSD (n=2,463)	Partial PTSD vs. No PTSD AOR (95% CI) ^c	PTSD vs. No PTSD AOR (95% CI) ^c
Someone close directly experienced a terror attack including 9/11 (e.g., being in a building under attack)	4.8 (0.35)	7.0 (0.91)	8.3 (0.95)	Men 1.6 (1.10–2.19) Women 1.5 (1.18–1.96)	Men 2.6 (1.91–3.65) Women 1.6 (1.27–1.98)
Happened specifically on 9/11	3.6 (0.33)	4.8 (0.82)	5.7 (0.94)	Men 1.5 (0.96–2.22) Women 1.3 (0.99–1.81)	Men 2.7 (1.83–4.01) Women 1.3 (0.98–1.72)
Respondent directly experienced a terror attack including 9/11 (e.g., being in a building under attack)	0.9 (0.10)	1.2 (0.30)	2.0 (0.39)	Men 2.1 (1.13–3.87) Women 1.2 (0.56–2.63)	Men 4.3 (2.71–6.79) Women 1.6 (0.90–2.91)
Happened specifically on 9/11	0.5 (0.08)	0.4 (0.16)	0.8 (0.29)	1.0 (0.47–1.97)	2.2 (1.22–3.95)
Respondent indirectly experienced a terror attack (e.g., 9/11 on radio or TV)	85.6 (0.44)	86.2 (0.90)	86.5 (1.02)	1.1 (0.91–1.23)	1.1 (0.96–1.34)
Happened specifically on 9/11	84.8 (0.44)	84.3 (0.97)	85.3 (1.05)	1.0 (0.83–1.11)	1.1 (0.91–1.26)
Seeing someone badly injured or dead	24.0 (0.40)	34.2 (1.26)	43.1 (1.26)	2.0 (1.80–2.32)	3.1 (2.75–3.47)
Unexpected death of someone close	42.2 (0.67)	61.9 (1.19)	65.9 (1.12)	2.2 (2.00–2.49)	2.7 (2.42–2.95)
Serious illness or injury to someone close	48.4 (0.69)	60.8 (1.18)	66.6 (1.17)	1.6 (1.47–1.81)	2.2 (1.96–2.40)
Other trauma to someone close	13.4 (0.30)	23.8 (1.03)	27.0 (1.03)	2.0 (1.73–2.23)	2.3 (2.10–2.63)
Other trauma to respondent	4.5 (0.17)	11.6 (0.81)	12.7 (0.83)	2.7 (2.34–3.22)	3.1 (2.61–3.63)

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

^b Defined as experiencing a Criterion A-qualifying 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 Odds ratios are adjusted for sociodemographic variables.

Table 3
Worst trauma exposures and clinical characteristics among NESARC respondents by PTSD status

	No PTSD (Trauma Control) ^a	Partial PTSD ^b	Full PTSD	χ^2 or F (df)	p
	(n=26,716)	(n=2,471)	(n=2,463)		
	% or mean (SE)	% or mean (SE)	% or mean (SE)		
Worst stressful event ever experienced					
Unexpected death of someone close	22.7 (0.49)	26.2 (1.13)	24.1 (1.00)	8.58 (2)	0.0137
Serious illness or injury to someone close	23.0 (0.44)	15.0 (0.82)	15.7 (0.84)	87.13 (2)	<0.0001
Sexual assault	1.7 (0.10)	12.7 (0.86)	9.2 (0.75)	144.91 (2)	<0.0001
Seeing someone badly injured or dead	4.1 (0.17)	4.6 (0.50)	5.8 (0.52)	10.71 (2)	0.0047
Military combat	2.1 (0.11)	3.3 (0.46)	5.0 (0.61)	26.81 (2)	<0.0001
Being beaten up by intimate partner	0.7 (0.05)	3.0 (0.46)	5.3 (0.55)	68.89 (2)	<0.0001
Indirect experience of 9/11 (e.g., TV or radio broadcast)	24.5 (0.63)	7.0 (0.68)	4.2 (0.56)	147.34 (2)	<0.0001
Own serious or life-threatening accident	2.4 (0.11)	2.6 (0.44)	3.5 (0.39)	7.60 (2)	0.0223
Other trauma to self	1.9 (0.10)	5.1 (0.55)	3.5 (0.48)	31.48 (2)	<0.0001
Other trauma to someone close	4.3 (0.15)	3.3 (0.45)	2.7 (0.38)	15.24 (2)	0.0005
SF-12v2 Mental component summary score^c	52.1 (0.08)	48.3 (0.26)	45.7 (0.27)	359.19 (2,65)	<0.0001
Age at onset of first episode of PTSD symptoms, mean	N/A ^d	29.1 (0.41)	28.7 (0.41)	0.59 (2,65)	0.4441
Duration of longest or only episode, months	N/A ^d	116.9 (4.22)	134.8 (3.92)	11.01 (2,65)	0.0015
Most recent episode of PTSD remitted	N/A ^d	56.5 (1.25)	46.0 (1.27)	33.64 (1)	<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 Mean scores are adjusted for sociodemographic variables. PTSD < partial PTSD < trauma controls, all p's < .001.

^d N/A = not applicable.

Table 4
Lifetime DSM-IV psychiatric comorbidity among NESARC respondents by PTSD status

	Prevalence [% (SE)]			Odds Ratios (95% Confidence Intervals) Controlling for Sociodemographic Characteristics		Odds Ratios (95% Confidence Intervals) Controlling for Sociodemographic Characteristics and Other Psychiatric Disorders	
	No PTSD (Trauma Control) ^a	Partial PTSD ^b	Full PTSD	Partial PTSD vs. No PTSD	PTSD vs. No PTSD	Partial PTSD vs. No PTSD	PTSD vs. No PTSD
	(n=26,716)	(n=2,471)	(n=2,463)	AOR ^c (95%CI)	AOR ^c (95%CI)	AOR ^c (95%CI)	AOR ^c (95%CI)
Any mood disorder	21.8 (0.39)	51.3 (1.25)	61.5 (1.33)	3.4 (3.05–3.81)	4.9 (4.38–5.54)	2.3 (2.01–2.58)	2.6 (2.32–3.00)
Major depressive disorder	14.3 (0.31)	31.5 (1.08)	35.2 (1.22)	2.4 (2.12–2.68)	2.7 (2.41–3.03)	1.9 (1.65–2.10)	1.9 (1.65–2.15)
Dysthymic disorder	2.7 (0.12)	7.2 (0.58)	10.0 (0.74)	2.4 (1.98–2.93)	3.2 (2.60–3.94)	1.2 (0.99–1.51)	1.3 (1.08–1.66)
Bipolar I disorder	3.8 (0.15)	11.8 (0.76)	19.1 (1.02)	3.1 (2.68–3.68)	5.2 (4.50–6.02)	1.6 (1.33–1.92)	2.1 (1.80–2.48)
Bipolar II disorder	1.4 (0.09)	4.33 (0.49)	4.4 (0.49)	2.9 (2.22–3.78)	2.8 (2.12–3.59)	1.8 (1.33–2.31)	1.4 (1.04–1.86)
Any anxiety disorder except PTSD	22.2 (0.46)	46.6 (1.16)	59.0 (1.40)	2.7 (2.42–2.97)	4.3 (3.83–4.81)	1.7 (1.48–1.84)	2.3 (2.03–2.58)
Generalized anxiety disorder	5.6 (0.20)	17.6 (0.93)	27.9 (1.19)	Men 3.5 (2.63–4.69) Women 2.8 (2.41–3.30)	Men 1.4 (1.21–1.69) Women 4.6 (4.02–5.35)	1.4 (1.21–1.69)	2.0 (1.75–2.37)
Panic disorder with or without agoraphobia	5.5 (0.18)	18.4 (1.04)	24.2 (1.23)	Men 4.1 (3.10–5.29) Women 3.0 (2.55–3.60)	Men 1.9 (1.56–2.20) Women 4.0 (3.41–4.67)	1.9 (1.56–2.20)	1.9 (1.61–2.29)
Agoraphobia without panic disorder	0.3 (0.04)	0.5 (0.16)	0.7 (0.18)	1.8 (0.87–3.63)	2.2 (1.21–4.14)	0.8 (0.37–1.65)	0.7 (0.36–1.38)
Social phobia	5.9 (0.21)	12.6 (0.86)	19.4 (1.03)	2.1 (1.75–2.48)	3.4 (2.92–3.85)	1.0 (0.82–1.19)	1.3 (1.07–1.47)
Specific phobia	13.0 (0.35)	27.5 (1.06)	37.3 (1.32)	Men 2.2 (1.83–2.75) Women 2.1 (1.88–2.43)	Men 1.4 (1.21–1.55) Women 3.0 (2.65–3.40)	1.4 (1.21–1.55)	1.7 (1.52–1.97)
Any alcohol or drug use disorder	37.0 (0.75)	43.3 (1.41)	46.4 (1.31)	1.6 (1.40–1.77)	1.8 (1.65–2.05)	1.0 (0.93–1.19)	1.1 (0.93–1.20)
Alcohol abuse/dependence	34.9 (0.75)	40.5 (1.35)	41.8 (1.31)	1.6 (1.38–1.74)	1.7 (1.51–1.88)	1.1 (0.93–1.20)	0.9 (0.82–1.09)
Drug abuse/dependence	11.4 (0.35)	17.4 (1.01)	22.3 (1.17)	1.8 (1.53–2.06)	2.4 (2.09–2.80)	1.0 (0.87–1.23)	1.3 (1.06–1.53)
Nicotine dependence	21.9 (0.52)	34.1 (1.32)	37.9 (1.26)	1.8 (1.64–2.09)	2.1 (1.87–2.37)	1.3 (1.17–1.53)	1.3 (1.16–1.51)
Lifetime suicide attempt	2.3 (0.11)	9.2 (0.67)	13.9 (0.86)	3.5 (2.93–4.26)	5.1 (4.30–6.10)	1.7 (1.42–2.14)	2.0 (1.66–2.48)

^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 Sex-specific odds ratios are reported where statistically significant ($p < 0.05$) sex by PTSD status interactions were identified. In the absence of statistically significant sex by PTSD status interactions, odds ratios are reported for the entire sample, controlling for sex and other covariates.