

## Prevalence and correlates of posttraumatic stress disorder and chronic severe pain in psychiatric outpatients

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**Abstract**—This cross-sectional study reports the prevalence and correlates of posttraumatic stress disorder (PTSD) and chronic severe pain in psychiatric outpatients ( $n = 295$ ), a sample that has not previously been examined for the co-occurrence of these two disorders. Nearly half the participants (46%) met the Diagnostic and Statistical Manual of Mental Disorders-Fourth Edition criteria for PTSD; 40% reported chronic severe pain; and 24% had both disorders. We compared four groups of subjects who had either both disorders, PTSD only, chronic severe pain only, or neither disorder for variables previously found to be associated with both disorders or either disorder alone (e.g., psychiatric distress, substance use, stressful life events, physical/sexual abuse). Multiple pairwise comparisons indicated that persons with both disorders were significantly different from persons with neither disorder for all dependent variables and that they had greater physical and psychosocial stressors. Persons with either PTSD or chronic severe pain alone were more likely to have a chronic medical condition, higher ratings of psychiatric distress, and more stressful life events than persons with neither disorder. Mental health treatment providers should be aware of the potential for the co-occurrence of PTSD and chronic severe pain and of the many related factors in psychiatric outpatients.

**Key words:** chronic medical condition, chronic pain, mental health, physical/sexual abuse, positive affect, posttraumatic stress disorder, psychiatric outpatients, social support, stressful life events, substance use.

## INTRODUCTION

Recent research has demonstrated that posttraumatic stress disorder (PTSD) and chronic pain frequently co-occur [1–2]. Persons with PTSD commonly report chronic pain, and persons with chronic pain report more severe PTSD symptoms [3–4]. When these two disorders co-occur, they appear to amplify and complicate the patient's experience. Chronic pain patients also diagnosed with PTSD report higher pain intensity, more emotional distress, and greater pain-related interference and disability than those without PTSD [5]. Data from the National Comorbidity Survey [6] indicated that persons reporting chronic musculoskeletal pain were four times

**Abbreviations:** ANOVA = analysis of variance, ASI = Addiction Severity Index, BPI = Brief Pain Inventory, CAPS = Clinician-Administered Posttraumatic Stress Disorder Scale, DSM-IV = Diagnostic and Statistical Manual of Mental Disorders-Fourth Edition, HSD = honest significant difference, M.I.N.I. = Mini-International Neuropsychiatric Interview, PA = positive affect, PTSD = posttraumatic stress disorder, SMI = severe mental illness, SUD = substance-use disorder.

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more likely to develop PTSD than persons without such pain [7]. PTSD treatment studies demonstrating improvements in pain symptoms also point toward the overlap of PTSD and chronic pain [8].\* Several researchers have postulated that PTSD and chronic pain are intricately connected [9–10] and that similar psychological, physiological, and behavioral mechanisms are responsible for the two disorders (e.g., fear and avoidance, somatic focus, anxiety sensitivity, “catastrophizing”) [1,3,11].

Prevalence rates for PTSD in the general population have been reported at 6 percent for males and 12 percent for females [6]. The prevalence of chronic pain in the general population is conservatively estimated at 10 to 20 percent [12–13]. Chronic pain is typically defined as pain that persists for at least 3 to 6 months [14]. Recent research on PTSD and chronic pain has been conducted mainly on veterans, chronic pain patients, and PTSD patients. For veterans with PTSD, Shipherd et al. found that 66 percent had a comorbid diagnosis of chronic pain.\* Asmundson et al. reported that 44 percent of female veterans with PTSD (full or subsyndromal) scored higher on pain experience and pain interference ratings (i.e., how much pain interfered with daily functioning) [2]. For a group of firefighters with PTSD, McFarlane et al. found that approximately 45 percent reported significant back pain [15]. Several studies on veterans and nonveterans with chronic pain and fibromyalgia reported that 10–35 percent also met diagnostic criteria for PTSD [16–18]. In studies of persons with pain from a motor vehicle accident, researchers found that rates of PTSD ranged from 30–50 percent [19–21]. Thus, the research on veterans, chronic pain patients, and PTSD patients demonstrates that PTSD and chronic pain frequently co-occur.

The co-occurrence of PTSD and chronic pain has not been examined in the general psychiatric outpatient population (i.e., nonveteran patients). The prevalence of PTSD alone and the likelihood of continued trauma and violence have been documented in psychiatric patients [22–23]. Craine et al. reported that 34 percent of women admitted to inpatient psychiatric treatment were diagnosed with PTSD [24]. Cascardi et al. found that 29 percent of persons recently admitted to inpatient psychiatric

treatment also had PTSD [25]. Mueser et al. reported that 43 percent of psychiatric outpatients with severe mental illness (SMI) also had PTSD [23]. Gearon et al. found that 46 percent of schizophrenic women (psychiatric outpatients) had PTSD [26]. Mueser et al. found that 35 percent of persons with SMI (psychiatric outpatients and inpatients) had PTSD [27]. Despite these research findings, PTSD is not typically recognized or formally diagnosed in mental health (or primary care) treatment settings. Mueser and colleagues reported that PTSD rates of 29–43 percent were found in prior studies on psychiatric patients with SMI, but less than 5 percent of those patients had PTSD documented in their medical records [28]. The underdiagnosis of PTSD is both a clinical and financial problem because PTSD contributes to ongoing substance use, potential victimization, continued psychiatric or medical problems, and increased health-services use [27].

While psychiatric comorbidity in chronic pain patients has been studied extensively, we found no study documenting chronic pain or the co-occurrence of chronic pain and PTSD in psychiatric outpatients. We sought to examine the rates of PTSD, chronic pain, and the co-occurrence of these two disorders in a sample of psychiatric outpatients. We speculated that PTSD would be underdiagnosed in the current sample, similar to prior research on the incidence of PTSD in psychiatric patients [28]. Our aim was also to compare four groups of subjects who had either both disorders, PTSD only, chronic severe pain only, or neither disorder for variables previously found to be associated with comorbid PTSD and chronic pain or with either disorder alone. In accordance with prior research, we hypothesized that persons in our sample with comorbid PTSD and chronic severe pain would be more likely to have a chronic medical condition (i.e., a cause of chronic pain) and emotional/psychiatric distress. We also hypothesized that persons with both or a single disorder would be more likely to demonstrate psychosocial stressors (e.g., more stressful life events, lower ratings of social support and positive affect [PA]), than persons with neither disorder. Finally, we hypothesized that the pattern of these associations would be most robust when persons with both disorders were compared with those with neither disorder.

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\*Shipherd JC, Keyes M, Jovanovic T, Ready DJ, Baltzell D, Worley V, Gordon-Brown V, Duncan E. Intensive PTSD treatment in a veteran sample with comorbid chronic pain: Evidence of generalized effects. Unpublished observations; 2005.

## METHODS

### Participants

From March 2003 to June 2005, men and women newly admitted to an urban outpatient mental health clinic were recruited to participate in a research interview for an experimental study of self-help groups. Patients were referred and admitted to the study clinic from various mental health and drug treatment settings, including inpatient psychiatric units, mental health residences, other outpatient mental health clinics, outpatient drug treatment clinics (including methadone maintenance treatment programs), or they were self-referred through community contacts. The study protocol was approved by the respective institutional review boards of the host research site (Albert Einstein College of Medicine, Bronx, New York) and the organization that conducted the study (National Development and Research Institutes Inc, New York, New York). Participants were excluded from study participation if they were younger than 18, did not understand or speak English, appeared intoxicated on drugs or alcohol, were diagnosed with mental retardation, were deemed actively psychotic by the clinic's intake coordinator, or appeared unable to understand and give informed consent. Of 668 potential participants screened for recruitment, 61 percent ( $n = 408$ ) signed the informed consent and agreed to participate, 25 percent ( $n = 169$ ) refused to participate, and 17 percent ( $n = 91$ ) were excluded for the above-mentioned reasons. Of those who signed consent forms, 72 percent ( $n = 295$ ) completed the initial interview within 1 month of program admission. Participants who signed consent forms but failed to complete the interview within 4 weeks were dropped from the study because the baseline interview focused on the time period prior to clinic admission. Participants who failed to complete the interview within 4 weeks were typically not attending the program consistently, refused to complete the interview after signing consent, may have been transferred to another outpatient or inpatient facility, or may have dropped out of treatment entirely. Confidential research interviews were conducted by trained research assistants using laptop computers with Questionnaire Design Studio software (NOVA Research Company, Bethesda, Maryland). Participants were compensated \$20 for the 90-minute research interview.

### Measures

The interview consisted of a battery of questions that assessed demographics, drug use, drug treatment, psychiatric history, physical health, and various psychosocial domains. A diagnosis of PTSD was acquired with the PTSD module from the Mini-International Neuropsychiatric Interview (M.I.N.I.) [29], a widely used, valid, and reliable measure of psychiatric conditions based on criteria from the Diagnostic and Statistical Manual of Mental Disorders-Fourth Edition (DSM-IV). Pain measures were adapted from the Brief Pain Inventory (BPI) [30]. Participants were asked to indicate the severity of their pain at its worst in the past week. The extent to which pain interfered with different domains (e.g., sleep, mood, walking) in the past week was assessed with the 7-item BPI pain interference subscale; this subscale has been widely validated, and the association between pain severity and interference has been established empirically [31]. The pain severity and interference subscales each had a 10-point numeric rating scale. Chronic severe pain was defined as (1) a score  $\geq 5$  on the BPI pain severity scale or  $\geq 5$  on the interference scale and (2) pain duration of more than 6 months. Thus, we defined a measure of chronic severe pain using pain severity or interference ratings in combination with pain duration; this was the same measure we used in a previous study of chemical dependency patients [32]. We created a combined variable indicating the presence of either both disorders or neither disorder using the PTSD and chronic severe pain variables.

We measured psychiatric distress by computing a mean score from a 10-item version of the widely used 90-item Symptom Checklist [33]. PA was measured with the 10-item PA scale from the Positive and Negative Affect Schedule [34]. Stressful or traumatic life events were measured with a summed score from the Stressful Life Events Inventory [35], a 19-item inventory that asks participants whether they have ever experienced a variety of stressful events (e.g., been a victim of a violent crime, experienced domestic violence, been evicted or lost their home). We evaluated recent drug use by combining a self-report variable (e.g., days using drugs and alcohol in the 30 days prior to admission) with biological measures of drug use (urinalysis and hair immunoassay). We used the M.I.N.I. subscale for a substance-use disorder (SUD) to diagnose participants with a current SUD (past year) [29]. The M.I.N.I. subscales for SUD and PTSD were chosen for faster administration and adequate reliability and validity, rather than the more commonly used Structured

Clinical Interview for DSM-III-R (revised Third edition) or the Composite International Diagnostic Interview. An addiction severity measure was generated by combining the drug- and alcohol-scale scores from the Addiction Severity Index (ASI) (Fifth edition) [36]. The ASI has been widely used for more than 25 years, and the reliability of the drug and alcohol scales for psychiatric patients has been noted [37]. Participants' confidence to cope with aspects of their mental illness was measured with a mean score from the Mental Health Confidence Scale [38], a valid and reliable scale that measures psychiatric patients' mental health related self-efficacy beliefs (i.e., optimism, coping, and advocacy). We measured lifetime physical/sexual abuse by combining three questions regarding unwanted sexual contact or physical abuse from family members or others (e.g., "Did anybody in your family, or someone you were close to or living with, ever make you engage in sexual acts against your will?"). We evaluated chronic medical problems by asking participants, "Do you currently have a chronic physical or medical problem that interferes with your life?" Because we could find no brief instrument that measured participants' perceptions of social support for recovery specifically from mental illness and substance use, we created a 6-item Likert scale to measure this parameter (e.g., "In the month before you came to this program, how much support were your friends/relatives/roommates giving you in recovering from mental illness/substance abuse?"); Cronbach alpha (internal consistency) for this scale was adequate at 0.76. In addition, we reviewed participants' medical records approximately 6 months after clinic admission to obtain data on DSM-IV Axis I psychiatric diagnoses (including PTSD) provided by psychiatrists in the continuing day treatment program.

### Statistical Procedures

We calculated univariate statistics to examine demographic variables, including the percentage of participants who met diagnostic criteria for PTSD, SUD, and DSM-IV Axis I psychiatric diagnoses (obtained from medical records). We also calculated percentages for chronic severe pain, any recent drug use prior to admission, any stressful life events, any lifetime physical/sexual abuse, and chronic medical problems. We created a combined variable to compare four groups of subjects who had either both PTSD and chronic severe pain, PTSD only, chronic severe pain only, or neither disorder. Bivariate correlations explored associations among 16

variables of interest and either any PTSD, any chronic severe pain, both disorders, or neither disorder. To minimize inferential errors, we adjusted the  $p$ -value using the Bonferroni method of correction [39]; thus, the significance level for the bivariate correlations was set at  $p < 0.003$  ( $0.05/16$  variables = 0.003). To compare differences among the four mutually exclusive groups (PTSD only, chronic severe pain only, both disorders, or neither disorder), we used variables that were significant at the bivariate level as dependent variables in chi-square analysis and one-way analysis of variance (ANOVA); each group was compared with each of the other groups. We used Tukey's honest significant difference (HSD) [40] as the post hoc test to determine significant differences between groups in the ANOVAs.

### RESULTS

Demographic information and descriptive statistics for the entire sample ( $n = 295$ ) are shown in **Table 1**. Of particular interest, 46 percent of participants ( $n = 135$ ) met M.I.N.I. diagnostic criteria for PTSD, 40 percent of participants ( $n = 118$ ) met criteria for chronic severe pain, and 24 percent of participants ( $n = 71$ ) met criteria for both disorders. When we examined subjects with a single disorder, 22 percent ( $n = 64$ ) had PTSD (but no chronic severe pain) and 16 percent ( $n = 47$ ) had chronic severe pain (but no PTSD). DSM-IV Axis I psychiatric diagnostic information obtained from medical records is presented in **Table 2**. Of note, only 7 percent of participants were assigned a primary or secondary PTSD diagnosis by a clinic psychiatrist.

**Table 3** shows the bivariate correlations of either both disorders, any PTSD, any chronic severe pain, or neither disorder with demographic characteristics and 16 other variables. The comparisons among the four mutually exclusive groups are presented in **Table 4** for chi-square analyses and **Table 5** for ANOVAs. For the chi-square analyses, the percentage of participants with any abuse or a chronic medical condition across the four groups is presented alongside the between-groups comparisons. For the one-way ANOVAs, the mean score for each continuous dependent variable across the four groups is presented alongside the between-groups significance tests (Tukey's HSD). Persons with both disorders were significantly different from persons with neither disorder on all dependent variables. Patients with both

disorders scored significantly higher than patients with PTSD on chronic medical condition and psychiatric distress and significantly lower on PA and mental health confidence. Persons with either PTSD or chronic severe pain alone compared with patients with neither disorder

**Table 1.**

Demographic information and descriptive statistics for entire sample ( $n = 295$ ).

Variable	Mean $\pm$ SD or %	<i>n</i>
Age	39.0 $\pm$ 9.5	—
Male	59	175
Hispanic	45	132
African American	38	112
Caucasian	18	53
Veteran	5	15
Welfare/SSI/SSD	70	207
Currently in MMTP	22	66
Any Lifetime Physical/Sexual Abuse	50	146
Chronic Medical Health Problem	39	114
Substance-Use Disorder (past yr)*	49	145
PTSD*	46	135
CSP†	40	118
Both PTSD and CSP	24	71
Neither PTSD nor CSP	38	113
Any Prior Mental Health Treatment	89	263
Any Prior Substance-Use Treatment	71	209
Any Drug/Alcohol Use (past 30 d)‡	64	189
Any Stressful Life Events	95	280
Total Stressful Life Events	8.0 $\pm$ 4.3	—

\*Per Mini-International Neuropsychiatric Interview. Source: Sheehan DV, Lecrubier Y, Sheehan KH, Amorim P, Janavs J, Weiller E, Hergueta T, Baker R, Dunbar GC. The Mini-International Neuropsychiatric Interview (M.I.N.I.): The development and validation of a structured diagnostic psychiatric interview for DSM-IV and ICD-10. *J Clin Psychiatry*. 1998;59(Suppl 20):22–33; quiz 34–57 [PMID: 9881538].

†Adapted from Brief Pain Inventory. Source: Cleeland CS, Ryan KM. Pain assessment: Global use of the Brief Pain Inventory. *Ann Acad Med Singapore*. 1994;23(2):129–38 [PMID: 8080219].

‡Based on self-report, urinalysis, and hair immunoassay.

CSP = chronic severe pain, MMTP = methadone maintenance treatment program, PTSD = posttraumatic stress disorder, SD = standard deviation, SSD = Social Security disability, SSI = supplemental security income.

were more likely to have a chronic medical condition, higher ratings of psychiatric distress, and more stressful life events. Patients with chronic severe pain alone compared with patients with PTSD alone or those with neither disorder were more likely to be older. Patients with chronic severe pain alone were also more likely to have less psychiatric distress and more mental health confidence than those with both disorders.

## DISCUSSION

In this study, we examined the prevalence and correlates of PTSD and chronic severe pain in a sample of psy-

**Table 2.**

Diagnostic and Statistical Manual of Mental Disorders-Fourth Edition Axis I psychiatric diagnoses obtained from medical records.

Diagnosis	%
Schizophrenia	28
Other Mood Disorders*	26
Major Depressive Disorder	16
Bipolar Disorder	14
Substance-Use Disorder	7
Anxiety Disorder	4
Posttraumatic Stress Disorder	5

Note: Diagnoses represent primary Axis I diagnosis assigned by psychiatrist at study clinic. Total of 7% of participants were assigned a primary or secondary posttraumatic stress disorder diagnosis.

\*Includes dysthymia, depressive disorder not otherwise specified, and adjustment disorders.

chiatric outpatients. We also examined and compared the factors associated with both disorders, a single disorder, or neither disorder. We found moderate rates of PTSD and chronic severe pain in the sample. Forty-six percent of participants met diagnostic criteria for PTSD, which is in accordance with previous studies that documented PTSD rates ranging from 29 [25] to 46 percent [26] in psychiatric patients with SMI. Forty percent of participants reported chronic severe pain, which is lower than rates reported for veteran samples, but to date, no other studies report chronic severe pain in psychiatric patients. Twenty-four percent of the sample met criteria for both PTSD and chronic severe pain, which was somewhat lower than the co-occurrence of these two disorders cited in studies of PTSD or chronic pain patients. This result may be because participants in the current sample were not seeking treatment for PTSD or chronic severe pain but for other psychiatric disorders. Nevertheless, the comparatively lower occurrence (24%) of PTSD and chronic severe pain in the current sample supports the recent literature on the prevalence of these two disorders across different samples.

Psychiatric outpatients with both PTSD and chronic severe pain were significantly different from those with neither disorder on numerous factors. Those with both disorders were more likely to report a history of physical/sexual abuse, have a chronic medical condition, be older,

**Table 3.**Bivariate correlations (Pearson's  $r$ )<sup>\*</sup> ( $n = 295$ ).

Independent Variable	Both PTSD and CSP ( $n = 71$ )	Any PTSD ( $n = 135$ )	Any CSP ( $n = 118$ )	Neither PTSD nor CSP ( $n = 113$ )
Age	0.14	0.08	0.26 <sup>*</sup>	-0.22 <sup>*</sup>
Sex	0.11	0.15	0.08	-0.14
Caucasian	0.15	0.07	0.16	-0.10
African American	-0.15	-0.12	-0.13	0.12
Hispanic	0.05	0.06	0.00	-0.02
Currently in MMTP	0.10	0.06	0.16	-0.14
Chronic Medical Condition	0.25 <sup>*</sup>	0.19 <sup>*</sup>	0.32 <sup>*</sup>	-0.30 <sup>*</sup>
Psychiatric Distress	0.36 <sup>*</sup>	0.34 <sup>*</sup>	0.37 <sup>*</sup>	-0.41 <sup>*</sup>
Physical/Sexual Abuse	0.18 <sup>*</sup>	0.15	0.18 <sup>*</sup>	-0.18 <sup>*</sup>
Positive Affect	-0.17	-0.04	-0.18 <sup>*</sup>	0.08
Stressful Life Event	0.28 <sup>*</sup>	0.28 <sup>*</sup>	0.26 <sup>*</sup>	-0.31 <sup>*</sup>
Social Support	-0.17	-0.12	-0.19 <sup>*</sup>	0.17
Substance-Use Disorder	0.16	0.15	0.11	-0.12
Drug Use (past 30 d)	0.11	0.12	0.12	-0.16
Addiction Severity Rating	0.24 <sup>*</sup>	0.21 <sup>*</sup>	0.21 <sup>*</sup>	-0.21 <sup>*</sup>
Mental Health Confidence	-0.29 <sup>*</sup>	-0.25 <sup>*</sup>	-0.25 <sup>*</sup>	0.25 <sup>*</sup>

<sup>\*</sup>Bonferroni correction significance level,  $p < 0.003$ .

CSP = chronic severe pain, MMTP = methadone maintenance treatment program, PTSD = posttraumatic stress disorder.

**Table 4.**

Between-group chi-square analyses.

Dependent Variable <sup>*</sup>	%	Chi-Square Analysis <sup>†</sup>		
		Neither PTSD nor CSP ( $n = 113$ )	PTSD Only ( $n = 64$ )	CSP Only ( $n = 47$ )
<b>Any Physical/Sexual Abuse</b>				
Neither PTSD nor CSP	38.2	—	—	—
PTSD Only	50.0	No	—	—
CSP Only	53.2	No	No	—
Both PTSD and CSP	66.2	Yes	No	No
<b>Chronic Medical Condition</b>				
Neither PTSD nor CSP	20.4	—	—	—
PTSD Only	35.9	Yes	—	—
CSP Only	53.2	Yes	No	—
Both PTSD and CSP	60.2	Yes	Yes	No

<sup>\*</sup>Variables significant in correlation analyses ( $p < 0.003$ , per Bonferroni correction) were entered into these analyses.<sup>†</sup>Significant difference between groups,  $p < 0.05$ .

CSP = chronic severe pain, PTSD = posttraumatic stress disorder.

have higher ratings of psychiatric distress and addiction severity, report more stressful life events, and have lower ratings of PA, social support, and confidence to cope with mental illness compared with persons with neither disorder. In prior studies, PTSD and chronic pain separately have shown associations with many of the factors found in the current study: physical/sexual abuse [26,41], chronic physical health problems [32,42], psychiatric or

emotional distress [43–44], drug/alcohol use [45–46], ongoing stressful or traumatic life events [26,47], and lower social support [48–49]. In previous studies, chronic pain was associated with increased age [32] and lower PA [50]; therefore, that persons with both disorders in the current study demonstrated these characteristics is logical. A novel finding was that persons with both disorders had lower confidence for coping with mental illness (e.g.,

copied with negative affect, staying out of the psychiatric hospital). This result is in accordance with recent research

demonstrating that the increased cognitive demands asso-

**Table 5.**

Between-group one-way analysis of variance (ANOVA) with post hoc comparison (Tukey's honest significant difference).

Dependent Variable *	Mean ± SD	One-Way ANOVA †		
		Neither PTSD nor CSP	PTSD Only	CSP Only
<b>Age</b>				
Neither PTSD nor CSP	36.21 ± 10.20	—	—	—
PTSD Only	38.06 ± 9.73	No	—	—
CSP Only	42.91 ± 8.63	Yes	Yes	—
Both PTSD and CSP	41.23 ± 7.45	Yes	No	No
<b>Psychiatric Distress</b>				
Neither PTSD nor CSP	1.26 ± 0.95	—	—	—
PTSD Only	1.88 ± 0.90	Yes	—	—
CSP Only	1.98 ± 1.04	Yes	No	—
Both PTSD and CSP	2.48 ± 0.92	Yes	Yes	Yes
<b>Positive Affect</b>				
Neither PTSD nor CSP	3.15 ± 1.02	—	—	—
PTSD Only	3.28 ± 1.00	No	—	—
CSP Only	2.92 ± 1.21	No	No	—
Both PTSD and CSP	2.72 ± 1.11	Yes	Yes	No
<b>Stressful Life Events</b>				
Neither PTSD nor CSP	5.75 ± 4.01	—	—	—
PTSD Only	7.91 ± 4.05	Yes	—	—
CSP Only	7.74 ± 4.26	Yes	No	—
Both PTSD and CSP	9.68 ± 4.32	Yes	No	No
<b>Social Support</b>				
Neither PTSD nor CSP	2.91 ± 0.62	—	—	—
PTSD Only	2.81 ± 0.73	No	—	—
CSP Only	2.68 ± 0.65	No	No	—
Both PTSD and CSP	2.57 ± 0.64	Yes	No	No
<b>Addiction Severity Index</b>				
Neither PTSD nor CSP	0.09 ± 0.08	—	—	—
PTSD Only	0.12 ± 0.12	No	—	—
CSP Only	0.12 ± 0.10	No	No	—
Both PTSD and CSP	0.17 ± 0.15	Yes	No	No
<b>Mental Health Confidence</b>				
Neither PTSD nor CSP	3.11 ± 0.57	—	—	—
PTSD Only	2.89 ± 0.69	No	—	—
CSP Only	2.91 ± 0.62	No	No	—
Both PTSD and CSP	2.55 ± 0.65	Yes	Yes	Yes

\*Variables significant in correlational analyses ( $p < 0.003$ , per Bonferroni correction) were entered into these analyses.

†Significant difference between groups,  $p < 0.05$

CSP = chronic severe pain, PTSD = posttraumatic stress disorder, SD = standard deviation.

ciated with comorbid PTSD and chronic pain limit cognitive and coping abilities [51–52]. When the many physical, emotional, and psychosocial difficulties encountered with both disorders are considered, that per-

sons in the current sample demonstrated decreased confidence in coping abilities is logical.

When comparing persons with both disorders with those who had either PTSD or chronic severe pain alone, we found that those with both disorders reported higher

ratings of psychiatric distress and lower ratings of mental health confidence. Psychiatric or emotional distress, in the forms of depression, anxiety sensitivity, fear, and avoidance, has been identified as one of the features that is responsible for the co-occurrence of PTSD and chronic pain [1,3,9,53–54]. Improving patients' skills and confidence in coping with psychiatric distress would therefore be an important area of clinical intervention for psychiatric outpatients with both PTSD and chronic severe pain. Persons with both disorders were more likely to report a chronic medical condition and lower ratings of PA than persons with PTSD only; for these two characteristics in particular, chronic severe pain appeared to contribute to the differences between persons with both disorders versus those with PTSD only. When comparing persons with either PTSD or chronic severe pain alone with those with neither disorder, we found that persons with a single disorder were more likely to have a chronic medical condition, higher ratings of psychiatric distress, and more stressful life events. As just stated, similar associations have been documented previously.

Our findings indicated that psychiatric outpatients with either both disorders or a single disorder reported a greater number of stressful life events than those with neither disorder. Prior studies have demonstrated that persons with SMI (i.e., psychiatric patients) were more likely to experience ongoing trauma and victimization [22,25]. When psychiatric outpatients experience chronic severe pain and also have PTSD, as in the current sample, they may be at greater risk for ongoing stressful or traumatic life events. The current study and previous findings highlight the importance of ascertaining the extent of early trauma and recent or ongoing victimization among psychiatric patients [22] so that clinicians can prioritize appropriate clinical interventions and environmental safety (i.e., change dangerous situations, reduce self-destructive behaviors) [55].

Of particular note, analysis of medical records indicated that only 7 percent of participants were diagnosed with PTSD by a physician. This finding supports prior research indicating that PTSD is underdiagnosed among psychiatric patients in mental health treatment settings [23–24,40,56]. PTSD may be underdiagnosed because of inadequate assessment of trauma [21,38] or because patients underreport traumatic experiences [39]. Treatment providers may also have difficulty distinguishing complex PTSD symptomatology from other comorbid psychiatric diagnoses. Nevertheless, to provide appropriate

interventions, treatment providers must routinely assess for PTSD in psychiatric patients. At a minimum, mental health treatment providers should be aware of the likelihood of a comorbid diagnosis of PTSD when treating psychiatric patients. Our findings also suggest that chronic severe pain and related factors may complicate and exacerbate the patient's experience. The multidisciplinary and biopsychosocial approaches to the management of chronic pain appear relevant to the complex treatment needs of psychiatric outpatients who face numerous physical, emotional, and social challenges [57].

The current study was limited by the single study location, relatively small sample size, and the cross-sectional method of data collection. The current sample was mostly composed of racial/ethnic minorities (Hispanic or African American); consequently, our findings may be less generalizable to other settings with different racial/ethnic populations. However, we should note that race was not correlated with PTSD or chronic severe pain. The fact that 46 percent of the study sample had PTSD should be interpreted cautiously because we did not use the "gold standard" for PTSD assessment. While the Clinician-Administered PTSD Scale (CAPS) is the standard measure for PTSD in clinical research settings [58], we elected to use the M.I.N.I. module for PTSD because research assistants and not clinicians administered the interviews. Having clinicians administer the CAPS may have yielded a different percentage of subjects with PTSD. Similarly, the fact that 40 percent of the study sample had chronic severe pain should be interpreted with care because we did not obtain a physician's medical diagnosis of chronic pain. Had we done so, our results (which were based on an assessment tool) would have had greater validity.

In summary, the current study found moderate rates of PTSD and chronic severe pain in psychiatric outpatients. The fact that 40 percent of this particular sample met criteria for chronic severe pain is a unique contribution to the empirical literature. The fact that 24 percent of the sample met criteria for both PTSD and chronic severe pain supports the literature on the co-occurrence of these two disorders across different samples. Psychiatric outpatients with either both disorders or PTSD or chronic severe pain alone demonstrated increased physical and psychosocial stressors. Mental health treatment providers are advised to be aware of the potential for the co-occurrence of PTSD and chronic severe pain and of the many related factors in psychiatric outpatients. Assessment of PTSD

and trauma-related symptoms is encouraged for all patients in psychiatric treatment settings. To gain a better understanding of the specific comorbidity of PTSD and chronic severe pain, we should, in future research, examine and compare other conditions that co-occur with PTSD or chronic pain (e.g., the co-occurrence of PTSD and diabetes, the co-occurrence of chronic severe pain and another psychiatric condition). Comparing comorbid PTSD and chronic severe pain with other comorbid syndromes would more clearly delineate the factors associated with comorbid PTSD and chronic severe pain and add to our knowledge of the course and the effects of treatment on these two disorders over time.

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The authors have declared that no competing interests exist.

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