Structure of Posttraumatic Stress Disorder Symptoms in Pain and Pain-Free Patients Scheduled for Major Surgery

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Abstract: **Factor-analytic studies of the structure of posttraumatic stress disorder (PTSD) symptoms have yielded inconsistent results. One of the reasons for the inconsistency may be that PTSD is highly comorbid with other disorders; the observed factor structure might depend on the particular comorbid disorder. One such disorder is chronic pain. The goal of the present study was to investigate whether PTSD symptom structure differs between pain and pain-free patients scheduled to undergo major surgery. Four hundred and forty-seven patients who were approached 7 to 10 days prior to scheduled surgery completed the PTSD Checklist-Civilian (PCL-C) Version and the Current Pain and Pain History Questionnaire; the latter was used to divide patients into pain (N = 175) and pain-free (N = 272) groups. Results showed that in pain-free patients, PTSD symptoms were best expressed as 2 symptom clusters (re-experiencing/avoidance; emotional numbing/hyperarousal) accounting for 52.4% of the variance. In pain patients, PTSD symptoms were best expressed as a single symptom cluster accounting for 51.1% of the variance. These results suggest different interrelationships among PTSD symptoms in these 2 populations. Results reflect the need for (1) controlling for pain in studies looking at PTSD-symptom expression and (2) further research on PTSD-symptom expression in pain populations.**

Perspective: ***These results may have important implications for research on the comorbidity between PTSD and chronic pain, as well as for treatment of PTSD symptoms in patients presenting with pain problems.***

Key words: *PTSD, pain, factor analysis, symptom structure, comorbidity.*

Recent studies have reported high rates of comorbidity between Posttraumatic Stress Disorder (PTSD) and pain in both veterans (50–80%) and civilians (20–30%).[3,33] According to the DSM-IV-TR,[1] PTSD is classified as an anxiety disorder that develops following the occurrence of a traumatic event. Additional diagnostic criteria include the presence of the following 3 symptom categories for a period of at least 1 month: re-experiencing, avoidance and emotional numbing, and hyperarousal.[1] This working definition of PTSD, however, has some drawbacks (eg, lack of specificity, difficulty explaining high comorbidity rates with other disorders not associated with trauma, lack of empirical support for 3 symptom categories).[9]

To explain this comorbidity, Sharp and Harvey[40] have put forward a mutual maintenance model in which various aspects of chronic pain and PTSD play a role in the maintenance of PTSD and pain symptoms, respectively. These include attentional biases, anxiety sensitivity (fear of anxiety-related sensations due to the belief that they might have harmful consequences[38]), reminders of the trauma, avoidance, depression and anxiety, and cognitive demand from symptoms.[40] Alternatively, Asmundson et al[3] have proposed a shared vulnerability model in which common vulnerability factors increase the risk of developing both conditions. However, etiological and maintenance mechanisms responsible for the observed comorbidity are still poorly understood.

It is possible that the lack of understanding of comorbid PTSD and pain is related to the undifferentiated way PTSD is measured across populations. One study assessed the factor-analytic structure of PTSD symptoms in individuals (peacekeepers) with and without pain. Confirmatory factor analysis showed the same 2- and 4-factor solutions in both groups, with some significant differences in factor loadings of hyperarousal and re-experiencing items.[5]

There are several reasons why one might expect differences in PTSD symptom structure between pain and pain-free patients. First, the heterogeneity of symptom expression in PTSD gives rise to a single diagnosis that can comprise multiple, different symptom combinations.[10] For example, an individual can meet criteria for PTSD without experiencing either avoidance or emotional numbing symptoms. However, it is likely that these 2 classes of symptoms arise from different etiological mechanisms. Individuals consciously engage in avoidance behaviors in attempts to escape from a particular stressor. On the other hand, emotional numbing is a self-protective response to increased and prolonged arousal that limits the individual from further exposure to these stressors[21]. Thus, the same diagnosis can apply to a disorder that differs mechanistically and experientially depending on the particular combination of symptoms.

Second, emotional numbing, which is unique to PTSD among the anxiety disorders,[21] plays a distinctive role among pain patients with PTSD symptoms. For example, emotional numbing interacts with pain intensity in predicting quality of life among patients with chronic pain[14] and, in contrast to avoidance symptoms, predicts pain disability 6 and 12 months after thoracic surgery[27].

The goal of the current factor-analytic study is to investigate whether the interrelationships among PTSD symptoms differ between pain and pain-free patients scheduled to undergo major surgery. Examining PTSD-symptom structure in this population is advantageous as it offers the possibility of studying the full spectrum of PTSD symptom expression. This approach is consistent with findings suggesting that PTSD is best conceptualized along a continuum.[11] If results show that the factor structure is different in pain patients compared to pain-free patients, future research on PTSD would need to control for pain when studying PTSD; studies on the comorbidity of PTSD and pain should use a different approach to diagnose PTSD in pain patients. These results would also be important for clinicians if PTSD symptom expression differs in patients who also present with pain symptoms.

Methods

Participants

Data from 447 patients (male = 177) were collected 7 to 10 days prior to major surgery (abdominal [71.5%]; thoracic [17.3%]; other [11.2%]). Patients were recruited to participate in a study examining biopsychological factors associated with acute and long-term postoperative pain. Patients were between the ages of 18 and 60 years (mean = 45.67; SD = 10.3 years). Sixty-one percent of patients (N = 272) reported no ongoing pain problems and not currently experiencing pain. Thirty-nine percent of patients (N = 175) reported ongoing pain problems with 50.1% of these patients reporting pain at the time of the interview. Details of the pain experienced by patients in the pain group are described in Table 1. Fourteen percent of the sample (N = 65), including 38 pain patients, had a total score on the PTSD Checklist-Civilian Version (PCL-C) equal to or greater than 44 (a score of 44 or higher on the PCL-C indicates PTSD symptom severity that is within the clinical range).[8]

Measures

PTSD Checklist – Civilian Version (PCL-C[46])

The PCL-C is a 17-item self-report measure that assesses PTSD symptoms as described in the diagnostic criteria B, C, and D of the DSM-IV-TR.[1] Participants answer each item on a scale from 1 (not at all) to 5 (extremely). Total score ranges from 17 to 85. Symptom-cluster scores can be obtained by summing items belonging to that cluster: items 1 to 5 for the re-experiencing cluster; items 6 to 12 for the avoidance (items 6 and 7)/emotional numbing (items 8 to 12) cluster; and items 13 to 17 for the hyperarousal cluster.[4] The PCL-C has good sensitivity and specificity for generating PTSD diagnosis.[22,47] Correlation among items of the PCL-C is high (r = .93), and the PCL-C has good internal consistency at both the global (α = .94) and subscale levels (α = .85–.87).[39] Test-retest reliability coefficient was equal to .68 at a 2-week interval.[39]

Table 1. Pain Information from the Current Pain and Pain History Questionnaire for Pain Patients

Have you ever had a pain problem that lasted for more than 1 month?	Yes = 53 No = 122
If yes, how long did it last (in months)?	Mean = 33.42 SD = 52.62
Do you have any ongoing pain problems?	Yes = 175 No = 0
If yes, how long have you had pain for (in months)?	Mean = 67.92 SD = 94.53
On the days that you feel pain, what is the average intensity of your pain on a scale from 1 to 10?	Mean = 5.69 SD = 2.48
Are you currently feeling pain?	Yes = 89 No = 85
If yes, what is the intensity of your pain on the scale from 1 to 10?	Mean = 4.07 SD = 2.26
If yes, does pain interfere with your life (1 to 4)?	Mean = 2.74 SD = 1.00
Are you currently taking pain medication?	Yes = 87 No = 85
*If yes, what type of pain medication?	Acetaminophen = 56 Nsaids = 12 Opioids = 27 Others = 4

*The total number exceeds the number of patients who reported taking pain medication because some patients reported taking more than one type of drug.

Table 2. Descriptive Statistics for Pain and Pain-Free Patients

	Pain-free Patients mean (SD)	Pain Patients mean (SD)	Statistical Significance
Age (years)	45.0 (20.6)	46.7 (9.7)	$t_w = 1.66$, $df = 391.57$, $P = .10$
PCL-C total score	29.3 (10.0)	34.8 (13.3)	$t_w = 4.671$, $df = 299.00$, $P < .001$
	N (%)	N (%)	
PCL-C total score			
<44	245 (90.1%)	137 (78.3%)	$\chi^2 = 11.91$, $df = 1$, $P < .001$
≥44	27 (9.9%)	38 (21.7%)	
Gender			
Male	108 (39.7%)	69 (39.4%)	$\chi^2 = .003$, $df = 1$, $P = .953$
Female	164 (60.3%)	106 (60.6%)	

Pain

Classification of patients into a group of pain patients and a group of pain-free patients was based on pain-related questions taken from the Current Pain and Pain History Questionnaire created for the purpose of this study (see Table 1). If patients answered "yes" to the question "Do you have ongoing pain problems", they were assigned to the pain group regardless of whether they were currently experiencing pain. If patients answered "no" to both "Do you have ongoing pain problems" and "Are you currently feeling pain", patients were assigned to the pain-free group. Patients who reported no ongoing pain problems but currently feeling pain (N = 18) or omitted the question about their current pain (N = 8) were excluded from the analysis to avoid misclassification of patients.

Procedure

The project was reviewed and approved by the Research Ethics Board at the University Health Network (Toronto General Hospital) and the Human Participants Review Committee at York University. Participants were approached by a research team member during the preadmission visit 7 to 10 days prior to surgery. Patients met inclusion criteria if: (1) they were scheduled to undergo major surgery at the Toronto General Hospital; (2) they were to receive intravenous or epidural patient-controlled analgesia (PCA); (3) they were between 18 and 60 years of age; and (4) they were proficient in both written and spoken English. Patients were excluded if they were scheduled to receive other regional anaesthetic techniques during or after surgery. Once written consent was obtained, patients completed a preadmission self-report questionnaire package that included measures of PTSD symptoms and pain.

Data Analyses

Exploratory Factor Analysis (EFA) was favored over Confirmatory Factor Analysis (CFA) to examine group differences in PTSD-symptom structure between pain-free and pain patients. The latter aims at confirming the validity of a theoretical model[20] whereas the former tries to uncover the underlying structure. We selected EFA because very little is known about the structure of PTSD symptoms in patients with and without chronic pain. EFA permits evaluation of symptom item performance, enabling us to assess whether there is a different latent dimensional structure in PTSD symptoms between pain and pain-free patients.

Analyses followed current recommendations for EFA on ordinal data.[25,26,35,44] First, Velicer's MAP test and parallel analysis (PA) using O'Connor's syntax[35] with Principal Component Analysis (PCA) on polychoric correlation matrix were used to determine the number of components to retain. Second, Principal Axis Factoring (PAF) on polychoric correlation matrices and Promax rotation were used to extract factor loadings and interpret the final solution. The factor solution resulting from the EFA describes the number of underlying interrelated groups of variables or factors. As such, PTSD symptoms belonging to the same factor represent an underlying construct. For example, a 2-factor solution signifies that PTSD is composed of 2 underlying constructs each comprised of a subset of PTSD symptoms. Data are presented as mean ± SD unless otherwise specified.

Results

Descriptive Statistics

Descriptive statistics are presented in Table 2. Pearson Chi-Square test did not reveal a significant gender difference between pain and pain-free patients and Welch's t-test (adjusted for heterogeneity of variance) did not reveal a significant difference in PCL-C total score between males (30.7 ± 11.4) and females (32 ± 11.9), irrespective of the pain categorization ($t_w = -1.09$, df = 388.18, $P = .276$). Welch's t-test did not reveal an age difference between pain and pain-free patients. Welch's t-test showed a significant difference in total score on the PCL-C between pain and pain-free patients. Pearson Chi-Square test revealed a significant difference in the number of patients with a score of 44 or above on the PCL-C between pain and pain-free patients.

Exploratory Factor Analysis

Statistical procedures used to perform EFA as well as decision criteria used to determine the optimal PTSD model for pain and pain-free patients are presented in Table 3.

Table 3. Details of Exploratory Factor Analyses and Criteria Used to Determine the Final PTSD Symptom Model for Pain and Pain-Free Patients

	Using MAP Test and PA to Decide the Number of Factors to Retain	
	Pain Patients	*Pain-Free Patients*
MAP Test	2	2
PA	1	1

	Decision Criteria for the Optimal Factor Solution for Pain and Pain-Free Patients			
	1-Factor Solution	*2-Factor Solution*	*1-Factor Solution*	*2-Factor Solution*
Amount total variance	51.13%	59.59%	44.99%	52.44%
Number of items with communalities < .4	0	0	0	0
Number of items with poor loading (< .4)	0	1	0	0
Number of cross-loading items (> .32 on both factors)	n/a	1	n/a	0
	Decision			
	1-factor solution - High communalities - 2-factor solution has 1 item with poor loading - 2-factor solution has 1 item with cross-loadings		2-factor solution - Accounts for more variance - High communalities - No items with poor loadings - No cross-loading items	
	PTSD ↓ All PTSD symptoms		PTSD ↙ ↘ Reexperiencing/ avoidance	Emotional numbing/ hyperarousal
Details of proposed model of PTSD symptom structure	- Pain as a higher-order factor to which all PTSD symptoms are related - Chronic pain and PTSD symptoms target same cognitive and coping resources - Overlap in brain regions associated with processing of pain and PTSD symptoms		- Separation of avoidance and emotional numbing - Association of hyperarousal and emotional numbing - Alternating cycle of re-experiencing and emotional numbing	

Pain Patients

EFA of the 17 PCL-C items using MAP test and PA with polychoric correlation matrix and PCA followed by PAF and Promax rotation was performed to determine the factor solution that best fit the data. Results are presented in Table 3. Parallel analysis using real-data eigenvalues generated with SAS yielded a 1-factor solution. Results from Velicer's MAP test using O'Connor's original and revised syntax yielded a 2-factor solution. Results of PA are presented in Fig 1.

PAF on polychoric correlation and oblique rotation (Promax) was performed to determine if a 1- or a 2-factor solution best fit the data. Each factor solution was evaluated based on significance of communalities and cross-loadings. Significance of communalities was assessed using a cut-off of .4, as communalities lower than .4 suggest the presence of an additional factor or that the item is unrelated to the other items.[15] Cross-loading was defined as any item with loadings greater than .32 on more than 1 factor.[15] Results are shown in Tables 3 and 4. Significance of factor loadings and cross-loadings were used as criteria to select the optimal factor solution. The 1-factor solution accounted for 51.13% of the variance, had all communalities above .4, and the factor had an eigenvalue of 9.17. The 2-factor solution accounted for 59.59% of the variance, all communalities were greater than .4, and factors 1 and 2 had eigenvalues of 9.17 and 1.70, respectively. Cross-loading ($\geq$ .32) of item 8 and loadings <.4 on both factors for item 16 suggested the 1-factor solution was the best fit.

Pain-Free Patients

Following the same methodology used for pain patients, results from PA yielded a 1-factor solution, whereas results of the MAP test yielded a 2-factor solution (see Table 3). Results of PA are presented in Fig 2.

Table 4 shows results from the PAF. The 1-factor solution accounted for 44.99% of the variance with all factor communalities greater than .4, and an eigenvalue of 8.17. The 2-factor solution accounted for 52.44% of the variance, had eigenvalues for factors 1 and 2 of 8.17 and 1.64 respectively, communalities greater than .4 for all items, and no cross-loadings. Therefore, the

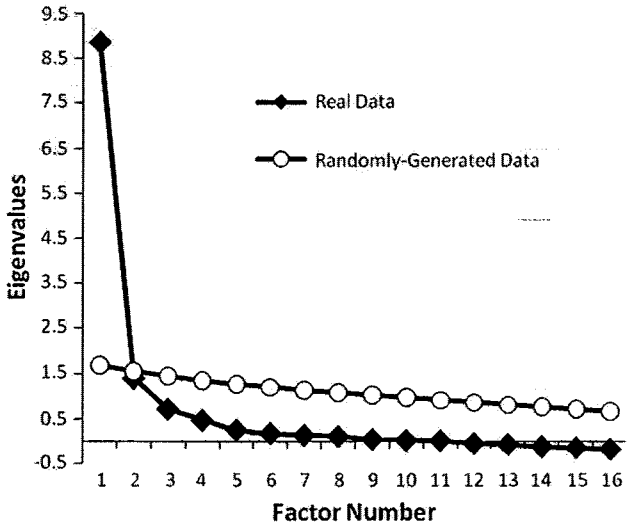

Figure 1. Results of Parallel Analysis for pain patients.

2-factor solution presented the best fit to the data. Examination of the pattern of item loadings on factors 1 and 2 indicates the presence of a re-experiencing/avoidance factor and an emotional numbing/hyperarousal factor, respectively.

Discussion

The results of the present study show that the internal factor structure of PTSD symptoms, as measured by the PCL-C, differs in pain and pain-free patients scheduled to undergo major surgery. For both groups, Velicer's MAP test indicated a 2-factor solution, whereas PA revealed a 1-factor solution. Examination of percentage of variance accounted for, communalities, and item cross-loading, suggested the best fit was a 1-factor solution for pain patients and a 2-factor solution for pain-free patients. In addition, pain patients scored significantly higher on the PCL-C total score compared to pain-free patients. Moreover, rates of PTSD symptomology in the clinical range (score of 44 or above on the PCL-C) were 21.7% in pain patients compared to 9.9% for pain-free patients. These results suggest that PTSD symptoms are more elevated among pain patients. Although it is not possible to identify patients with PTSD using a self-report measure such as the PCL-C, our data suggest that approximately 21.7% of pain patients experienced PTSD symptoms in the clinical range. This rate is similar to those reported in other studies on the comorbidity of PTSD and pain in civilian populations (20–30%).[3,32]

Pain-Free Patients: A 2-Factor Solution

Outcomes of the factor analysis in pain-free patients favored a 2-factor solution comprised of re-experiencing/avoidance and emotional numbing/hyperarousal factors. Details of the 2-factor solution are presented in Table 3. This 2-factor solution is consistent with several studies conducted on war veterans,[16] peacekeepers,[41] and fire and motor vehicle accident victims.[12,31] The 2-factor solution is not only found in different populations (both clinical and community-based as well as military and civilian), but also with the use of different measures (eg, Composite International Diagnostic Interview, Anxiety Disorder Interview Schedule, PTSD Symptom Scale, Impact Event Scale-Revised, Clinician

Table 4. Details of 1- and 2-Factor Solutions for Pain and Pain-Free Patients

	Pain Patients			*Pain-Free Patients*		
	1-Factor	*2-Factors*		*1-Factor*	*2-Factors*	
PCL-C Item	*(Matrix)*	*F1*	*F2*	*(Matrix)*	*F1*	*F2*
1. Disturbing memories	.725	.983	−.187	.741	.700	.098
2. Disturbing dreams	.758	.833	−.007	.594	.610	.027
3. Feeling happening again	.811	.800	.082	.763	.951	−.123
4. Upset with reminders	.762	.862	−.031	.754	.873	−.058
5. Physical reactions to reminders	.742	.821	−.013	.676	.773	−.045
6. Avoid thoughts of event	.808	.676	.199	.675	.708	.017
7. Avoid activities that remind of event	.694	.578	.173	.722	.680	.097
8. Trouble remembering event	.741	.442	.361	.581	.491	.134
9. Apathy	.678	.183	.559	.747	.202	.618
10. Feeling distant, cut off	.714	.023	.768	.737	.237	.569
11. Feeling emotionally numb	.764	.056	.790	.745	.318	.492
12. Feeling as if future cut short	.699	.161	.606	.590	.102	.548
13. Trouble falling asleep	.625	−.028	.722	.454	−.111	.622
14. Irritable or angry outbursts	.654	−.067	.796	.684	−.051	.822
15. Difficulty concentrating	.696	−.129	.913	.630	−.122	.836
16. Watchful or on guard	.535	.379	.200	.511	.050	.514
17. Feeling jumpy, easily startled	.699	.173	.593	.696	.044	.731
Total Variance (%)	51.13	51.64	7.95	44.99	45.43	7.00

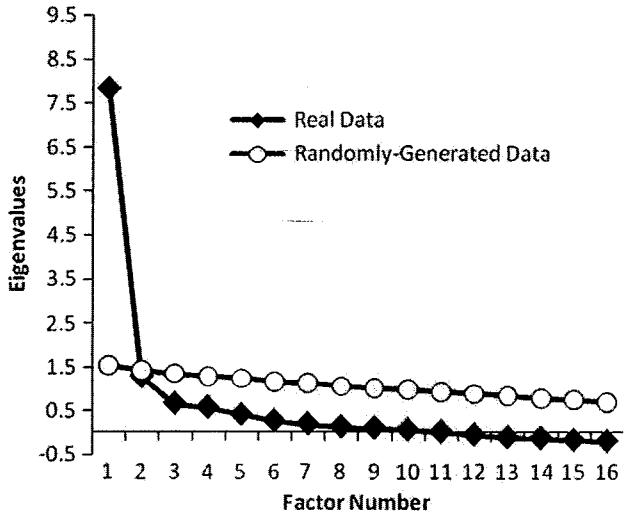

Figure 2. Results of Parallel Analysis for pain-free patients.

Administered PTSD Scale, and PCL-C),[12,16,31,41] and statistical procedures (EFA vs CFA, PCA vs PAF, PA vs scree-plot and eigenvalues-greater-than-1-rule).[12,16,31,41] This consistency across measures, populations, and statistical methods strongly suggests that the 2-factor solution is an inherent characteristic of PTSD-symptom expression. The separation of emotional numbing and avoidance is also consistent with the vast majority of studies that supported a 2- or 4-factor solution.

The categorization of emotional numbing with hyperarousal is consistent with Litz et al's[30] theory that chronic hyperarousal results in emotional numbing through emotional depletion. Prolonged hyperarousal in traumatized individuals is associated with a depletion of biological, cognitive, and emotional resources.[6,21,29] Emotional numbing is proposed to be the experiential expression of this depletion of resources. The 2-factor solution is also congruent with the finding that PTSD is characterised by an alternating cycle of re-experiencing and emotional numbing symptoms.[28,43] This alternating process suggests that re-experiencing and emotional numbing comprise 2 different latent constructs.

Pain Patients: A 1-Factor Solution

The 1-factor solution found in pain patients contrasts with the results obtained in pain-free patients as well as with samples of patients undifferentiated based on the presence or absence of pain problems. Details of the 1-factor solution model are presented in Table 3. Among studies that have evaluated, but did not find evidence for, a 1-factor solution,[16,42,48] chronic pain was not assessed. Although Asmundson et al[5] found differences in factor loadings between chronic-pain and pain-free patients, their results supported a 2- and a 4-factor solution in both groups. In the 4-factor intercorrelated model, items of hyperarousal (items 14 and 15) showed cross-loadings on the emotional numbing factor in the pain group whereas 1 hyperarousal item (item 16) cross-loaded on the re-experiencing factor for the pain-free group. In the hierarchical 2-factor model, items 2 (re-experiencing) and 15 (hyperarousal) cross-loaded on both re-experiencing/avoidance and emotional numbing/hyperarousal factors in the pain group. In the study by Asmundson et al,[5] item 16 (hyperarousal) cross-loaded on both factors in the pain-free group. The significant cross-loadings of factors found in both of their solutions suggest that a 1-factor solution might also have provided a good fit of the data. It is difficult to compare their results to results obtained here as they did not test a 1-factor solution.

Several mechanisms could explain the single-factor structure obtained in pain patients. In contrast to pain-free patients, in whom symptoms of re-experiencing and avoidance alternate with symptoms of emotional numbing and hyperarousal, we suggest than in pain patients, the pain will trigger the appearance or intensification of symptoms of re-experiencing/avoidance and emotional numbing/hyperarousal. This influence of pain could be due to both the physiological consequences associated with pain but also psychological impact of pain (eg, fear of pain). This conceptualization suggests that pain may serve as a higher-order factor to which each PTSD symptom cluster is related. The concept of pain as a higher-order factor is supported by evidence from cognitive treatments. Research has shown that interventions aimed at reducing psychological difficulties associated with traumatic experiences are also effective in treating chronic pain symptoms.[23]

Moreover, research has shown that each PTSD symptom cluster is associated with symptoms of chronic pain. First, symptoms of re-experiencing are distinctively associated with pain disability and pain severity.[4,7] Second, symptoms of avoidance are at the core of the fear-avoidance model of chronic pain.[45] Third, physiological arousal (which includes some PTSD symptoms of hyperarousal) is associated with increased pain intensity.[34] Fourth, research has shown that postoperative concurrent levels of emotional numbing predict pain disability at 6 months and 1 year after surgery.[14,27] Together, these findings raise the possibility that each of the 4 PTSD symptom clusters is interpreted by patients with PTSD as part of their pain experience.

Alternatively, pain patients might lack cognitive and coping resources to deal with both pain and PTSD experiences. Empirical evidence supports an association between chronic pain and cognitive resources. Studies have shown that chronic pain patients exhibit deficits in cognitive-processing ability,[2,24,36] and that cognitive tasks can serve as distracters resulting in decreased intensity of perceived pain through an attentional-allocation mechanism.[17] In addition, cognitive approaches to PTSD conceptualize this anxiety disorder as involving memory processes that generate a sense of current threat.[18] As such, chronic pain might impair cognitive resources and, thereby, intensify the occurrence of PTSD symptoms.

It is also possible that common brain regions involved in pain and PTSD contribute to the interpretation of PTSD symptoms as part of the pain experience. Studies have shown that pain-related activation and anticipation of pain are detected in the insula.[37] Research has also demonstrated a positive association between

activation of the insula and severity of PTSD symptoms.[13] It is possible that, by activating brain regions also associated with pain, PTSD symptoms are interpreted as part of the pain experience.

Limitations and Future Directions

One limitation of this study is the unknown nature of the traumatic experiences to which the patients were responding when completing the PCL-C. The PCL-C does not require the patient to describe his or her traumatic experience, and a traumatic event questionnaire was not used to supplement administration of the PCL-C.

In addition, EFA is meant to be exploratory in nature and not inferential. Even with large sample sizes such as that used in this study, EFA can generate error rates above the set alpha level.[15] It is also dependent on the choices made by researchers in terms of methods used for the various steps of the analysis.[19] Results from EFA should be understood as exploratory and serve as the basis for further studies. Future studies should also make use of other methodologies to further investigate the structure of PTSD symptoms in patients with pain. As mentioned by Asmundson et al,[4] other lines of research include: (1) the relationship of PTSD symptoms to prognosis; (2) treatment effects on individual PTSD symptoms; and (3) the correlates of PTSD symptoms.

Nonetheless, results from this study are important for understanding the relationship between PTSD and pain. If the clinical expression of PTSD symptoms differs between patients with and without pain, it is possible that different etiological and maintenance mechanisms are at work. As such, the results of the present study have implications for future research and clinical practice with patients presenting with PTSD and PTSD symptoms. Researchers should measure and control for the presence and intensity of pain when examining PTSD symptom expression. From a clinical point of view, these findings suggest that pain and PTSD symptoms are closely interrelated. Both conditions should be assessed when a patient presents with one or the other, and both should be the focus of common treatment goals as opposed to being seen as expressions of 2 separate conditions.

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