

Quality and Intensity of Low Back Pain in Chronic PTSD Patients

Morana Bilić¹, Vlatko Mičković² and Zoran Lončar³

¹ University of Applied Health Studies, Department of Health Psychology, Zagreb, Croatia

² Institute for Anthropological Research, Zagreb, Croatia

³ University of Zagreb, University Hospital Center »Sestre Milosrdnice«, Clinic for Traumatology, Zagreb, Croatia

ABSTRACT

The aim of this study was to analyze the association between chronic low back pain (LBP) in chronic post-traumatic stress disorder (PTSD) with quality and intensity of pain experience. A total of 406 war veterans from 1991–1995 war in Croatia participated in this study. They were divided into four groups, according to psychiatric interview, psychometric testing and the presence of LBP, verified by the imaging of lumbar area, into: (i) war veterans suffering from PTSD and LBP (N=102), (ii) war veterans suffering from PTSD only (N=108), (iii) war veterans suffering from LBP only (N=99) and (iv) healthy controls (N=97). On the basis of medical records, interviews and different types of self-assessment questionnaires the inter-relationship between chronic pain and chronic PTSD was analyzed. PTSD was assessed by TSI-A (Trauma symptom Inventory, whereas pain was measured by Melzack-McGill Pain Questionnaire – short form (MPQ-SF) and Visual Analogue Scale (VAS). The patients with chronic PTSD had significantly higher total pain scores as well as affective and sensory pain components when compared to the patients without PTSD. No significant association was found between chronic LBP and symptoms of PTSD. Chronic LBP as functional painful syndrome in PTSD could be result of altered neuroanatomical and neurophysiological pain pathway and one of the markers of PTSD.

Key words: PTSD, chronic pain, Melzack-McGill Questionnaire, quality of pain, intensity of pain

Introduction

The chronic post-traumatic stress disorder (PTSD) is defined as a psychiatric disorder occurring after experiencing the extreme traumatic stress and manifesting with three clusters of symptoms lasting more than 3 months: persistent re-experiencing of the traumatic event, persistent avoidance of various stimuli or numbing of general responsiveness and increased arousal lasting more than 3 months¹. Although the majority of patients suffering from chronic PTSD achieve certain remission across period of several years, nearly 40% of them suffer from life-long PTSD². Chronic PTSD is associated with various somatic comorbidities, ranging from autoimmune disorders to cardiovascular and pain disorders³. Although some previous reports have implied a link between chronic pain and PTSD, a recent epidemiological study (National Comorbidity Survey-Replication, NCS-R) has strengthened these findings and established plausible association between PTSD and chronic pain disorders⁴. In a sample

of 5366 subjects higher risk has been shown for chronic pain condition in PTSD patients in contrast to subject who have not met the criterion of traumatic event for PTSD. In the same study, subjects that have experienced traumatic event, but do not suffer from PTSD, had lower but still significant risk for chronic pain condition in contrast to subject who have not met the criterion of traumatic event. Although the association between chronic pain and chronic PTSD is thus well established, few attempts were made to provide the biological insight in the role of pain mechanisms in chronic combat-related PTSD. Some studies have recently reported about the first systematic and quantitative evaluation of the perception of pain in PTSD⁵. The PTSD patients showed higher levels of chronic pain, much more intense chronic pain, and greater number of painful regions in the body than the control study group. The severity of PTSD symptoms correlated with the severity of painful symp-

toms. The pain threshold in PTSD patients was higher than in the control and anxiety patient groups, but the pain stimulus above the pain threshold was experienced much more intensely than by other study group subjects. The question is raised here whether it is about the altered sensory processing or the way in which the PTSD patients interpret and respond to painful stimuli. Low back pain is particularly interesting, since many studies have provided evidence of how psychological variables affect the low back pain sensations. In a study of low back pain patients six years after their traffic accident it was observed that pain did not correlate with the severity of sustained injury and socio-demographic factors, but rather with the presence of PTSD. The conclusion was that the psycho-social factors, rather than the physical ones, were predictors of symptomatic low back pain following major physical trauma⁶. The aim of our study was to explore the link between PTSD and chronic pain.

Methods

Subjects

A total of 536 subjects were initially involved in this study. They were selected to represent a population of Croatian Homeland war veterans, aged 35–54 years, who were exposed to the direct combat conditions as frontline soldiers for at least 3 consecutive months. The subjects were included in the present study by the means of consecutive enrolment from the Clinic for Psychological Medicine in Zagreb and various by direct contact with some of the veterans' nongovernmental organizations in Croatia. We aimed to create four study groups of approximately same size of 100 subjects:

1. War veterans suffering from chronic PTSD and low back pain (LBP)
2. War veterans suffering from chronic PTSD only
3. War veterans suffering from chronic LBP only
4. Healthy controls (war veterans who were at the time of study showing none of these disorders (healthy controls))

In order to classify the subjects into these four groups, we undertook a number of diagnostic procedures. First, all subjects were interviewed by an experienced psychiatrist at the Clinic for Psychological Medicine, University Hospital Centre, Zagreb to assess the presence of PTSD according to DSM-IV-TR criterion¹. Additional psychometric testing was also performed, aiming to provide a more detailed overview (detailed explanation provided in the next section). Subjects with positive anamnesis of head and spinal injury, acute psychosis, alcohol or illegal substance abuse or those who were diagnosed with any form of the psycho-organic syndrome were excluded from the study. After establishing a PTSD status, we proceeded to classify them according to the LBP status. Initial criterion was the presence of LBP, which was defined as pain with a minimal duration of 12 months. Subjects who

reported suffering from LBP were then directed to a specialist surgeon at the Clinic for Traumatology Zagreb, for further clinical and radiographic testing by means of magnetic resonance imaging. Those who were found to have any form of the organic cause for LBP (to exclude those suffering from lumbar disc protrusion, extrusion, herniation and spinal stenosis) were excluded from subsequent analyses. By doing this, we were able to classify all subjects into positive or negative PTSD and LBP group. Subjects who had no indication of PTSD nor reported LBP were considered to be healthy controls.

Each subject has given an informed consent and the study was conducted by ethical principles set by WMA Declaration of Helsinki, and the entire study was approved by the Ethical Board of the Clinic for Traumatology, University Hospital Centre »Sestre Milosrdnice« Zagreb, Croatia.

Questionnaires

General questionnaire was developed to assess basic demographics, LBP status and psychiatric data. Items assessing LBP included various risk factors such as weight, height, body mass index, vocational and avocational activity, various LBP descriptors such as duration of symptoms, intensity, and potential use of analgesic medications. Items analyzing PTSD included duration PTSD, onset of symptoms, other comorbid psychiatric disorders, psychotropic medication, war exposure, short description of traumatic events, medications.

Trauma Symptom Inventory-A

Trauma Symptom Inventory-A (TSI-A) is a specific self-reported measure developed to evaluate the acute and chronic symptomatology of PTSD, regardless of the traumatic event, which may include combat experience, rape, childhood abuse, natural disaster, physical assault etc⁷. TSI-A is a shorter version of the original Trauma Symptom Inventory. TSI-A consists of 86 items in the form of a four-point scale with symptoms rated retrospectively within the preceding six months through answers varying from »0«, denoting »never«, to »3«, denoting »often«. On the basis of this questionnaire, the following clinical scale evaluating specific symptoms was obtained: Anxious Arousal, Depression, Anger/Irritability, Intrusive Experiences, Defensive Avoidance, Dissociation, Impaired Self-Reference and Tension Reduction Behaviour. An adequate internal validity was found on a sample of war veterans suffering from PTSD with Cronbach's α varying from 0.73 to 0.91, depending on the scale⁸. This measure was reported to correctly classify 85.5% of PTSD cases and has shown similar results for other measures evaluating PTSD in a community sample⁹.

Short Form McGill Pain Questionnaire

The Short Form McGill Pain Questionnaire (SFMPQ) was used to assess specific characteristics of LBP (10). It is based on two factor model of pain which distinguish the pain perception as sensory or affective. This inventory consists of 16 items; 11 items assessing sensory

TABLE 1
THE ANALYSIS OF SOCIAL AND DEMOGRAPHIC NUMERICAL VARIABLES

Attribute	Group	\bar{X}	SD	MIN	MAX	ANOVA p	Tukey HSD <i>post-hoc</i> significant pair-wise differences
Age (years)	PTSD+LBP	44.84	5.25	35.00	54.00	<0.001	1-2, 1-3, 1-4, 2-3, 3-4
	PTSD	41.56	4.25	35.00	54.00		
	LBP	48.35	5.14	35.00	54.00		
	Controls	41.44	5.20	35.00	54.00		
Height (cm)	PTSD+LBP	178.12	7.22	158.00	191.00	<0.001	1-2, 2-3
	PTSD	182.81	5.36	170.00	192.00		
	LBP	178.25	8.13	160.00	200.00		
	Controls	180.53	5.85	168.00	192.00		
Mass (kg)	PTSD+LBP	85.79	13.53	46.00	130.00	0.423	-
	PTSD	84.74	10.89	45.00	130.00		
	LBP	87.60	13.35	55.00	130.00		
	Controls	86.07	11.47	64.00	120.00		
BMI (kg/m ²)	PTSD+LBP	27.04	4.03	18.43	40.12	<0.001	1-2, 2-3
	PTSD	25.37	3.31	14.53	43.94		
	LBP	27.60	4.17	17.96	46.06		
	Controls	26.67	3.13	20.45	34.68		

LBP – Low Back Pain, BMI – Body Mass Index, groups 1 – PTSD+LBP, 2 – PTSD, 3 – LBP, 4 – controls, statistical significance cut off $p < 0.001$

TABLE 2
THE DIFFERENCE BETWEEN THE GROUPS ACCORDING TO SFMPQ FACTORS

Attribute	Group	\bar{X}	SD	MIN	MAX	ANOVA P	Tukey HSD <i>post-hoc</i> *
Sensory pain	PTSD + LBP	21.57	6.44	2	33	<0.001	1-2, 1-3, 1-4, 2-3, 3-4
	PTSD	1.92	1.94	0	12		
	LBP	13.74	9.11	0	33		
	Controls	2.31	2.42	0	9		
Affective pain	PTSD + LBP	8.10	2.62	1	12	<0.001	1-2, 1-3, 1-4, 2-3, 3-4
	PTSD	0.69	0.82	0	3		
	LBP	2.63	3.44	0	12		
	Controls	0.30	0.62	0	3		
Total pain	PTSD + LBP	29.77	8.38	3	54	<0.001	1-2, 1-3, 1-4, 2-3, 3-4
	PTSP	2.59	2.30	0	15		
	LBP	16.36	11.08	0	45		
	Controls	2.32	2.15	0	9		
Evaluation of pain	PTSP + LBP	3.50	0.89	0	5	<0.001	1-2, 1-3, 1-4, 2-3, 3-4
	PTSP	0.28	0.50	0	2		
	LBP	3.14	0.98	0	5		
	Controls	0.34	0.50	0	5		

SFMPQ – Short Form McGill Pain Questionnaire, LBP – low back pain, groups 1 – PTSD+LBP, 2 – PTSD, 3 – LBP, 4 – controls, statistical significance cut off $p < 0.001$

pain and 4 items assessing affective pain. Each item consists of a word or phrase depicting the pain experience with answer ranging from »0«, denoting »absence

of particular pain«, to »3«, denoting »severe pain«. Separate item measures overall intensity of pain, ranging from »0« to »5«. Internal consistency of this scale varied

TABLE 3
THE DIFFERENCE BETWEEN THE GROUPS ACCORDING TO TSI FACTORS

Svojstvo	Skupina	\bar{X}	SD	MIN	MAX	ANOVA	Tukey HSD <i>post-hoc</i> *	
							značajne razlike	neznačajne razlike
aa TSI	PTSP+LBP	18.81	3.28	5	24	<0.001	1-3, 1-4, 2-3, 2-4, 3-4	1-2
	PTSP	18.53	3.73	9	24			
	LBP	9.22	5.95	0	22			
	Kontrola	5.08	4.16	0	19			
d TSI	PTSP+LBP	18.26	4.17	2	24	<0.001	1-3, 1-4, 2-3, 2-4, 3-4	1-2
	PTSP	17.67	4.52	4	24			
	LBP	7.30	5.68	0	23			
	Kontrola	3.77	3.78	0	18			
ai TSI	PTSP+LBP	18.57	4.03	5	27	<0.001	1-3, 1-4, 2-3, 2-4	1-2, 3-4
	PTSP	20.71	4.96	8	27			
	LBP	7.97	5.42	0	20			
	Kontrola	5.48	4.70	0	22			
ie TSI	PTSP+LBP	18.45	4.13	6	24	<0.001	1-3, 1-4, 2-3, 2-4, 3-4	1-2
	PTSP	18.14	4.55	8	24			
	LBP	6.31	5.69	0	23			
	Kontrola	3.41	4.24	0	19			
da TSI	PTSP+LBP	18.03	3.99	4	24	<0.001	1-3, 1-4, 2-3, 2-4, 3-4	1-2
	PTSP	17.68	3.84	7	24			
	LBP	8.32	6.11	0	21			
	Kontrola	5.16	5.02	0	23			
dis TSI	PTSP+LBP	16.66	5.81	4	37	<0.001	1-3, 1-4, 2-3, 2-4	1-2, 3-4
	PTSP	16.40	6.05	3	27			
	LBP	5.90	5.12	0	20			
	Kontrola	3.63	4.07	0	18			
isr TSI	PTSP+LBP	17.85	4.44	3	27	<0.001	1-3, 1-4, 2-3, 2-4, 3-4	1-2
	PTSP	17.41	5.00	4	27			
	LBP	8.22	5.63	0	19			
	Kontrola	4.78	4.58	0	17			
trb TSI	PTSP + LBP	9.36	4.19	0	20	<0.001	1-3, 1-4, 2-3, 2-4	1-2, 3-4
	PTSP	9.89	3.92	1	19			
	LBP	4.37	3.54	0	15			
	Kontrola	3.56	3.30	0	14			

TSI –Trauma symptom inventory-A, LBP- low back pain, groups 1-PTSD+LBP 2-PTSD 3-LBP 4-controls, statistical significance cut off $p < 0.001$; AA-Anxious arousal, D-Depression, AI-Anger, irritability, IE-Intrusive experience, DA-Defensive avoidance, DIS-Dissociation, ISR-Impaired self reference, TRB-Tension reduction behavior

from 0.705 to 0.82, depending on the sample^{11,12}, although most of the studies do not measure Cronbach α while using this inventory¹³. The authors of this study have not found specific cut off values of SFMPQ used in PTSD patients in literature review.

Statistical analysis

After collecting the data, various descriptive methods were used; means, standard deviations, frequencies and percents. Before parametric analysis, Kolmogorov-Smirnov test was used distribution of data. T-test for independent sample and analysis of variance followed by *post hoc* Tukey HSD were used for parametric data. χ^2 -test and Pearson correlation factors were used for categorical data.

TSI-A and SFMPQ scales were transformed into binary variables. Transformation was obtained by taking 25 upper percentiles of participants with highest intensity of subjects' symptoms as cases, while other 75% of subjects served as controls. Logistic regression analysis was performed with age and group as independent variables as controls.

A priori statistical power analysis was performed before the study conduction in order to estimate the sample size. Based on these assumptions, the total size of each group was calculated with statistical power of 80% and statistical significance of 0.05. Each group had to contain minimum of 92 subjects, with total sample size being 364.

Following programs were used for statistical analysis: Statistical Package for Social Science 14.00 (SPSS) and PLINK 1.00 (18).

Results

A total 541 participants initially responded to participate in this study. After application of exclusion criteria, the final sample consisted of 406 participants. These participants were subsequently classified in four groups, according to the presence of post-traumatic stress disorder and lower back pain: war veterans suffering from chronic PTSD and LBP (N=102), war veterans suffering from chronic PTSD only (N=108), war veterans suffering from chronic LBP only (N=99) and healthy controls (war veterans who were at the time of study showing none of these disorders; N=97). The comparison of the basic characteristics of these samples indicated strong differentiation in most cases (Table 1). Furthermore, these groups differed strongly in the number of children in the family ($\chi^2=80.93$, $p<0.001$), employment status ($\chi^2=90.44$, $P<0.001$), smoking ($\chi^2=17.03$, $p<0.001$), wine consumption ($\chi^2=72.11$, $p<0.001$), and spirits consumption ($\chi^2=39.10$, $p<0.001$).

The comparison of the four domains of pain also indicated the existence of strong group differences, with pair-wise insignificant differences recorded between patients with PTSD and controls, while those with physical symptoms reported much higher levels of pain sensation (Table 2). PTSD groups have not varied in factors obtained from TSI-A questionnaire (Table 3).

From Table 4 can be seen that the age of the participants was not associated with symptoms of PTSD, but in positive correlation with sensory and affective characteristics of pain.

TABLE 4
CORRELATION OF TSI AND SFMPQ FACTORS WITH AGE

Dimensions of pain	Pearson Correlation		
	(r)	P	N
aa TSI	0.01	0.765	402
d TSI	0.01	0.802	402
ai TSI	-0.09	0.074	402
ie TSI	-0.05	0.297	399
da TSI	-0.01	0.778	402
dis TSI	-0.04	0.372	401
isr TSI	-0.01	0.795	402
trb TSI	-0.05	0.274	401
sensory pain McGill	0.32	<0.001	406
affective pain McGill	0.19	<0.001	406
Total pain McGill	0.30	<0.001	406

AA – Anxious arousal, D – Depression, AI – Anger, irritability, IE – Intrusive experience, DA – Defensive avoidance, DIS – Dissociation, ISR – Impaired self reference, TRB – Tension reduction behavior

As was expected, all domains TSI-A and SF-MPQ scale questionnaire mutually correlated. In Table 5 can be seen that all domains of TSI are significantly associated with the subscales of SFMPQ »emotional pain« and »sensory pain« ($p<0.001$). Higher amount ratios are between domains TSI and affective pain (the order of $0.3<r<0.45$) as compared to the sensory pain (the order of $0.1<r<0.22$). Only the anxious arousal, depression, defensive avoidance and weakened »experience of self« significantly associated ($p<0.05$) with the evaluation of pain intensity.

The linear regression analysis predicting the factors obtained from SFMPQ by TSI-A, age and group variables in groups suffering from chronic LBP showed the statistical significance ($p<0.001$) for all four factors; »sensory pain« ($R^2=67.9$), »affective pain« ($R^2=63.0$) and »evaluation of pain« ($R^2=64.5$). The age and most of TSI-A variables were not significant as predictors, except »depression« ($F=5.16$, $P=0.024$) and »intrusive experience« ($F=5.09$, $p=0.025$) in prediction of »affective pain«, while belonging to the particular group was significant at $p<0.001$ for »sensory pain« ($F=197.21$), »affective pain« ($F=92.77$) and »evaluation of pain« ($F=108.22$) (Table 6).

Discussion

The analysis of results can clearly distinguish concepts of chronic back pain and chronic PTSD as a clinical condition, or concepts of chronic back pain and chronic PTSD as a subjective state. As seen in Table 3 and Table 4, the group of subjects with chronic PTSD and comorbid chronic low back pain (PTSD + LBP) had the experience of intense pain, more pronounced sensory and affective qualities of pain compared to the group of patients who suffer from isolated chronic back pain (LBP) without comorbid PTSD. Group of subjects with PTSD + LBP showed no noticeable symptoms of PTSD in relation to a group of patients with isolated PTSD without chronic back pain (PTSD). These findings are consistent with other research. For example, Lew et al. found that the frequency of comorbid chronic pain in the cervical and lumbar spine in a sample of patients with war-induced PTSD according to DSM-IV-TR criteria, is far higher than for any of these disorders separately¹⁴. In one study a sample of the general population of 9882 respondents found that subjects with a diagnosis of PTSD have adjusted odds ratio (OR) for pain in the head and neck 1.8 (95% CI 1.4–2.3) and the odds ratio (OR) for chronic pain amount of up to 7.1 (95% CI 6.6–15.5), compared to subjects who did not experience a traumatic experience¹⁵. These OR for patients who suffer from PTSD, rather than those who were exposed to traumatic events, but without the development of PTSD, are slightly lower, but still significant. From this study it can be concluded that PTSD may be a risk factor for the development of acute and chronic pain syndromes. One of the indicators of correlation between PTSD and characteristics of chronic back pain in this study is the importance of statistical dimensions of behavior that reduces anxiety (TRB), and

TABLE 5
CORRELATION MATRIX OF TSI AND SFMPQ DIMENSIONS

		d TSI	ai TSI	ie TSI	da TSI	dis TSI	isr TSI	trb TSI	Sensory MPQ	Affective MPQ	Total MPQ
aa TSI	r	0.90	0.88	0.88	0.84	0.88	0.88	0.76	0.20	0.42	0.11
	p	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.027
d TSI	r		0.85	0.88	0.85	0.89	0.90	0.75	0.22	0.45	0.13
	p		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.011
ai TSI	r			0.87	0.82	0.83	0.85	0.79	0.11	0.34	0.02
	p			<0.001	<0.001	<0.001	<0.001	<0.001	0.031	<0.001	0.708
ie TSI	r				0.88	0.90	0.88	0.76	0.20	0.44	0.10
	p				<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.055
da TSI	r					0.85	0.85	0.71	0.22	0.42	0.12
	p					<0.001	<0.001	<0.001	<0.001	<0.001	0.018
dis TSI	r						0.92	0.80	0.18	0.41	0.07
	p						<0.001	<0.001	<0.001	<0.001	0.188
isr TSI	r							0.81	0.22	0.44	0.10
	p							<0.001	<0.001	<0.001	0.037
trb TSI	r								0.16	0.34	0.03
	p								0.001	<0.001	0.593
ssensory pain McGill	r									0.69	0.81
	p									<0.001	<0.001
Affective pain McGill	r										0.63
	p										<0.001
Total McGill	p										<0.001

AA – Anxious arousal, D – Depression, AI – Anger, irritability, IE – Intrusive experience, DA – Defensive avoidance, DIS – Dissociation, ISR – Impaired self reference, TRB – Tension reduction behavior

TABLE 6
LINEAR REGRESSION OF CORRELATIONS OF TSI, AGE AND GROUPS OF PARTICIPANTS WITH SENSORY AND AFFECTIVE COMPONENT OF PAIN AND PAIN INTENSITY

Dimensions of TSI	Sensory		Affective		Evaluation	
	F	p	F	p	F	p
Aa	2.56	0.111	1.56	0.213	3.76	0.054
D	0.03	0.858	5.16	0.024	1.34	0.248
Ai	2.10	0.148	0.24	0.624	0.01	0.989
Ie	0.39	0.535	5.09	0.025	0.71	0.399
Da	0.83	0.364	0.52	0.474	0.29	0.592
Dis	3.02	0.083	1.06	0.304	2.36	0.126
Isr	0.83	0.364	0.20	0.652	0.00	0.981
Trb	7.11	0.008	1.31	0.253	2.09	0.150
Age	0.18	0.670	2.03	0.155	0.16	0.692
Group	197.21	<0.001	92.77	<0.001	108.22	<0.001
Variance percentage (R ²)	67.9		63.0		64.5	

aggressive expression of emotions as predictors of sensory pain. These linkages are supported by research in a sample of Croatian war veterans, which shows that aggression and violent ventilation of feelings, in this population, is associated with »severe form of PTSD«.

It is the only predictor domain of TSI-A questionnaire that is presented in Table 5 which predicts sensory pain, although correlations shown in Table 4 are relatively small ($r=0.16$, $p<0.001$). This result could be interpreted in a way that the participants who are more likely to use

this »defensive« mechanism, are more likely to experience intense sensory pain, and thus more inclined to poorer somatic prognosis. Important finding is that the depression dimension »intrusive experience« (IE) with a correlation coefficient of $r=0.44$ ($p<0.01$), is the only significant predictor of affective pain. Since the latter domain belongs to criterion B of DSM-IV-TR, permanent experiencing of traumatic experience for PTSD, it showed a significant link of this disorder (PTSD) with chronic back pain. It should be noted that chronic PTSD is often associated with other psychiatric disorders. The other study, on a sample of 402 Croatian war veteran finds that 31% of participants have PTSD and major depression¹⁷. In this study the number is probably higher due to the intermittent nature of this disorder and the used methodology. Some authors note depression as possible mediator of these painful disorders¹⁸, although the fact is that this area has not yet been explored. Lieb et al. in their meta-analysis of relationship between depression and somatoform disorders with no clear pathoanatomical substrate (and therefore chronic pain disorder), found OR of 4.3 (95% CI=2.4–7.6)¹⁹. Since there is not enough research on this topic, that relationship still remains unsolved. Depression is a significant predictor of affective pain in this study, with medium high correlation according to Cohen and colleagues²⁰. It is important that the validity of the depression scale is greater than the given Cronbach alpha 0.7 and that it has a satisfactory correlation with standard measures of depressive disorder on a sample of veterans²¹. The question of the validity of affective pain as a phenomenon of painful experiences or psychopathology is unjustified. Additional analysis of the results shown in Table 3 suggests that chronic low back pain as an entity cannot connect with a stronger intensity of some symptoms of PTSD. Despite numerous papers which link PTSD and various somatic diseases, myocardial infarction to multiple sclerosis^{22,23}, this study failed to show the mutual influence of somatic conditions such traumatic experiences and PTSD. Although chronic low back pain theoretically satisfy sub-criteria A of DSM-IV-TR for PTSD, primarily »threat to physical integrity« and »sense of helplessness«, it seems that the war

trauma is still primary. Further studies are needed to define the possible existence of a causal connection that chronic pain can lead to PTSD.

Merits and limitations of the study

The design of the study used more strict criteria than usually used in chronic pain studies. While we defined the duration of chronic pain as a pain lasting for more than one year, chronic pain is usually defined as a pain lasting for more than three months. We have used the narrower definition in order to filtrate a possible confounding factor of the subjects' pain reporting due to different perception of pain and recall error. In the analysis of self-reported questionnaires only upper 25 percentiles as cases and other 75 percentiles as controls have been used in order to clarify results. By using two additional groups: war veterans suffering from PTSD and healthy war veterans, we were able to control for possible confounding factors such as traumatic experience. One of the possible limitation of this study was omission to use the semi-structured interview Clinician Administered PTSD Scale²⁴ in the diagnosis of PTSD, but psychiatric interview at the time of the entrance to the study according to DSM-IV-TR and TSI-A in order to acquire in-depth information about association between self-reported PTSD symptoms and chronic LBP because of the discrepancy between clinicians' and patients' view of the PTSD symptoms²⁵.

Conclusion

This study has shown the interconnectedness of PTSD and chronic pain, without a clear anatomical pain path substrate that triggered the pain. In contrast, most previous research has studied this relationship in subjects who have previously experienced a traumatic experience with resultant injury that led to chronic pain, saying that PTSD is a condition that can lead to the propagation of acute pain to chronic. This study allows for the possibility that PTSD itself has elements of functional pain disorders.

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M. Bilić

University of Applied Health Studies, Mlinarska cesta 38, 10 000 Zagreb, Croatia
e-mail: morana.bilic@zvu.hr

KVALITET I INTENZITET BOLI KOD PACIJENATA SA KRONIČNOM KRIŽOBOLJOM I OBOLJELIH OD POSTTRAUMATSKOG STRESNOG POREMEĆAJA

S A Ž E T A K

Cilj ovog istraživanja bio je analizirati kvalitet i intenzitet bolnog iskustva kod osoba oboljelih od kronične boli u križima (LBP) i osoba oboljelih od posttraumatskog stresnog poremećaja (PTSP). U istraživanju je sudjelovalo ukupno 406 ratnih veterana iz Domovinskog rata od 1991–1995. Sudionici su bili podijeljeni u četiri skupine temeljem psihijatrijskog intervjua, psihometrijskog testiranja i prisutnosti križobolje (dokazane slikovnim prikazom lumbalnog područja), u: (i) branitelje oboljele od PTSP-a i LBP (N=102), (ii) ratne branitelje oboljele samo od PTSP-a (N=108), (iii) branitelje oboljele samo od LBP (N=99) i (iv) zdrave kontrole (N=97). Na temelju medicinske dokumentacije, intervjua i samoprocjene na različitim vrstama upitnika, analiziran je međusobni odnos kronične boli i kroničnog PTSP-a. PTSP je dijagnosticiran TSI-A (Trauma Symptom Inventory – A), dok se bol mjerila Melzack-McGill upitnikom o boli – kratka forma (MPQ-SF) i vizualnoj analognoj skali (VAS). Sudionici s kroničnim PTSP-om imali su znatno veće rezultate na ukupnoj skali bolova, kako afektivnoj, tako i na senzornoj subskali u odnosu na sudionike bez PTSP-a. Nije pronađena značajna povezanost između kronične križobolje i simptoma PTSP-a. Kronična križobolja (LBP), kao funkcionalni bolni sindrom kod PTSP-a, može biti posljedica promijenjenih neuroanatomskih i neurofizioloških bolnih puteva i jedan od biljega PTSP-a.