

## THE IMPACT OF EMOTIONAL CHARACTERISTICS IN THE CHRONICITY OF POSTTRAUMATIC STRESS DISORDER

Tatjana Milenković<sup>1</sup> & Aleksandar Jovanović<sup>2</sup>

<sup>1</sup>Clinic for Mental Health, Clinical Center of Niš, Niš, Serbia

<sup>2</sup>Department of Psychiatry, School of Medicine Belgrade, University of Belgrade, Belgrade, Serbia

received: 26.10.2015;

revised: 25.2.2016;

accepted: 14.3.2016

### SUMMARY

**Background:** The research objective was to identify overstated emotional characteristics in armed conflict veterans as well as both the similarities and differences in personality profiles between patients suffering from acute and chronic forms of posttraumatic stress disorder (PTSD).

**Subjects and methods:** Our study's sample consisted of 60 participants in the armed conflict in Kosovo that lasted from 28 February, 1998 until 11 June, 1999. All of them were diagnosed with PTSD, during the six months period after their return from active duty. In 2014 we retested the same subjects to see their current psychological state. Diagnoses of PTSD were made using Structure Clinical Interview for DSM-IV (SCID-I), while the assessment of emotional characteristics was made using Plutchik's emotion profile index (PIE).

**Results:** We established no statistically significant difference in PIE profiles between both groups in recent re-testing. The only significant difference as per PIE classification was found earlier when the subjects were initially diagnosed. The amplified emotional dimension was exploration, and only the group of chronic PTSD patients displayed significantly higher values ( $p < 0.05$ ).

**Conclusion:** Emotional profiles, as a whole, proved to be very similar amongst subjects with both acute and chronic form of the PTSD. The only noted difference is in the significantly higher values of exploration emotional dimension, but only at the time when they were first given initial diagnosis, and only in the group of subjects who later developed the chronic form of PTSD which can indicate that exploration is a factor of vulnerability which is important in chronicity.

**Key words:** personality profiles - emotional characteristics - PTSD – war veterans

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### INTRODUCTION

Posttraumatic stress disorder (PTSD) occurs in people that have been exposed to extremely stressful, traumatic events they themselves experienced, have been witnesses to or have been confronted with, including an event/s that involves an actual or threatening death situation or exposure to serious injury or a severe threat to one's physical integrity and/or family and friends. The aforementioned experience provokes a response of intense fear and a sense of helplessness or horror.

The most frequent symptoms of PTSD can be sorted into three clusters: a) intrusive symptoms (re-experiencing of traumatic events in the form of intrusive memories or dreams), b) avoidance symptoms (avoiding activities and situations reminiscent of the trauma, a feeling of emotional emptiness and alienation from other people) and c) hyper arousal symptoms (sleep disturbances, difficulties in anger and temper control, difficulties with attention and concentration, hyper vigilance and exaggerated startle response. Clinical presentation of PTSD has a fluctuating course, which is assumed to be related to the trauma itself. Although two-thirds of patients diagnosed with PTSD have a complete remission of the illness during long periods, about a third of the afflicted exhibit a chronic, mostly fluctuating flow (about 10% of known cases), of the disorder. They can also have a subclinical form with

fewer, but varying symptoms (it is the so-called partial PTSD or enduring personality change after a catastrophic experience), that still affects their daily functioning.

Studies done on populations with different trauma causes all show that recovery occurs within the first three months after the original incident or chronicity develops. Authors have found that 20% of the armed conflicted-related PTSD population may still exhibit some of the symptoms of the disorder, even up to 40 years after the initial trauma occurs (Engdahl et al. 1997). Others have claimed that as much as half of the American war veterans currently display chronic form of PTSD (Kulka et al. 1990). Studies done at the time revealed that about a third of PTSD patients showed symptoms of the disorder 10 years after the traumatic events (Kessler 1995). In addition, researchers have discovered that 46% of interviewed PTSD patients retain its chronic form (Davidson 1991). Evidence also suggests that a third of the researched subjects with PTSD had enduring symptoms of the disorder, even up to three years after their initial diagnosis had been established (Helzer 1987).

While studying changes in psychological characteristics of war-related PTSD disorder, researchers have observed the following set of symptoms:

- *heightened aggressiveness* (Lasko et al. 1994, Chemtob et al. 1994, Byrne & Riggs 1996, Yehuda et al. 1998, Freeman & Roca 2001, Kotler et al.

2001, Begić 2001, Calhon et al. 2002, Dekel et al. 2005, Dekel & Solomon 2006, O'Donnell et al. 2006, Jakupak et al. 2007);

- *elevated depressive mood* (Erickson et al. 2001, Kilpatrick et al. 2003, Black et al. 2004, Ikin et al. 2007, Yarvis & Schiess 2008, Simonović et al. 2008, Ikin et al. 2009, Sher 2009, Ginzburg et al. 2010, Dobry & Sher 2012, Byers & Jaffe 2014);
- *intensified distrust* (Kimerling et al. 2002, Husar & Bogović 2008, Ochs 2011);
- *alienation* (Brende & McDonald 1989, Ehlers et al. 2000);
- *compromised self-protective behavior* (Johnson 2009, Frueh et al. 2012);
- *weak social inclusion* (Ruscio et al. 2002, Milenković 2003, Pavlović 2004, Frančišković et al. 2007, King et al. 2006, Sayers et al. 2009);
- *a higher tendency for retreating and isolation* (Schnurr 1991, Goldstein 2001, Galovski & Lyons 2004, Monson et al. 2009, Lawhorne et al. 2010, McDermott et al. 2012, Deitz 2014).

Most of the studies in the last two decades dealing with personality traits as factors of PTSD examined a positive relationship between PTSD and basic personality dimensions (negative emotionality, neuroticism, harm avoidance, novelty-seeking and self-transcendence, as well as to specific personality traits of anger and anxiety) and a negative relationship between PTSD and extraversion, conscientiousness and self-directedness (Jakšić et al. 2012). Fielder (2000) found that negative coping strategies and life stress after taking part in an armed conflict are significant predictors of veterans current capacity in day-to-day matters. Some personality traits (harm avoidance, directedness) can facilitate prevention of suicidal risk in veteran population (Jakšić et al. 2015). Some previous investigators who used PIE for assessing differences in emotional characteristics between war veterans and non-PTSD persons found lower reproduction, selfprotection and adaptation as well as higher uncontrollability and deprivation (Trlaja et al. 1997). These authors assume that the adaptation in combat situations causes behavioral changes in war participants. For that reason war veterans are less adapted (lower bias), less interested in communicating and interacting with others (lower reproduction), find themselves in high-risk situations, and often feel abandoned (lower self-protection, higher deprivation). Comparing profiles in war veterans, Mrcic-Husar & Bogovic (2008) found a relationship between severity of PTSD and higher aggressivity, lower reproduction and lower incorporation.

Each of these perceived changes in personality of the PTSD patients significantly affects their interaction with the environment, changing their behavior in terms of new kind of responses to external stimuli or being attracted to new kinds of circumstances, which may not be beneficial. This essentially changes their lives as a whole as well as the lives of those in their environment.

Hence, the goal of the research we embarked on was to question and establish the differences in emotional characteristics between armed conflict veterans who have the chronic form of PTSD and those who do not.

## SUBJECTS AND METHODS

This research was conducted as a prospective cohort study, whose population is made of subjects (60), who participated in armed conflicts in Kosovo, in 1999 (our subject group is composed of male Serbians). All of them were also treated from PTSD syndrome from June to December 1999.

The mean age of the sample was 49.70 years (SD=7.88) for non-PTSD participants and 46.97 years (SD=6.99) for PTSD participants. The majority of participants were married (56.67% in PTSD, 73.33% in non-PTSD group), had completed high-school (73.33% in PTSD, 86.67% in non-PTSD) and were living in a city (73.33% in PTSD, 86.67% in non-PTSD). In the terms of employment, participants with PTSD were mostly employed (50%), where those without PTSD were mostly unemployed (36.67%).

By applying the Structured Clinical Interview for DSM-IV Axis I Disorders (short: SCID I) of Diagnostic and Statistical Manual of Mental Disorders, 4<sup>th</sup> revision, by the American Psychiatric Association (short: DSM-IV), we were able to divide the whole specimen into two groups: those who have chronic form of PTSD (30) and those subject who do not have PTSD currently (30). What we fundamentally did during the study last year was to repeat the research performed 15 years prior, and compare the group that still satisfies the criteria for diagnosing PTSD (chronic PTSD sufferers) with the group of patients who no longer qualify to these criteria (non-PTSD group).

For measuring the emotional characteristics of one's personality, we used Plutchik's Emotions Profile Index (PIE), both in our former and latter assessments. It is a personality questionnaire, which can assess the current state and/or changes in the personality of the armed-conflict veterans. The Index Profile of Emotions is a standard questionnaire for delving into diversity of personality's dimensions (Plutchik & Kellerman 1974; Baškovic-Milinković 1987; Lamovec 1988; Kostić 2003). It consists of 62 items, by which it is possible to measure the expression of eight primary emotions, all through following prototypes of behavior: incorporation (behavior that determines how one reacts to stimuli coming from the environment, or how much one includes itself in chosen social groups), uncontrollability (behavior determining reactions to unknown stimuli or preoccupation with certain aspects), self-protection (behavior where one avoids to confront danger), deprivation (behavior linked with the feeling of loss), antagonism (behavior used to remove something or someone), exploration (behavior which implies prediction and assessment of situations), destruction (behavior used to eliminate an obstacle to the fulfillment of one's needs), reproduction (behavior

corresponding to one's openness to their general and social surroundings). Relative strength of these dimensions' manifestation is represented by a circular profile with percentile values (radar diagram), which enables their comparison and discovering any significant conflicts between them. A control scale (bias scale) measures the tendency to manipulate the test, by giving only social acceptable answers i.e. presenting their personality in a better manner than the actual state.

Test-retest reliability (Plutchik 2000) is, in general, above 0.90 in every dimension. Split-half method was also used on the sample of 200 subjects and reliability is between 0.61 (antagonism scale) and 0.90 (reproduction scale).

For the male sample, internal consistence of all dimensions of PIE is: Incorporation ( $\alpha=0.96$ ), Self-protection ( $\alpha=0.93$ ), Uncontrollability ( $\alpha=0.90$ ), Deprivation ( $\alpha=0.95$ ), Antagonism ( $\alpha=0.87$ ), Exploration ( $\alpha=0.87$ ), Destruction ( $\alpha=0.93$ ), Reproduction ( $\alpha=0.96$ ), and Bias ( $\alpha=0.88$ ). Validity was defined using a method of correlation subscales of PIE with subscales of MMPI (Minnesota Multiphasic Personality Inventory), and ranges between 0.40 and -0.39 (Kostić 2003).

We also applied a socio-demographic questionnaire which was constructed by the authors. This inquiry contains data about subjects' age, professional status during the armed conflicts, level of education, employment, residence issues, marital status and the manner in which they were recruited.

### Statistical analysis

For creating the database matrix and subsequent analyses of them, we resorted to SPSS version 20. The results of the descriptive statistics were expressed as

mean  $\pm$  standard deviation values for continuous variables and number of cases and percents for categorical variables. A chi-square test was used to compare proportions of categorical variables between groups. The unpaired t-test was used to examine potential differences between independent groups, and paired t-test was used to compare cases of two related observations in the same group. The effect of time as within subject factor and group as a between subject factor on emotional characteristics of subjects was assessed using a 2x2 mixed ANOVA. In all of our applied methods, we have set the value of statistical significance at  $p<0.05$ .

## RESULTS

The descriptive analysis of our socio-demographic questionnaire has shown that the main age for all examined subjects was  $48.33\pm 7.51$  years. Regarding their educational status 6 (10.00%) of the participants had completed elementary school, 48 (80.00%) had completed high school and 6 (10.00%) participants had a college degree. In terms of employment 26 (43.33%) are employed, 24 (40.00%) are unemployed and 10 (16.67%) are retired. 12 (20%) of our subjects live in the countryside, while 48 (80%) of them live in the city. 39 (65.00%) of them are still married, 13 (21.67%) have remained bachelors, while only 8 (13.33%) are divorced. Special attention was made to their responses to the question "Do you consider the effects of the armed conflicts to be transient?", for which 38 (63.33%) replied negatively, 7 (11.67%) affirmatively and 15 (25.00%) of the subjects were undecided. There are no significant differences in socio-demographic characteristics of patients between non-PTSD and PTSD groups (Table 1).

**Table 1.** Socio-demographic characteristics of subjects in non-PTSD and PTSD groups

	Non-PTSD group		PTSD group	
Number of patients (n)	30		30	
Age (years)	49.70 $\pm$ 7.88		46.97 $\pm$ 6.99	
Educational level				
Completed elementary school	3	(10.00%)	3	(10.00%)
Completed high school	26	(86.67%)	22	(73.33%)
College degree	1	(3.33%)	5	(16.67%)
Employment status				
Employed	11	(36.67%)	15	(50.00%)
Unemployed	15	(50.00%)	9	(30.00%)
Retired	4	(13.33%)	6	(20.00%)
Place of living				
Countryside	4	(13.33%)	8	(26.67%)
City	26	(86.67%)	22	(73.33%)
Marital status				
Married	22	(73.33%)	17	(56.67%)
Unmarried	5	(16.67%)	8	(26.67%)
Divorced	3	(10.00%)	5	(16.67%)
Do you consider the effects of the armed conflicts to be transient?				
Yes	2	(6.67%)	5	(16.67%)
No	17	(56.67%)	21	(70.00%)
I dont know	11	(36.67%)	4	(13.33%)

NOTE: Data are given as absolute numbers – n (%); means  $\pm$  standard deviations

**Table 2.** Emotional characteristics of armed conflict veterans tested soon after their return from the field and re-tested after 15 years

Emotional Characteristics	After return from the field		Re-tested after 15 years	
	Non-PTSD group	PTSD group	Non-PTSD group	PTSD group
Incorporation	62.30±23.09	52.57±28.46	60.47±25.14	56.47±24.93
Uncontrollability	53.67±19.78	45.67±20.03	46.17±18.69	47.67±18.65
Self-protection	50.70±23.48	56.83±20.91	52.73±22.80	53.60±21.35
Deprivation	51.33±24.56	59.83±24.62	60.17±27.31	62.33±24.06
Antagonism	36.97±19.34	39.13±24.95	34.17±21.93	33.50±21.13
Exploration	40.77±16.31	48.53±13.57*	41.40±15.19	45.20±19.83
Destruction	49.03±25.39	48.50±27.39	48.87±23.85	49.17±25.65
Reproduction	61.67±29.19	51.33±29.91	61.00±29.19	55.83±24.11
Bias	55.20±19.65	51.33±23.32	52.20±20.32	52.87±18.74

NOTE: Data are given as means ± standard deviations; \* p<0.05 (unpaired t-test between examined groups after return from the field)

**Table 3.** The main results of 2×2 mixed ANOVA – the interaction effects of time as within subject factor and group as a between-subjects factor (Tests of Within-Subjects Effects)

Emotional Characteristics	Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Incorporation	Time * group	246.53	1	246.53	0.77	0.3852	0.01
Uncontrollability	Time * group	676.88	1	676.88	3.57	0.0640	0.06
Self-protection	Time * group	208.03	1	208.03	0.85	0.3600	0.01
Deprivation	Time * group	300.83	1	300.83	0.83	0.3653	0.01
Antagonism	Time * group	60.21	1	60.21	0.29	0.5915	0.00
Exploration	Time * group	118.01	1	118.01	0.90	0.3478	0.02
Destruction	Time * group	5.21	1	5.21	0.02	0.8996	0.00
Reproduction	Time * group	200.21	1	200.21	0.60	0.4402	0.01
Bias	Time * group	154.13	1	154.13	0.66	0.4185	0.01

Computed using alpha =0.05; Sphericity assumed

Values of emotional characteristics in examined groups tested after returning from the field and re-tested after 15 years are presented in Table 2.

The unpaired t-test was used to examine potential differences in emotional characteristics between armed conflict veterans with and without the chronic form of PTSD. According to our results in the re-test, there is no statistically significant differences in their emotional characteristics between armed conflict veterans with and without chronic form of PTSD. However, during the first testing session at which point the subjects were diagnosed with PTSD upon returning from their assignments, the participants in the group that later developed the chronic form of PTSD had significantly higher values on dimension of exploration as compared to the other group ( $t=2.005$ ,  $p<0.05$ ) (Table 2). Exploration as an emotional dimension represents state related to expectations, assessment, and possibility of control or general preoccupation with a situation, especially those that are unfamiliar to us. In civilian populations, with or without psychiatric problems, this characteristic manifests itself through over-bearing, stressed and controlling personalities. In military and police populations, it can relate to something else entirely. It becomes a focus point of their emotional and psychological functioning, which when combined with symptoms of PTSD, creates a vicious circle, that is quite hard to break.

The paired t-test was used to examine potential differences in emotional characteristics in the same group between repeated tests. There are no statistical differences in both of groups.

Based on results of 2×2 mixed ANOVA the interaction of time concerning the subject factor and group as a between-subjects factor was not statistically significant on any emotional characteristics (Table 3).

## DISCUSSION

The aim of this study was to compare war veterans with PTSD and non-PTSD symptoms and investigate whether emotional characteristics are associated with the chronicity of PTSD among Serbian war veterans. If we were to translate the emotional dimension of exploration to its primal emotional meaning, it would be caution, alertness and waiting for an unknown event. Consequently, we can assume that the position of expectation, vigilance and preparation for new and unidentified circumstances (this time translated to the symptomatology of PTSD means arousal, hyper vigilance, “startling reaction”), could be responsible for the chronicity of PTSD. This was similar to the result obtained in the previous study of low quality of life in veterans with PTSD which was related to arousal (Giacco et al. 2003). The results of previous studies focused on war veterans

demonstrate lower reproduction, self protection, adaptation and higher uncontrollability and deprivation (Trlaja et al. 1997) and lower reproduction, incorporation and higher aggressiveness (Mrsic et al. 2008) in veterans with PTSD (chronic form).

Unlike the subjects of the non-PTSD group, our subjects in the chronic PTSD group seem to be predisposed to chronicity, whereby they remain in a state of prolonged anticipation, heightened arousal for external stimuli as if the trauma was still continuing, even though its objective effect has since vanished what represents their emotional trait measured at the return from the war. This particular state seems to have happened when the chronic PTSD group has been in the initial stages of the disorder. We can say that the original hypothesis, that there are differences between chronic and non-chronic PTSD subjects has not been confirmed, but also, that we have found an emotional characteristic (exploration), which may be a contributing factor of PTSD's chronicity. The basic difference between our research and previously mentioned studies was in fact that we repeated testing 15 years after and compared the groups in domain of emotional characteristics ones with another and during the time within.

The contribution of the study is in recognizing of potential emotional characteristics associated with the chronicity of PTSD, following by appropriate psychological and psychiatric treatment, the risk of chronicification could be significantly decreased.

The limitations of the study include the size of the sample, which could be larger, as well as in the choice of the PIE questionnaire designed to measure lasting and independent of external characteristics (personality) factors. We readily purport that any combat-related experience drastically changes a person's personality, namely his or her functionality and perhaps his or her very structure. This is said regardless of the fact that there are many studies confirming the chronicity of changes in PTSD subjects (Milenković 2003).

## CONCLUSION

Notwithstanding some limitations of this study, these findings could create a better understanding of the emotional characteristics of the personality which may be related to the chronicity of the PTSD disorder. We found that exploration established in acute disorder can be potentially predictive of chronicity. Also, no significant difference is found between groups of veterans with and without chronic form in the domain of emotional characteristics in re-testing. We suggest replicating these findings with a larger sample and by applying the other instruments in order to better measure emotional characteristics.

**Acknowledgements:** None.

**Conflict of interest:** None to declare.

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#### Correspondence:

Tatjana Milenković, MSc  
Clinic for Mental Health, Clinical Center of Niš  
Bulevar Zorana Djindjica 48, 18000 Niš, Serbia  
E-mail: tatjanamil@aol.com