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**The Connection between Alexithymia and Somatic Morbidity in a Population of
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4. Running head: Alexithymia and Somatic Disease in PTSD

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SUMMARY

The Connection between Alexithymia and Somatic Morbidity in a Population of Combat Veterans with Chronic PTSD

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Purpose: To investigate the connection between alexithymia and somatic illness, or, somatization, in veterans suffering from chronic combat-related post-traumatic stress disorder, PTSD.

Methods: Croatian combat veterans (N=127) were studied at the Department of Psychology, Zagreb Clinical Hospital Center. The diagnosis of PTSD was confirmed and verified according to the International Classification of Diseases (ICD-10). A version of the Mississippi Scale for Combat Related PTSD (M-PTSD) standardized for the Croatian population was used to assess the severity of PTSD. In addition to the clinical interview, the existence of alexithymia was confirmed by the score on the Toronto Alexithymia Scale (TAS-20).

Results: A statistically significant association was found between the total number of diagnosed physical illnesses and the scores on three subscales of an alexithymia

questionnaire, the TAS-20, with a 1% risk ($p < 0.01$, 0.487; 0.450; 0.335). Regression analysis confirmed the most statistically significant predictive value of the first item of the TAS-20, which refers to difficulty in identifying feelings ($\beta = 0.408$, $p = 0.019$). The total score on the M-PTSD scale correlated significantly to the subscales for alexithymia. There was a statistically significant negative correlation of the total score on the M-PTSD scale with social support.

Conclusion: The total scores obtained in this study, particularly those related to alexithymia, indicate the importance of this construct in the etiopathogenesis of somatic morbidity in the study population and confirm that as in other countries the TAS-20 is a useful instrument in Croatia for the assessment of this phenomenon.

Keywords: alexithymia, PTSD, psychophysiological disorder, somatization disorder, Croatia

INTRODUCTION

The issue of the importance of the role of psychological factors in the etiopathogenesis of physical illnesses is currently one of the most intriguing challenges in psychosomatic medicine. The significance of this issue exceeds the scientific framework and has potential social, public health and anthropological, i.e., sociocultural, importance as well as certain repercussions on medical treatment in general. On the other hand, pathological physical processes, most commonly via neurohumoral transmission, can affect a person's emotional life and psycho-functioning in general. The modern approach in medicine and psychiatry is increasingly taking the significance of psychology into account, not only in the etiology of classical psychiatric morbidity but also in the etiopathogenesis of somatic morbidity or psychosomatic disorders (1, 2).

There are many different concepts of psychosomatic illnesses today. One of the pioneers of the psychosomatic concept is Franz Alexander, who believed that a psychosomatic disorder occurs due to the unloading of emotion via the autonomic nervous system. Florence Dunbar called attention to the traits of a psychosomatic personality and the role of chronic stress as a potential activator of latent organic disorders in predisposed individuals(3, 4). In the 1970s, French analysts observed that psychosomatic patients exhibited a certain manner of thinking, i.e., operative thinking (*pensée opératoire*), and potential deficits regarding the psychic elaboration of conflict, particularly intrapsychic (5, 6). In Boston during the 1970s, a group of authors, led by Sifneos and Nemiah, introduced the concept of alexithymia into psychosomatic medicine as the inability to identify and express feelings (7). Alexithymic persons have a limited imaginal capacity and are not able to elaborate everyday conflict situations satisfactorily. Thus, one of the pathological ways in which they react to such, for example, psychically unelaborated conflicts is via the hypothalamic-pituitary-adrenal axis, translated into autonomic hyperirritability, which contributes to the activation of undesirable

loops thus paving the way for psychosomatic disorders via the sympathetic and parasympathetic nervous systems(4). Neuroimaging studies indicate that persons with alexithymia have diminished brain activity in the regions of the cingulate cortex (8, 9).

Thus far, alexithymia has not been defined as a separate entity in the international classification of illnesses or disorders, although it is found in comorbidity with other disorders connected with psychosomatic illnesses (10, 11). Nonetheless, all psychosomatic patients do not display alexithymic characteristics and alexithymia is not responsible for the type of disease(5, 6). However, alexithymia has been found to be present in many diseases and the significance of alexithymic indices has been described in somatoform disorders, PTSD, masked depression, infertility, pathological gambling and eating disorders (12-15).

Since a very large number of persons in the Republic of Croatia suffer from chronic post-traumatic stress disorder (chronic PTSD) in the aftermath of the recent war, especially combat veterans, the issue of somatic morbidity in this population, i.e., the interdependence of psychological factors and physical morbidity in those afflicted, is raised. Although data on the prevalence of chronic PTSD in the Republic of Croatia have not been sufficiently investigated, those currently available indicate a prevalence of approximately 16.9% for the developed form of the disorder, and another 10.5% for the abortive form(16). Published data on the eventual somatic morbidity of said population in our country are very meager but studies in other countries, particularly the United States, indicate that individuals who have been exposed to traumatic experiences are at increased risk for somatic morbidity, which they enter on self-report questionnaires, and also use health services more frequently and have a higher mortality rate than the general population (17-21). The prevalence of alexithymia among persons suffering from PTSD has not been investigated in Croatia and only a few such studies have been conducted worldwide (22, 23).

In this paper, we investigate the connection between alexithymia and somatic morbidity, or, somatization, in a population of combat veterans suffering from chronic PTSD. By somatization, we refer to the somatic disorders that the respondents cited: nonspecific dermatological skin changes, respiratory disorders (labored breathing, shortness of breath and a feeling of suffocation), pains and pressure in the abdomen and chest, headache, pains in various parts of the body, digestive and eating disorders etc. The influence of other factors on existing somatic morbidity or somatization (e.g., socio-demographic characteristics of the respondents, conjugal or family support, and the intensity of individual PTSD symptoms) will also be investigated.

METHODS

The investigation was conducted during the period from March to June 2008 on a population of Croatian combat veterans treated at the Zagreb Clinical Hospital Center who had been previously diagnosed by a competent psychiatrist as suffering from PTSD. The study included 127 participants, who had been informed about the manner in which the investigation would be conducted and given their consent. The diagnosis of PTSD was confirmed and verified according to the International Classification of Diseases (ICD-10). The study included only veterans with PTSD who also suffered from any of the following: 1) endocrine diseases and disorders of nutrition or metabolism, 2) tumors, 3) diseases of the blood and immune system, 4) disorders of the circulatory system, 5), disorders of the respiratory system, 6) disorders of the digestive system and 7) disorders of the skin and subcutaneous tissue. It is important to note that the subjects had not recorded the presence of these diseases in their anamneses/medical histories prior to the development of PTSD.

Persons were excluded from the study whose documentation included records of other psychiatric comorbidities (e.g., psychosis, anxiety-depressive disorder, depression etc.) as

well as those who had suffered from certain other physical disorders prior to the war. Those who reported that they suffered from other inflammatory and infectious diseases considered as specific entities in the ICD or disorders of the nervous system, urinary tract or locomotor system were also excluded.

A version of the Mississippi Scale for Combat Related PTSD (M-PTSD) standardized for the Croatian population was used to assess the severity of PTSD in the combat veterans(24). We have had good experience with it as one of the most frequently used questionnaires for similar investigations in our country and the world. In addition to the clinical interview, the existence of alexithymia was confirmed by the score on the Toronto Alexithymia Scale (TAS-20)(25). The individual scores were calculated according to the questionnaire instructions and sub scores for the TAS-20 were calculated according to the factor analysis of the questionnaire. To investigate the socio-demographic characteristics of the participants, medical history, traumatic wartime experiences and existence of psychosomatic disorders questionnaire especially designed for the purpose of this study was used. Descriptive statistics present the incidence of certain categories of variables. Quantitative values are shown by the arithmetic mean and standard deviation. The Pearson coefficient correlation was used to determine the correlation between the scores on the M-PTSD scale with the alexithymia scores. Multiple regression analysis was performed in an attempt to predict the impact of certain individual clinical variables on the occurrence of somatic disorders. All p values <0.05 were considered statistically significant. SPSS V16.0 software was used in the analysis. The results are presented in the tables.

RESULTS

The subjects included in the study were men, whose mean age was 46.1+/- 6.7 years. The socio-demographic characteristics of the subjects participating in the study are shown in Table 1.

Table 1: Characteristics of the participants involved in the study

Most of the participants had secondary school educations (72.4%). Of these 127, only 5 (3.9%) of the subjects were working, 29 (22.8%) were on sick leave, 70 (55.1%) were retired, and the others were unemployed. Most of the subjects were married (72.4%), 6 (4.7%) were cohabitating with a partner out of wedlock, 10 (7.9%) were unmarried, while 19 (15%) were divorced. Half of the subjects, more precisely 69, had spent more than a year in combat. When asked to state the total number of traumatic events experienced during the war, 99 (79%) of the total number of subjects said they had experienced more than 10 traumatic events. When asked if they had suffered from any physical disorders prior to the war, 62 (48.8%) of the subjects responded in the affirmative, i.e., they had been diagnosed with a physical disorder. The existence of alexithymia was confirmed by the TAS-20 score. The criterion variable used in multiple regression analysis was the number of somatic disorders, while the predictor variables were difficulty in identifying feelings, difficulty in describing feelings, externally oriented thinking, M-PTSD, and conjugal and family support. In the regression analysis, which explains 26% of the variances in the number of somatic disorders, the model was significant, $p < 0.001$. From the structure of the contribution of individual predictors, difficulty in recognizing feelings stands out as a significant variable, which means that someone with difficulty in identifying feelings has more severe somatic disorders than other combat veterans ($\beta = 0.048$, $p = 0.019$) (Table 2). The same variable has a predictive

value when somatization or undiagnosed somatic disease is used in multiple regression analysis as a criterion valuable but the model is not significant (Table 2).

Table 2: The structures of the contribution of individual predictors in the prognosis criteria of diagnosed somatic diseases and the criteria for undiagnosed somatic disorders

The correlations of the criteria are presented in Table 3. Correlation is significant at a level of <1% risk (marked with two asterisks) and at a level of <5% risk (marked with one asterisk).

Table 4: Correlation of the criteria

From the table, it is evident that there is a statistically significant positive correlation between somatic diseases and all three alexithymia scales. The total M-PTSD score correlates significantly with the subscale for alexithymia. There is a statistically significant correlation between the total M-PTSD score with social support. This is a negative correlation, which means that the greater the social support, the less severe symptoms of alexithymia and PTSD in the study population.

DISCUSSION

The results of this study indicate that alexithymia is a risk factor for the development of somatic diseases in persons with chronic PTSD. Namely, the only statistically significant correlation between somatic disorders and the other variables studied was found between alexithymia expressed as the total TAS score or the total TAS-20 subscale score, of which the score on the scale of difficulty in recognizing feelings contributed the most to the model, i.e., the multiple regression analysis of this factor yields the highest predictive value. No positive correlation was found between the M-PTSD scores and somatic diseases or between somatization and the scores on the scales of family and conjugal support. We may assume that the existence of somatic morbidity in persons with chronic combat PTSD is significantly associated with the existence of alexithymia but not with the other parameters investigated. According to this study, it could be said that the physical illnesses of veterans suffering from chronic combat PTSD are associated with certain specific psychological factors, primarily relating to difficulty in identifying feelings, difficulty in describing feelings and externally oriented (concrete) thinking, and only the TAS-20 subscale, i.e., difficulty in identifying feelings, has predictive value. By contrast, somatic diseases were not significantly associated with the M-PTSD scores. However, the results of the complete correlation matrices show that there are statistically significant correlations between PTSD and alexithymia (on all three TAS subscales) but there is also a statistically significant negative correlation between the M-PTSD questionnaire scores and social support, both conjugal and family, which could not be confirmed for somatic diseases. This means that those who have better family and social support have less severe symptoms as measured by the M-PTSD scale. Furthermore, this indicates the importance of social support for the population of traumatized persons (26, 27). There are evidences that alexithymia is associated with a number of somatic diseases (28-32). Moreover, there are many studies that investigate the impact of alexithymia on the outcomes

of the treatment of various conditions. Porcelli et al. concluded that persons with functional gastrointestinal disorders who do not respond well to therapy are more alexithymic and depressive, with more serious gastrointestinal symptoms than those who respond well to therapy (33). In a study involving patients with somatoform disorders, Bach and Bach found high alexithymia scores to be a significant predictor of persistent somatization, independently of other psychopathological symptoms, socio-demographic factors and the severity of disease (34). Furthermore, alexithymia is several times more prevalent in patients suffering from PTSD than in the general population (22, 23). In a study involving Vietnam veterans, Krystal et al. concluded that alexithymia is a significant predictive factor in the treatment outcomes of patients hospitalized for PTSD and somatic disorders (35).

To our knowledge, this is the first study in Croatia that connects the effect of alexithymia and the development of somatic disorders in persons diagnosed with chronic PTSD(36). However, it has its limitations. Only 127 subjects were involved because combat veterans diagnosed with PTSD and other psychiatric comorbidity were excluded. We believe that the study should certainly be continued with a larger sample. The subjects were recruited from the Department of Psychology, Zagreb Clinical Hospital Center. Future research should also include combat veterans from other regions of Croatia and eventually investigate the socio-demographic factors that affect alexithymia scores. Such an investigation would facilitate the identification of persons with chronic PTSD who can be helped to achieve a higher quality of life. It would also be very interesting to predict the effect of alexithymia on the treatment outcomes of mental and physical disorders among the population of Croatian combat veterans.

The overall results of this investigation, particularly those related to alexithymia, indicate the significance of this construct in the etiopathogenesis of somatic morbidity in the study

population and confirm that as in other countries that TAS-20 is a useful instrument in Croatia for the assessment of this phenomenon.

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TABLE 1. Characteristics of the Participants Involved in the Study

Variables		N
educational level	elementary school	20
	secondary school	92
	college	15
employment status	employed and working	5
	unemployed	20
	retired	70
	on sick leave	29
marital status	live with a partner	98
	live alone	29
total time spent in combat	<3 months	3
	3-6 months	20
	6-12 months	35
	>1 year	69
number of traumatic events	<2	2
	3-10	26
	>10	99

TABLE 2. The Structures of the Contribution of Individual Predictors in the Prognosis
Criteria of Diagnosed Somatic Diseases and the Criteria for Undiagnosed Somatic Disorders

PREDICTORS	N of somatic diseases ($r^2=0.262$; $F=7.09$; $p<0.001$)			N of undiagnosed somatic disorders ($r^2=0.065$; $F=1.39$; $p=0.221$)		
	β	t	p	β	t	p
DIF	0.408	2.372	0.019	-0.423	-2.185	0.031
DDF	0.147	0.781	0.436	0.195	0.923	0.358
EOT	-0.009	-0.079	0.937	0.087	0.642	0.522
M-PTSD	-0.134	-1.519	0.131	0.037	0.376	0.708
Conjugal support	-0.082	-0.895	0.373	-0.137	-1.327	0.187
Family support	0.08	0.838	0.404	0.053	0.492	0.624

DIF – Difficulty in Identifying Feelings, DDF – Difficulty in Describing Feelings,

EOT-Externally Oriented Thinking, M-PTSD-Mississippi Scale for Combat-Related PTSD

TABLE 3. Correlation of the Criteria

	Somatic disease/ total N	DIF	DDF	EOT	M- PTSD	Conjugal support	Family support
Somatic disease/ total N	1	0.487**	0.450**	0.335**	0.023	-0.075	-0.035
DIF	0.487**	1	0.889**	0.697**	0.287**	-0.131	-0.219*
DDF	0.450**	0.889**	1	0.748**	0.330**	-0.135	-0.243**
EOT	0.335**	0.697**	0.748**	1	0.303**	-0.179*	-0.290**
M-PTSD	0.023	0.287**	0.330**	0.303**	1	-0.285**	-0.362**
Conjugal support	-0.075	-0.131	-0.135	-0.179*	-0.285**	1	0.508**
Family support	-0.035	-0.219*	-0.243**	-0.290**	-0.362**	0.508**	1