INFLUENCE OF LONG TERM STRESS EXPOSURE ON SOMATISATION SYMPTOMS OUTCOME

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Abstract

Long term stress exposure results in somatisation symptoms appearance. Cardiovascular, respiratory, gastrointestinal and muscle-bone symptoms arise because of intensified activity of autonomic nervous system caused by chronic stress. The aim of the study was to examine the relationship between long term war stress exposure and appearance of somatisation. 40 students of health-care faculties in Sarajevo, of both sexes, were included in investigation and divided in two groups-somatisation and control. Somatisation group subjects (N=20) lived in B&H under war conditions, from 1992-1995. Control subjects (N=20) spent the same period outside B&H. For evaluation of somatisation symptoms we used SCL-90-R test. The obtained data were statistically evaluated using Student's t-test and χ^2 test. Confidence level was set at $p < 0,05$. Our results showed statistically significant difference in somatisation level between somatisation and control subjects group. Different intensity of appearance of certain symptoms in male and female was established. The score of somatisation dimension between somatisation and control group showed statistically significant level ($p < 0,0001$). Study results confirmed correlation of chronic stress exposure (living in war environment) and somatisation symptom appearance. Individual organic systems had various level of symptom expression. The influence of sex on intensity of individual symptoms of somatisation is possible.
Key words: somatisation, stress

Introduction

Long-term exposure to an extreme traumatic event causes psychological abnormalities that persist long after the removal of stress-precipitating agent. Somatisation has been described as the psychological distress in the form of physical symptoms. It has also been suggested that somatisation is a way of defense against psychological distress expression (1). Long-term stress exposure is cause of changes in autonomic nervous system functioning. It happens at two levels: the basal tone and stress-related reaction (2). Stress, by activating the sympathetic nervous system, hypothalamic-pituitary axis, renin angiotensin system causes the release of stress hormones such as: cateholamines, corticosteroids, glucagon, growth hormone and renin (3). These alterations in the function of autonomic nervous system lead to the appearance of respiratory, cardiovascular, gastrointestinal symptoms and symptoms in other systems with autonomic regulation. Thus, the complex bio-psycho-social nature of human being is ascertained along with the connection of affective and physiological mechanism (4).

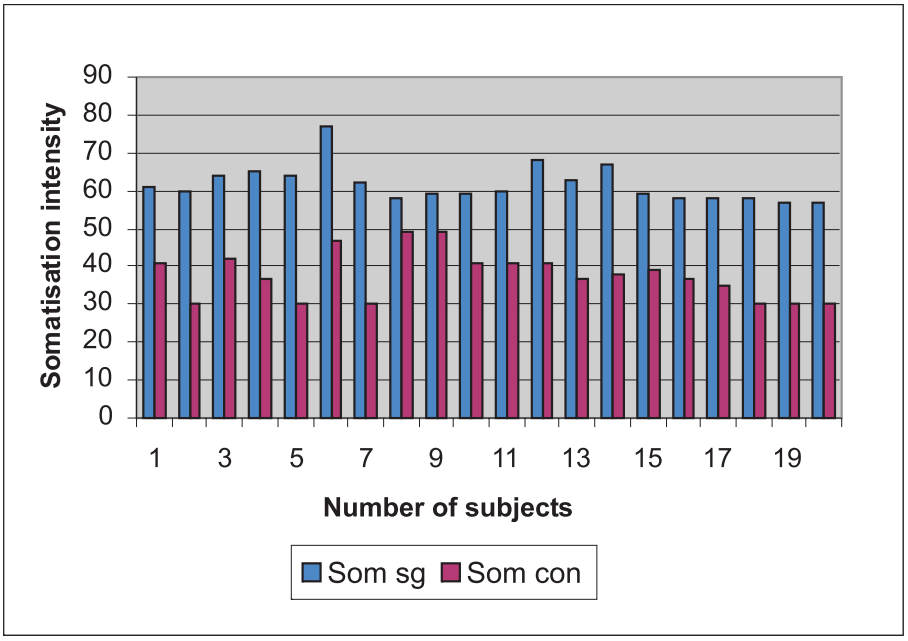
Objective

The aim of this work was to examine the connection between chronic stress induced by war living conditions and somatisation symptoms occurrence. By including the subjects of both sexes, we aimed to establish relationship between sex and single somatisation symptoms expression.

Subjects and methods

Our study included students of health-care faculties in Sarajevo (n=40, 21 years of age on average) in post war period. Somatisation group subjects (n=20), both sexes, lived in Bosnia and Herzegovina under war conditions from 1992-1995. Control group subjects (n=20), both sexes, spent the same period outside B&H. Informed written consent was obtained from all the subjects before the evaluation. For evaluation of somatisation symptoms we used SCL-90-R (Symptom Check List) developed by Derogatis in the 1980. SCL-90-R was designed for screening a broad range of psychological problems and psychopathological symptoms. The test contains 90 items divided into 9 dimensions: somatisation, obsessive-compulsive, interpersonal sensitivity, depression, anxiety, hostility, phobic anxiety, paranoid ideation, symptoms that indicate psychosis. Somatisation symptoms that were included in the study are: headaches, faintness or dizziness, chest pains, pains in lower back, nausea or upset stomach, muscle soreness, feeling of loosing breath, hot or cold spells, numbness and tingling in parts of the body, feeling of lump in the throat, weakness in parts of the body, heavy feeling in limbs. Intensity of symptoms was expressed on scale 0-4. We explored total level of somatisation expression and intensity of individual symptoms appearance. Statistical evaluation of obtained results was performed using Student's t-test for parametric data and χ^2 test for non parametric data. Confidence level was set at $< 0,05$.

Graph 1. Difference in somatisation level of individual members of somatisation and control group



Som $_{sg}$ - somatisation level of individual members of somatisation group

Som $_{con}$ - somatisation level of individual members control group

Results and discussion

SCL-90-R completed by subjects in both groups was analyzed. Total level of somatisation higher than 50 was considered abnormal. Our results showed that individual members of somatisation group had higher level of somatisation than individual members of control group (Graph 1.). Graph 1. shows relation between somatisation level of individual members of somatisation and control group.
The obtained differences in total level of somatisation between the two groups is displayed on Graph 2. In the somatisation subjects group total level of somatisation was higher compared to the control subject group.

In Graph 2. we displayed the difference of total level of somatisation between somatisation and control group. The obtained experimental data were statistically evaluated by using Student's t test. Data were expressed as mean ± SD. Statistically significant difference was established between two groups p<0,0001.Intensity of single somatisation symptom appearance in two observed groups was analyzed. Then we compared intensity of symptom expression of male subjects between somatisation and control group. Intensity of symptom expression of female subjects in two observed groups was analyzed separately (table 1.). Intensity of symptoms was expressed on 0-4 scale. Table 1. shows the differences in intensity of individual somatisation symptoms between the two observed groups. Also, it shows the distinction of expression level of individual symptoms of somatisation between male and female subject groups. Data were evaluated by χ^2 test.
The obtained experimental data show statistically significant difference (p 0,0001) in symptoms intensity between somatisation and control group. Statistically significant difference in intensity of all somatisation symptoms between the two groups was confirmed. Symptom such as "pains in heart and chest" showed statistically significant difference (p 0,01) that is lower than the difference for other somatisation symptoms (p 0,001). For female subjects, a higher level of significant differences between somatisation and control groups was obtained for symptoms such as "headaches", "faintness or dizziness", "nausea or upset stomach", "hot or cold spells", "heaviness in limbs". We found higher level of difference between male subjects of somatisation and control group for symptoms "pains in heart or chest" and "pains in lower back" compared to other symptoms.

Conclusion

Long-term stress exposure leads to psychological abnormality and increased activity of autonomic nervous system. This type of alteration causes a variety of pathophysiological changes. Biological changes in the functioning of noradrenergic and serotoninergic system, hypothalamo-hypophyseal-adrenaline axis and endogenic opiatic system gradually leads to the expression of organic disorders (5). Chronic stress exposure influences the appearance of symptoms in cardiovascular, respiratory, gastrointestinal and muscle-bone systems. We confirmed the relationship

Graph 2. Total level of somatisation in somatisation and control group subjects

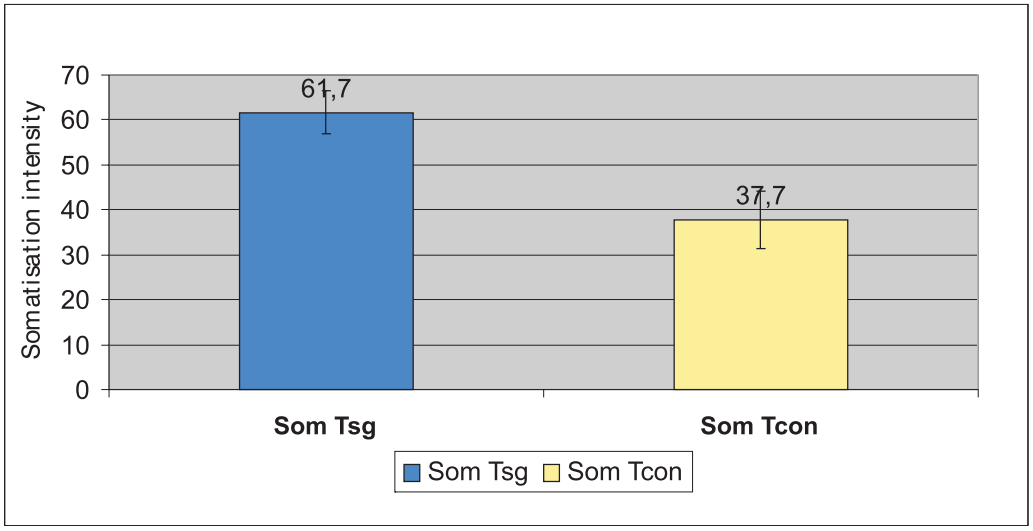


Table 1. Expression level of individual somatisation symptoms in somatisation and control subjects group

SOMATISATION SYMPTOMS	$SG_{♂}/C_{♂}$	$SG_{♀}/C_{♀}$	SG/C
headache	*	**	***
faintness or dizziness	*	***	***
pains in heart or chest	**	ns	**
pains in lower back	**	ns	***
nausea or upset stomach	ns	**	***
soreness of muscles	ns	ns	***
feeling of loosing breath	ns	ns	***
hot or cold spells	ns	***	***
numbness or tingling in part of the body	ns	ns	***
feeling of having lump in the throat	ns	ns	***
weakness in body parts	ns	**	***
heaviness in limbs	ns	**	***

$SG_{♂}/C_{♂}$ - symptom intensity difference between male subjects of somatisation and control group;
$SG_{♀}/C_{♀}$ - symptom intensity difference between female subjects of somatisation and control group;
ns not statistically significant $p>0,05$;
* statistically significant $p< 0,05$;
** statistically significant $p< 0,01$;
*** statistically significant $p< 0,001$;

between chronic stress exposure (living in the war environment) and somatisation symptoms occurrence in post war period. We established variation in the expression of symptoms within individual organic systems. Our investigation shows possible influence of sex on the intensity of individual symptom expression. Long-term stress exposure is a risk factor in the development of many diseases. On the basis of our investigation, we can expect appearance of clinical symptoms and changes in biochemical parameters (glucose intolerance, increased blood lipids, changes in serum enzymes activities and other abnormalities) in somatisation subjects group (6). Changes of biochemical parameters are caused by long-term intensified activities of vegetative, endocrine, cardiovascular and immunological system (7). Intensity of the expression of individual somatisation symptoms in male differs from that in female subjects. This indicates possible influence of sex on clinical symptom appearance (8,9).

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