

## POSTTRAUMATIC STRESS DISORDER AND DEPRESSION AS COMORBID DISORDERS

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### SUMMARY

**Introduction:** Depression is the most frequent disorder of today. It is unique for the fact that it can become a comorbid illness with almost any other psychiatric disorder. Premorbid depression is also a risk factor for the development of PTSD, while at the same time traumatic experience is a risk factor for the development of depression. These facts show us that a close connection between these two diagnostic entities exists.

Aim of this research was to analyze the levels of depressiveness in patients that were hospitalized and patients that were treated in the Day hospital. Also, to establish the connection of age, time spent in combat (war), length of treatment and number of hospitalizations with the results from the Beck's depression inventory.

**Subjects and methods:** Participants were divided into two groups, 36 patients that were treated for PTSD in a hospital setting and 64 patients that were treated in the Day hospital. Participants completed Beck's self-evaluation inventory for depression, as it assesses the degree of depression.

**Results:** Two groups did not differ regarding to age, time spent in combat (war), the length of treatment and level of depressiveness assessed by Beck's depression inventory. Score on Beck's depression inventory was significantly positively correlated with the age of participants and the number of hospitalizations. Older participants and participants that were hospitalized more often score higher on Beck's depression inventory.

**Conclusion:** Results show that there is no difference between the two groups of participants of differing levels of depressiveness, but depression most often presents as severe depression in both groups of participants. Older participants and participants that were hospitalized more often are more depressed.

This research points to the fact that it is necessary to treat PTSD and depression at the same time, because parallel treatment of these comorbid disorders leads to a decrease of the rate of suicide, due to the fact that depression is often the leading cause of suicide.

**Key words:** PTSD – depression – comorbidity - treatment

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### INTRODUCTION

According to the DSM-IV classification, Posttraumatic Stress Disorder is defined as the development of characteristic symptoms following exposure to an extreme traumatic stressor involving direct personal experience of an event that involves actual or threatened death or serious injury, or other threat to one's physical integrity; or witnessing an event that involves death, injury, or a threat to the physical integrity of another person; or learning about unexpected or violent death, serious harm, or threat of death or injury experienced by a

family member or other close associate (American psychiatric association 2000).

Prevalence of PTSD in the general population is considered to be among 1% and 14%, depending on the methods used to gather the data and the population that was assessed (Folnegović-Šmalc 1997).

Fully developed clinical features of PTSD can develop directly after the exposure to a traumatic event or usually during the three months. Although unique clinical picture does not exist, symptoms of PTSD are divided in four groups: intrusive, symptoms of avoidance, symptoms of increased

arousal and associated forms of PTSD. Symptoms of depression and anxiety can be significant and then it is necessary to diagnose depressive or anxiety disorders. Worsening of depressive feelings can lead to suicide or attempted suicide and anxiety can lead to the development of alcohol or drug addictions (Nock et al. 2009, Morean et al. 2009).

Due to the complexity of etiologic factors that lead to the development of PTSD, its treatment has to grasp all the different aspects of the disorder. Pharmacotherapy can be used to reduce and diminish most prominent of symptoms or to normalize neurotransmitter disturbances. Psychotherapy is used to process and re-live traumatic experiences through their reconstruction using a "traumatic story" (Kučkalić 1998, de Jonghe et al. 2004).

Depression is the most frequent disorder of today. It is unique for the fact that it can become a comorbid illness with almost any other psychiatric disorder (NIMH 2009).

Prevalence of mood disorders in the general population is between 3.6 and 6.8%. It is estimated that over 100.000 people suffer from different forms of depressive disorders in Croatia. Mood disorders are more frequent in older age groups and are 1.5 to 3 times more likely to be present among directly related cousins. Risk of developing a mood disorder during one's lifetime is 10-20.5 % for women and 5-12.5% for men (NIMH 2009).

Depressive episodes can manifest in various ways, meaning that they can have various number of symptoms, as well as various pronouncedness and many different combinations. Also, clinical picture may vary, as well as onset and duration of depressive episodes and their connection with other disorders, especially manic, hypomanic and anxiety episodes. In order to diagnose a depressive episode symptoms have to last for at least two full weeks (Muačević et al. 1986, American psychiatric association 2000).

Beside the symptoms of a mood disorder, clinical picture can manifest symptoms like loss of energy and appetite, sleep problems, feelings of worthlessness, concentration difficulties, indecision, suicidal ideation or attempted suicide.

Best results in treatment of depression are achieved with a combination of pharmacologic and psychological therapy, meaning use of antidepressants and psychotherapy (de Jonghe et al. 2001, de Jonghe et al. 2004).

Premorbid depression is identified as a risk factor for the development of PTSD, but trauma is also a risk factor for the development of depression. All being said points to a close connection of these two diagnostic entities (Brady KT et al. 2000, Sher 2009).

### **Aim of research**

Aim of this research was to analyze severity of depression in patients that were hospitalized and patients treated in the "Day hospital" setting. Furthermore, to determine the connection of age, time spent in combat (war), length of treatment and number of hospitalizations with results from the Beck's depression inventory.

### **SUBJECTS AND METHODS**

In this research participants were divided into two groups, 36 patients that were hospitalized and treated for PTSD at the Psychiatric Clinic of KBC Rijeka and 64 patients that were treated in the Day hospital setting at the Centre for Psycho-trauma. All participants fulfilled the criteria for PTSD according to DSM-IV (American psychiatric association 2000).

Participants completed Beck's self-evaluation depression inventory, used to assess the severity of depression. It is divided into several parts and consists of 21 questions with 4 alternate answers, from 0 to 3 (Jakovljević 1998). Score from 0 to 11 negates the existence of depression, from 12 to 19 categorizes mild depression, 20 to 26 moderate depression and score over 26 points to severe depression. Assessment of depression in patients suffering from PTSD was analyzed regarding to following parameters: age, time spent in combat (war), length of treatment and number of hospitalizations. T-test was used for independent samples and hi-square test for items that were in the form of frequencies. Furthermore, one-way analysis of variances was used to determine differences between groups and subsequent comparison of group pairs was done using LSD test.

### **RESULTS**

Two groups did not significantly differ regarding average age of the participants ( $t=1.28$ ;  $p=0.204$ ) (see Table 1). Furthermore, two groups did not significantly differ regarding time spent in combat (war) ( $t=1.63$ ;  $p=0.106$ ) (see Table 2). Two

research groups also did not significantly differ regarding the length of treatment ( $t=1.37$ ;  $p=0.175$ ) (see Table 3). Average number of hospitalizations in this research was 2, with minimal number of hospitalizations being just one and maximum number reaching 8 hospitalizations (see Table 4).

**Table 1.** Average age of participants

Group	M	SD
Hospitalized	47.47	6.23
Day hospital	45.61	7.39
t-test; p	$t=1.28$ ; $p=0.204$	

M – arithmetic means; SD – standard deviation;  
t - results of t-test; p - probability

**Table 2.** Average time (in years) spent in combat (war) of participants

Group	M	SD
Hospitalized	1.91	1.29
Day hospital	2.36	1.31
t-test; p	$t=1.63$ ; $p=0.106$	

M – arithmetic means; SD – standard deviation;  
t - results of t-test; p - probability

**Table 3.** Average length of treatment (in years) of participants

Group	M	SD
Hospitalized	3.71	3.19
Day hospital	2.85	2.90
t-test; p	$t=1.37$ ; $p=0.175$	

M – arithmetic means; SD – standard deviation;  
t - results of t-test; p - probability

**Table 6.** Participants grouped for severity of depression according to results from Beck's depression inventory

Severity of depression	Hospitalized	Day hospital	$\chi^2$ ; ss; p
No depression	0 (0.0%)	0 (0.0%)	$\chi^2=0.535$ ; ss=2; p=0.765
Mild depression	1 (2.8%)	1 (1.6%)	
Moderate depression	6 (16.7%)	8 (12.5%)	
Severe depression	29 (80.6%)	55 (85.9%)	
TOTAL	36 (100%)	64 (100%)	

$\chi^2$  – chi square test; ss – degrees of freedom; p - probability

**Table 7.** Correlation of age, time spent in combat (war), length of treatment and number of hospitalizations with results from Beck's depression inventory

Variables	Pearson's correlation coefficient
Age	0.19*
Time spent in combat (war)	0.08
Length of treatment	0.04
Number of hospitalizations	0.39*

\* -  $p<0.05$ ; Correlation between the number of hospitalizations and the results from Beck's depression inventory has been calculated only for the group of hospitalized patients.

**Table 4.** Average number of hospitalizations of participants

Group	M	SD	min.-max.
Hospitalized	2.00	2.00	1 - 8

M – arithmetic means; SD – standard deviation; min.-max. – lowest and largest number of hospitalizations

**Table 5.** Result score from Beck's depression inventory

Group	M	SD
Hospitalized	34.44	8.46
Day hospital	34.58	7.04
t-test; p	$t=0.28$ ; $p=0.933$	

M – arithmetic means; SD – standard deviation;  
t - results of t-test; p - probability

Two groups did not significantly differ regarding the score achieved on Beck's depression inventory ( $t=0.08$ ;  $p=0.933$ ) (see Table 5). Between the two research groups there were no significant differences regarding the number of participants with different severities of depression ( $\chi^2=0.535$ ;  $ss=2$ ;  $p=0.765$ ) (see Table 6).

Score achieved on Beck's depression inventory was found to be significantly and positively correlated with the age of participants and the number of hospitalizations. Older participants and those that were hospitalized more often score higher on Beck's depression inventory (see Table 7).

## DISCUSSION

In the last few years we can observe a growing interest for psychical disorders caused by different traumas, PTSD being no exception, but the most researched area (Sher 2009). As a comorbid disorder to PTSD we can often diagnose depression and therefore our aim was to analyze the severity of depression in hospitalized and day hospital patients treated for PTSD (Brady KT et al. 2000, Sher 2009).

Among the two researched groups there were no significant differences regarding age ( $t=1.37$ ;  $p=0.204$ ), time spent in combat (war) ( $t=1.63$ ;  $p=0.106$ ) and the length of treatment ( $t=1.37$ ;  $p=0.175$ ).

Analysis of results obtained by Beck's self-evaluation depression questionnaire showed that two groups of participants did not significantly differ regarding the number of participants with various severities of depression, but severe depression was the most often established entity in both research groups – 29 (80.6%) among hospitalized patients and 55 (85.9%) among patients treated in the Day hospital setting. Moderate depression was established in 6 (16.7%) hospitalized patients and 8 (12.5%) patients treated in the Day hospital setting. Mild depression was established in just two patients, 1 (2.8%) among hospitalized patients and 1 (1.6%) patients treated in the Day hospital setting. These results can be compared with other researches that have shown that there is a strong link between PTSD and major depressive disorder (Ducrocq et al. 2001).

Furthermore, results show that there is a connection between depression and age, as older participants scored higher on the Beck's depression inventory. Participants that were hospitalized frequently also scored higher on the Beck's depression inventory. Other researches also showed that age has a negative effect on depression, as older patients tend to develop more severe clinical pictures than younger patients (Lô H et al. 2004, Cvjetković-Bošnjak et al. 2000). That can also be linked, at least partially, with more frequent somatic illnesses that affect patients suffering from PTSD and major depression (Aragones et al. 2007, Vasterling et al. 2008).

## CONCLUSION

We can conclude that there are no statistically significant differences regarding different severities of depression between the two research groups, those hospitalized and those treated in the Day hospital setting. In both research groups severe depression was diagnosed most frequently and mild depression most rarely. Age and number of hospitalizations were shown to significantly influence the severity of depression, as older participants and those hospitalized frequently were found to be significantly more depressed.

This research undoubtedly shows that there is a need for parallel treatment of PTSD and depression, which is not often the case in clinical practice. Treating PTSD as the main disorder and depression as a comorbid one also lowers the risk of suicide, because depressive disorder is most frequently the main risk factor for suicide.

## REFERENCES

1. American psychiatric association: *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition, Text Revision*. Washington DC: American psychiatric association, 2000.
2. Aragones E, Pinol JL, Labad A: *Depression and physical comorbidity in primary care*. *J Psychosom Res*, 2007; 63:107-11.
3. Brady KT, Killeen TK, Brewerton T, Lucerini S: *Comorbidity of psychiatric disorders and posttraumatic stress disorder*. *J Clin Psychiatry*, 2000; 61 Suppl 7:22-32.
4. Cvjetković-Bošnjak M, Knežević A, Soldatović-Stajić B: *Depression in older persons*. *Med Pregl*, 2000; 53:184-6.
5. Ducrocq F, Vaiva G, Cottencin O, Molenda S, Bailly D: *Post-traumatic stress, post-traumatic depression and major depressive episode: literature*. *Encephale*, 2001; 27:159-168.
6. Folnegović-Šmalc V: *Epidemiologija PTSP-a*, IN: Klain E, Gregurek R, editors *Terapijski pristup bolesnicima i njihovim obiteljima oboljelim od PTSP-a*. Zagreb: Medicinski fakultet Sveučilište u Zagrebu, 1997.
7. Jakovljević M.: *Depresija – vodič za bolesnike i njihove obitelji*. Zagreb: Belupo, 1998.
8. de Jonghe F, Kool S, van Aalst G, Dekker J, Peen J: *Combining psychotherapy and antidepressants in the treatment of depression*. *J Affect Disord*, 2001; 64:217-29.

9. de Jonghe F, Hendricksen M, van Aalst G, Kool S, Peen V, Van R, van den Eijnden E, Dekker J: *Psychotherapy alone and combined with pharmacotherapy in the treatment of depression*. *BR J Psychiatry*, 2004; 185:37-45.
10. Kučukalić A. *Liječenje psihičkih poremećaja uslovljenih stresom*. Sarajevo: Publishing Sarajevo, 1998.
11. Lóo H, Gallarda T, Fabre I, Olié JP: *Depression and aging*. *Bull Acad Natl Med*, 2004; 188:999-1007.
12. Morean ME, Corbin WR, Sinha R, O'Malley SS: *Parental history of anxiety and alcohol-use disorders and alcohol expectancies as predictors of alcohol-related problems*. *J Stud Alcohol Drugs*, 2009; 70:227-36.
13. Muačević V: *Psihijatrija*. Zagreb: Medicinska knjiga, 1986.
14. National Institute of Mental Health (homepage on the Internet). Bethesda, MD: National Institute of Mental Health (NIMH) (updated 2009 Sep 4; cited 2009 Sep 8). *Depression; (about 10 screens)* Available from: [www.nimh.nih.gov/health/publications/depression/complete-index.shtml](http://www.nimh.nih.gov/health/publications/depression/complete-index.shtml).
15. Nock MK, Hwang I, Sampson NA, Kessler RC: *Mental disorders, comorbidity and suicidal behavior: Results from the National Comorbidity Survey Replication*. *Mol Psychiatry*, 2009Mar; (Epub ahead of print).
16. Sher L: *Suicide in war veterans: the role of comorbidity of PTSD and depression*. *Expert Review of Neurotherapeutics*, 2009; 9:921-923.
17. Vasterling JJ, Schumm J, Proctor SP, Gentry E, King DW, King LA: *Posttraumatic stress disorder and health functioning in a non-treatment-seeking sample of Iraq war veterans: a prospective analysis*. *J Rehabil Res Dev*, 2008; 45:347-58.

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