

PSYCHIATRIC AND HEALTH IMPACT OF PRIMARY AND SECONDARY TRAUMATIZATION IN WIVES OF VETERANS WITH POSTTRAUMATIC STRESS DISORDER

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SUMMARY

Background: Along with primary traumatization, wives of PTSD-diagnosed war veterans often become victims of the altered and dysfunctional state of their partners, which adds to the severity of symptoms of primary traumatization and furthers the development of other mental disorders. The aim of this study was to compare the effects of primary and secondary traumatization in wives of PTSD-diagnosed war veterans and wives of war veterans without PTSD.

Subjects and methods: The experimental group consisted of 154 wives whose veteran husbands had been treated in Mostar Clinical Hospital for psychotrauma-induced PTSD. The control group was formed of 77 wives of war veterans who do not suffer from PTSD. The research used a general demographic questionnaire, the Harvard Trauma Questionnaire (HTQ) and the MINI International Neuropsychiatric Interview.

Results: Wives of veterans with chronic PTSD experienced a significantly greater number of traumatic events ($t=2.66$; $p=0.008$) and had higher scores of PTSD symptoms ($t=8.93$; $p<0.001$). A significantly larger number of these women reported chronic somatic diseases ($\chi^2=4.553$; $p=0.033$). Furthermore, wives of PTSD-affected veterans significantly more frequently met criteria for current depression episode ($\chi^2=20.65$; $p<0.001$), past depression episode ($\chi^2=24.40$; $p<0.001$), depression with melancholic features ($\chi^2=19.20$; $p<0.001$), dysthymia ($\chi^2=7.15$; $p=0.007$), panic disorder with agoraphobia ($\chi^2=5.28$; $p=0.022$), PTSD ($\chi^2=18.39$; $ss=1$; $p<0.001$) and generalized anxiety disorder ($\chi^2=19.58$; $p<0.001$). This group also showed a higher level of suicidality ($\chi^2=8.95$; $p=0.003$).

Conclusion: The findings of this research show how mental difficulties experienced by wives of PTSD-diagnosed war veterans affect the interrelationship of their primary and secondary traumatization.

Key words: PTSD - war veterans – wives - primary and secondary traumatization - mental disorders

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INTRODUCTION

Trauma and PTSD have been increasingly recognized as public health problems owing to their serious health, social and economic impacts (Davidson 2000, Cash 2006). Even though the focus is largely placed on PTSD, it rarely develops as the sole effect of psycho-traumatization (Ginsburg et al. 2010, Kessler et al. 1995, Creamer et al. 2001). Living with a family member suffering from PTSD can produce profound effects on other members of the family, family dynamics and the family system as a whole (Figley 1998, Galovski & Lyons 2004). The effect of traumatic stress experienced by a family member on other close members of the family has been conceptualized as secondary traumatization (Figley 1998). Specifically, secondary traumatization is defined as transfer of nightmares, intrusive thoughts, flashbacks and other PTSD symptoms typically experienced by PTSD-diagnosed traumatized individuals to the persons in close contact. In a broader sense, secondary trauma-

tization refers to any transfer of distress from someone who experienced trauma to persons in close contact. It includes a wide range of manifestations of distress, apart from those similar to PTSD (Dekel & Solomon 2006, Galovski & Lyons 2004).

Posttraumatic stress disorder often develops as a chronic and disabling disorder characterized by a range of specific symptoms that are often long lasting and treatment-resistant. Many of them exert direct effects on the patients' behaviour and ability to function (Harkness & Zador 2001, Dekel et al. 2005). As a result, partners of persons suffering from PTSD face many stressors related to caregiving to their partners, social isolation, financial problems and adaptation to the clinical course of illness (Dekel & Solomon 2006, Galovski & Lyons 2004, Goff et al. 2007). Studies on veterans with chronic PTSD suggest that PTSD symptoms, as well as the associated behavioral and interpersonal deficit, are important predictors of difficulties in intimate relationships and psychological functioning of spouses (Jordan et al. 1992, Manguno-Mire et al. 2007;

O'Donnell et al. 2006, Chryso et al. 2005). Furthermore, it has been found that wives of PTSD-diagnosed war veterans have been exposed to a greater amount of psychological distress and marital problems and that their psychological adjustment was lower compared to wives of war veterans without PTSD (Ruger et al. 2002, Dekel et al. 2005, Dekel & Solomon 2006, Galovski & Lyons 2004). In addition, the partners and social surroundings of these women rarely show understanding for their mental problems (Dekel et al. 2005, Klarić et al. 2008a), which can result in developing mental disorders and slow down mental recovery. In addition, a long-term stress can trigger a range of somatic disturbances and diseases (Jakovljević et al. 2010, Cash 2006).

Women in the recent war in Bosnia and Herzegovina were exposed to serious trauma and a large number of them developed PTSD (Klarić et al. 2007). The assumption is that living with a PTSD-affected veteran, which includes problems related to caregiving, lack of support, loneliness, family disagreements, family violence and existential difficulties, apart from their own psychotrauma, furthers the development and duration of mental and somatic disorders in these women.

The aim of this study was to compare the prevalence of mental and somatic disorders, as well as effects of war traumatization and post-war secondary traumatization in wives of war veterans with chronic PTSD and wives of war veterans without PTSD.

SUBJECTS AND METHODS

The results to be presented are taken from a study which was carried out in the first half of 2007 describing the extent to which PTSD symptoms of war veterans affect members of the veterans' families (Klarić et al. 2008b, Klarić et al. 2010). The experimental group was formed of women whose war veteran husbands were treated for PTSD since 1995 at the psychiatric ward of Mostar Clinical Hospital, while the control group was formed of wives of war veterans who do not have PTSD. The veterans were the starting point in the sample formation. The inclusion criteria were the diagnosis of war trauma-induced PTSD and the existence of marital or cohabiting relationship. The exclusion criterion was a history of mental disorders prior to the war.

Subjects

In order to form the experimental group (wives of war veterans with PTSD), we contacted veterans who were treated for PTSD at the psychiatric ward of Mostar Clinical Hospital. The veterans were contacted in the order in which they had applied for treatment. Of 409 contacted veterans, 317 were married. They were informed about the study and asked if they were willing to take part in it. Two hundred eleven veterans (66.56%) agreed to participate, while 106 refused (33.44%). The

veterans who agreed to participate had to pass the information to their wives and ask them if they too were willing to take part in the study. After being informed on the research, 57 wives (27.01%) refused to participate. The final sample consisted of 154 wives of war veterans with PTSD.

To form the control group (wives of veterans without PTSD) we contacted veterans by using veteran associations as starting points. We continued by using the snowball sampling method (Salganik & Heckathorn 2004). Based on a previous arrangement with representatives of two war veteran associations, the principal investigator paid a visit to the associations where veterans gather on a daily basis. The principal investigator approached the present veterans, handed them the research notifications and asked if they would like to take part in the research. The investigator also asked the veterans if they would pass the information and notifications to their fellow veterans who were married or cohabiting.

Veterans who decided to take part in the research phoned the principal investigator or his associates and arranged to respond to the questionnaires at the psychiatric ward of the Mostar Clinical Hospital or at the investigator scheduled visits to their associations. The investigator again asked the veterans to pass the information to their married or cohabiting fellow veterans and ask them if they too would like to take part in the research.

Persons who agreed to participate and gave their written informed consent responded to the HTQ (Harvard Trauma Questionnaire) (Allden et al. 1998). Participants who did not meet the PTSD criteria were included in the research. After getting their consent, we contacted their wives and gave them research notifications. If the wives also decided to participate in the research and both partners signed the informed consent, they responded to the same battery of tests, following the same procedure as the experimental group. Of 118 veterans, 12 (10.2%) met the PTSD criteria and at that point they were excluded from the research. Of 106 wives, 29 refused to participate. This resulted in the final sample consisting of 77 couples.

At any point of the study, the participants could seek therapy or medical intervention or they could withdraw from the research.

Measures

General demographic data, social and material status and chronic somatic diseases were determined by using a general demographic questionnaire designed especially for the needs of the research.

The level of traumatization and presence of post-traumatic symptoms were determined by using the first and the fourth subscale of the Harvard Trauma Questionnaire (Bosnia and Herzegovina version) (Allden et al. 1998). This instrument was developed in 1998,

Table 1. Socio-demographic characteristics of women in the experimental and control group

Characteristic	Number of women (%)		χ^2	P
	Experimental group (n=154)	Control group (n=77)		
Education level			11.050	0.004
Elementary	20 (13.0)	9 (11.7)		
Secondary	108 (70.1)	40 (51.9)		
Higher	26 (16.9)	28 (36.4)		
Employment status			4.890	0.180
Employed	56 (36.4)	38 (49.4)		
Unemployed	72 (46.8)	31 (40.3)		
Occasionally employed	15 (9.7)	3 (3.9)		
Retired	11 (7.1)	5 (6.5)		
Economic status			17.510	<0.001
Low	40 (26.0)	5 (6.5)		
Medium	96 (62.3)	51 (66.2)		
Good	18 (11.7)	21 (27.3)		
Years of marriage			4.682	0.197
Up to 10 years	22 (14.3)	18 (23.4)		
10-20 years	46 (29.9)	24 (31.2)		
20-30 years	56 (36.4)	19 (24.7)		
Over 30 years	30 (19.5)	16 (20.8)		
Number of children			3.294	0.349
No children	7 (4.5)	4 (5.2)		
One	17 (11.0)	15 (19.5)		
Two	77 (50.0)	33 (42.9)		
Three or more	53 (34.4)	25 (32.5)		
Chronic diseases			4.553	0.033
Yes	46 (29.87)	13 (16.88)		
No	108 (70.13)	64 (83.12)		
Seeking medical help due to mental problems			3.790	0.052
Yes	21 (13.64)	4 (5.19)		
No	133 (86.36)	73 (94.81)		

Table 2. Results in the HTQ and differences between the experimental and control group

HTQ	M±SD		t	P
	Experimental group (n=154)	Control group (n=77)		
Total number of traumatic events	8.82±5.87	6.65±5.83	2.66	0.008
Symptoms of PTSD	2.33±0.71	1.52±0.52	8.93	<0.001
Self-perception of functionality	2.03±0.60	1.40±0.45	8.17	<0.001
Total score of traumatic symptoms	2.15±0.62	1.44±0.67	8.77	<0.001

through cooperation of people engaged in the Harvard Program in Refugee Trauma and associations for mental health protection and experts from BH and Croatia. The HTQ is applied in the form of a structured interview. The first HTQ subscale (the list of possible traumatic events) contains questions relating to experiences and traumatic events to which the residents of Bosnia and Herzegovina were exposed during and after the war (war period, refugee period, and postwar period). The first subscale is not designed for scoring. The fourth HTQ subscale consists of 40 statements referring to psychosocial difficulties caused by trauma. The first 16 statements are derived from the DSM-IV criteria for PTSD. These symptoms are grouped around three clusters of symptoms: re-experiencing the trauma, avoidance and arousal symptoms. The rest of the statements refer to participants' perception of the extent

to which the trauma affected their everyday abilities. Answers to each question are scored as follows: 1 = not at all, 2 = very little, 3 = quite, 4 = very much. The total score is the mean value of all 40 statements. The cut-off score for PTSD is > 2.5, i.e., the mean value higher than 2.5 indicates the presence of PTSD. HTQ is frequently used and it is particularly suitable in multicultural settings. Sensitivity of the questionnaire is 0.78, specificity 0.65, and the total positive score 0.75 (as determined in a sample of 91 Indochinese in 1995 and 1000 Cambodians in 1998) (Wilson & Keane 2004).

To determine mental disorders we used the Mini International Neuropsychiatric Interview (MINI) (Croatian version). It is a semi-structured psychiatric interview based on the DSM-IV and ICD-10 diagnostic criteria and contains screening questions with yes and no answers (Sheehan et al. 2000).

Statistical analysis

This research presents result distributions and basic descriptive parameters (arithmetic mean \pm standard deviation) for all variables. The χ^2 test was used to test the differences between the groups and the t-test was used for interval variables. Statistical significance was set at $p < 0.05$. Data obtained in the research were analyzed by using the Statistical Package for Social Science for Windows (SPSS Inc., Chicago, IL, USA).

RESULTS

Demographic characteristics and chronic diseases in women of the experimental and control group

Women in the experimental group had the mean age of 45.08 ± 9.30 , while women in the control group had the mean age of 44.40 ± 11.19 years ($t = 0.46$; $p = 0.049$).

Differences between the experimental and control group in socio-demographic variables were examined by using the Chi-square test (Table 1). The Chi-square test showed that the experimental group had more women with secondary education ($\chi^2 = 11.05$; $p = 0.004$) and low economic status ($\chi^2 = 17.51$; $p < 0.001$), while the control group had more women with a degree and good economic status. The experimental group had more women reporting chronic somatic diseases ($\chi^2 = 4.553$; $p = 0.033$). The most frequent somatic diseases reported in the research were musculoskeletal pain syndrome (39.13%), cardiovascular (21.74%) and endocrine diseases (14.49%).

Results in Harvard

Trauma Questionnaire (HTQ)

The HTQ showed significant differences between the groups in all variables. Women from the experimental group had significantly higher scores in total number of traumatic events, symptoms of posttraumatic stress disorder, self-perception of functionality and total score of traumatic symptoms (Table 2).

Symptoms of PTSD according to the HTQ results

Differences between the experimental and control group in each category derived from the HTQ scores were determined by using the Chi-square test. The test showed a statistically significant difference ($\chi^2 = 33.34$; $ss = 2$; $p < 0.001$). The experimental group had more women fulfilling the PTSD criteria, while the control group had more women showing no symptoms or only few, which was not enough for establishing the PTSD diagnosis (partial PTSD) (Table 3).

Axis-I Mental disorders according to the MINI results

Differences between the experimental and control group in all variables of the MINI were examined by the

Chi-square test. The study presents only the Chi-square tests that showed significant differences.

The experimental group had more women meeting the criteria for the diagnoses of current depression episode ($\chi^2 = 20.65$; $ss = 1$; $p < 0.001$), past depression episode ($\chi^2 = 24.40$; $ss = 1$; $p < 0.001$), depression with melancholic features ($\chi^2 = 19.20$; $ss = 1$; $p < 0.001$), dysthymia ($\chi^2 = 7.15$; $ss = 1$; $p = 0.007$), suicidality ($\chi^2 = 8.95$; $ss = 1$; $p = 0.003$), panic disorder with agoraphobia ($\chi^2 = 5.28$; $ss = 1$; $p = 0.022$), PTSD ($\chi^2 = 18.39$; $ss = 1$; $p < 0.001$) and generalized anxiety disorder ($\chi^2 = 19.58$; $ss = 1$; $p < 0.001$) (Table 4).

DISCUSSION

This research demonstrates that even 12 years after the war in Bosnia and Herzegovina, wives of PTSD-diagnosed war veterans still show a high level of posttraumatic symptoms and face a greater risk of developing psychiatric and somatic morbidity compared to wives of veterans without PTSD. We found that wives of PTSD-diagnosed veterans of war more often satisfy the criteria for depressive disorder, dysthymia, panic disorder with agoraphobia and suicidality (Table 4). Furthermore, these women significantly more often suffer from chronic somatic diseases. Nearly one third of the research participants reported chronic somatic diseases (29.9%). The most prevalent somatic diseases reported in the research were musculoskeletal pain syndrome (39.13%), cardiovascular (21.74%) and endocrine diseases (14.49%). However, women from the experimental group seek medical treatments equally often as women from the control group who suffer from significantly fewer health problems. This finding highlights the gravity of distress and the extent of mental and health problems encountered by women whose partners suffer from PTSD. Moreover, it shows that effects of trauma on mental, social and biological aspects of these women's personality are complex and long standing (Cash 2006, Dekel & Solomon 2006). However, veteran wives remain in the background when their own health is at stake.

The results are comparable to findings of other studies focusing on war trauma effects in the civil population (Murthy & Lakshminarayana 2006, Johnson & Thompson 2008). Furthermore, these results are in line with findings indicating that the range of posttraumatic reactions is much wider than described in syndromes classified as directly related to psychotrauma (Cardozo 2004, Zlotnick 2001, Creamer et al. 2001).

Even though it is hard to define causes and effects, it is evident that the profile of mental disorders in wives of PTSD-affected veterans is identical to the comorbid profile of persons suffering from PTSD (Koenen et al. 2003, Ginzburg et al. 2010), except in cases of alcohol and drug abuse, which can be related to cultural norms and female roles in Bosnia and Herzegovina.

Table 3. Posttraumatic stress disorder (PTSD) symptoms in women in the experimental and control group according to the Harvard Trauma Questionnaire results

PTSD symptoms	Number of women (%)		χ^2	P
	Experimental group (n=154)	Control group (n=77)		
PTSD present	62 (40.3)	5 (6.5)	33.340	0.000
PTSD symptoms present, but no PTSD	90 (58.4)	65 (84.4)		
No PTSD symptoms	2 (1.3)	7 (9.1)		

Table 4. Axis-I mental disorders according to the MINI results in experimental and control group

Axis-I mental disorders (MINI)	Number of women (%)		χ^2	P
	Experimental group (n=154)	Control group (n=77)		
Current depression episode	57 (37.0)	6 (7.8)	20.65	<0.001
Past depression episode	53 (34.4)	3 (3.9)	24.40	<0.001
Depression with melancholic features	46 (29.9)	3 (3.9)	19.20	<0.001
Dysthymia	41 (26.6)	8 (10.4)	7.15	0.007
Suicide risk	30 (19.5)	3 (3.9)	8.95	0.003
Hypomanic episode	2 (1.3)	0	0.06	0.802
Manic episode	3 (1.99)	1 (1.3)	0.00	1.000
Panic disorder without agoraphobia	11 (7.1)	2 (2.6)	1.23	0.267
Panic disorder with agoraphobia	20 (13.0)	2 (2.6)	5.28	0.022
Current agoraphobia	3 (1.9)	1 (1.3)	0.000	1.000
Social phobia	3 (1.9)	1 (1.3)	0.000	1.000
Obsessive-compulsive disorder	12 (7.8)	2 (2.6)	1.61	0.205
Current PTSD	51 (33.1)	5 (6.5)	18.39	<0.001
Alcohol dependence	1 (0.6)	0 (0)	0.00	1.000
Alcohol abuse	0 (0)	1 (1.3)	0.13	0.723
Drug addiction /dependence	0	0	-	-
Drug abuse	0	0	-	-
Current psychotic disorder	7 (4.5)	3 (3.9)	0.000	1.000
Chronic psychotic disorder	10 (6.5)	4 (5.2)	0.01	0.922
Mood disorder with psychotic features	9 (5.8)	4 (5.2)	0.00	1.000
Anorexia nervosa	2 (1.3)	2 (2.6)	0.03	0.858
Bulimia nervosa	5 (3.2)	0 (0)	1.25	0.263
Anorexia nervosa - compulsive overeating	10 (6.5)	1 (1.3)	2.02	0.156
Generalized anxiety disorder	97 (63.0)	24 (31.2)	19.58	<0.001
Antisocial personality disorder	2 (1.3)	3 (3.9)	0.64	0.424

The reasons for the high prevalence of PTSD and the accompanying comorbid diseases in wives of PTSD-diagnosed war veterans may be found in war trauma, but also in unpleasant posttraumatic factors. Previous research showed that posttraumatic factors have a great impact on the manifestation and duration of PTSD (Charuvastra & Cloitre 2008, Klarić et al. 2008b), sometimes the impact of posttraumatic symptoms is stronger than the impact of traumatization itself (Brewin et al. 2000, Başoğlu et al. 1994). This can be proved by the prevalence of PTSD and the accompanying morbidity in women in experimental group. It is important to notice that women in the control group also experienced war trauma ($M=6.65\pm 5.83$) and that 84.4% reported symptoms of posttraumatic stress disorder. However, their symptoms were not sufficient for the establishment of the PTSD diagnosis (partial PTSD).

Only 9.1% showed no posttraumatic symptoms (Table 3). The prevalence of accompanying morbidity is comparable to its prevalence in the general population (International version with ICD-10 codes), which indicates that women from the control group are better psychologically adjusted. Bearing in mind that three thirds of women in the control group had partial PTSD, a high prevalence of GAD (31.2%) was expected (Cash 2006).

Secondary traumatization and chronic stress caused by living with a PTSD-affected husband has special importance in the course of the wife's PTSD and the accompanying comorbid diseases. A series of studies have demonstrated that veterans' PTSD symptoms are passed onto their wives (Galovski & Lyons 2004, Frančičković et al. 2007, Dekel & Solomon 2006). Frančičković et al. in their research on wives of Croatian war veterans showed that 39% of the women fulfilled

criteria for secondary traumatic stress (Frančisković et al. 2007). Because they are exposed to traumatic effects of their partners, veteran wives are all the time reminded on their own traumatic experiences which constantly reactivate and maintain posttraumatic symptoms (Goenjian et al. 2000, Goff et al. 2005). The veterans' behavioral and interpersonal deficit and their professional and social dysfunction are also sources of chronic stress, both for the veterans and their partners (O'Donnell et al. 2006, Jordan et al. 1992, Savoca & Rosenheck 2000). Chronic stress can result in a wide spectrum of mental and health problems (Klarić et al. 2010, Galovski & Lyons, 2004, Manguno-Mire et al. 2007, Asmundson et al. 2004). In addition, defense mechanisms of wives of PTSD-affected war veterans used in the struggle with trauma and secondary stress are weakened by lower economic status and lower education level (Bonanno et al. 2007). Moreover, lower economic status is often directly related to veterans' PTSD and their professional dysfunction (Savoca & Rosenheck 2000).

It should be noted that the study showed a significant difference regarding the prevalence of PTSD in women in the experimental group according to the HTQ (40.3%) and according to the MINI (33.1%). The difference was not found in the control group – the same values (6.5%) were obtained by using both instruments. A possible reason is that, unlike the MINI, the HTQ includes self-perception of functionality in assessing the PTSD symptoms. The HTQ revealed that self-perception of functionality was significantly lower in women in the experimental group, which considerably affected the total score. Another possible reason why the difference was not found in the control group lies in methodology. The HTQ is used as a self-evaluation scale, while the MINI is an evaluation scale.

The research has several potential limitations. A relatively small number of participants limit the possibility of data generalization. Since the study was cross-sectional and since the pre-war distress and potential post-war traumatization were not determined, it was hardly possible to establish a causal relationship. Furthermore, data generalization was limited by the sample nonuniformity in two demographic variables (economic status and education level) that could act as mediators and modify the effect of veterans' PTSD on the wives. Demographic differences between the two groups were expected since veterans with and without PTSD were used as the starting point in the sample formation (Kulka et al. 1990). Higher education level can be a result of the fact that wives of PTSD-affected war veterans were recruited through a clinical sample, while the control group was formed of women voluntarily applying for the research. Lower economic status is correlated to the veterans' PTSD since veterans suffering from PTSD are often professionally dysfunctional (Savoca & Rosenheck 2000), so the result which was obtained was also expected.

CONCLUSION

We can conclude that women in the recent war in Bosnia and Herzegovina were exposed to serious trauma. Post-war stressors that stem from the caregiving to their traumatized PTSD-affected partners influence not only the recovery, but also the development of other mental and somatic diseases in these women. Future research should focus on psychosocial effects of war traumatization and post-war life stressors on partners of PTSD-diagnosed veterans and aim at developing prevention and treatment strategies for traumatized families.

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REFERENCES

1. Allden K, Franciskovic T, Lavelle J, Mathias M, McInnes K, Mollica RF, & Moro LJ: *Harvard Trauma Questionnaire: Bosnia-Herzegovina Version*. Cambridge (MA): Harvard Program in Refugee Trauma; 1998. (Available in English and Bosnian).
2. American Psychiatric Association: *Diagnostic and statistical manual of mental disorders, fourth edition (DSM-IV). International version with ICD-10 codes [in Croatian]*. Jastrebarsko: Naklada Slap, 1996.
3. Asmundson GJ, Wright KD, Stein MB: *Pain and PTSD symptoms in female veterans*. *Eur J Pain* 2004; 8:345-50.
4. Başoğlu M, Paker M, Özmen E, Taşdemir O, Sahin D: *Factors related to long-term traumatic stress responses in survivors of torture in Turkey*. *JAMA* 1994; 272:357-63.
5. Bonanno GA, Galea S, Bucciarelli A, Vlahov D: *What predicts psychological resilience after disaster? The role of demographics, resources, and life stress*. *J Consult Clin Psychol* 2007; 75:671-82.
6. Brewin CR, Andrews B, Valentine JD: *Meta-Analysis of Risk Factors for Posttraumatic Stress Disorder in Trauma-Exposed Adults*. *J Consult Clin Psychol*. 2000; 68:748-66.
7. Cardozo BL, Bilukha OO, Crawford CA, Shaikh I, Wolfe MI, Gerber ML, et al.: *Mental health, social functioning, and disability in postwar Afghanistan*. *JAMA* 2004; 292:575-84.
8. Cash A: *Posttraumatic Stress Disorders*. Wiley, New Jersey, 2006.
9. Charuvastra A, Cloitre M: *Social bonds and posttraumatic stress disorder*. *Annu Rev Psychol* 2008; 59:301-28.
10. Chrysos ES, Taft CT, King LA, King DW: *Gender, partner violence, and perceived family functioning among a sample of Vietnam veterans*. *Violence Vict* 2005; 20:549-59.
11. Creamer M, Burgess P, McFarlane AC: *Post-traumatic stress disorder: findings from the Australian National Survey of Mental Health and Well-Being*. *Psychol Med* 2001; 31:1237-47.
12. Davidson J: *New Strategies for the Treatment of Posttraumatic Stress*. *J Clin Psychiatry* 2000; 61(Supplement 7):3-51.

13. Dekel R & Solomon Z: Secondary Traumatization Among Wives of War Veterans with PTSD. In Figley CR, Nash WP (eds): *Combat Stress Injury: Theory, Research, and Management*, 137-157. Routledge, 2006.
14. Dekel R, Goldblatt H, Keidar M, Solomon Z, Polliack M: Being a Wife of a Veteran with Posttraumatic Stress Disorder. *Family Relations* 2005; 54:24–36.
15. Figley CR. *Burnout in Families: The Systematic Costs of Caring*. New York, CRC Press, 1998.
16. Franciskovic T, Stevanovic A, Jelusic I, Roganovic B, Klarić M, Grkovic J: Secondary traumatization of wives of war veterans with posttraumatic stress disorder. *Croat Med J* 2007; 48:177-84.
17. Galovski T, Lyons JA: Psychological sequelae of combat violence: A review of the impact of PTSD on the veteran's family and possible interventions. *Aggression and Violent Behavior* 2004; 9:477-501.
18. Ginzburg K, Ein-Dor T, Solomon Z: Comorbidity of posttraumatic stress disorder, anxiety and depression: a 20-year longitudinal study of war veterans. *J Affect Disord* 2010; 123:249-57.
19. Goenjian AK, Steinberg AM, Najarian LM, Fairbanks LA, Tashjian M, Pynoos RS: Prospective Study of Posttraumatic Stress, Anxiety, and Depressive Reactions After Earthquake and Political Violence. *Am J Psychiatry* 2000; 157:911-895.
20. Goff BS & Smith DB: Systemic traumatic stress: the couple adaptation to traumatic stress model. *J Marital Fam Ther* 2005; 31:145-57.
21. Goff BS, Crow JR, Reisbig AM, Hamilton S: The impact of individual trauma symptoms of deployed soldiers on relationship satisfaction. *J Fam Psychol* 2007; 21:344-53.
22. Harkness L & Zador N: Treatment of PTSD in families and couples. In Wilson JP, Friedman MJ, Lindy JD (eds): *Treating psychological trauma and PTSD*, 335-353. Guilford, 2001.
23. Jakovljević M, Reiner Ž, Miličić D, Crnčević Ž: Comorbidity, multimorbidity and personalized psychosomatic medicine: Epigenetics rolling on the horizon. *Psychiatr Danub* 2010; 22:184-89.
24. Johnson H, Thompson A: The development and maintenance of post-traumatic stress disorder (PTSD) in civilian adult survivors of war trauma and torture: a review. *Clin Psychol Rev* 2008; 28:36-47.
25. Jordan KB, Marnar CR, Fairbank JA, Schlenger WE, Kulka RA, Hough RL, et al.: Problems in families of male Vietnam veterans with posttraumatic stress disorder. *J Consult Clin Psychol* 1992; 60:916-26.
26. Kessler R, Sonnega A, Bromet E, Hughes M, Nelson CB: Posttraumatic Stress Disorder in the National Comorbidity Survey. *Arc Gen Psychiatry* 1995; 52:1048-60.
27. Klarić M, Francisković T, Klarić B, Kresić M, Grković J, Lisica ID, Stevanović A: Social support and PTSD symptoms in war-traumatized women in Bosnia and Herzegovina. *Psychiatr Danub* 2008a; 20:466-73.
28. Klarić M, Frančičković T, Pernar M, Nemčić Moro I, Miličević R, Černi Obrdalj E, Salčin Satriano A: Caregiver Burden and Burnout in Partners of War Veterans with Post-traumatic Stress Disorder. *Coll Antropol* 2010; 34:15–21.
29. Klarić M, Frančičković T, Klarić B, Kvesić A, Kaštelan A, Graovac M, et al.: Psychological Problems in Children of War Veterans with Posttraumatic Stress Disorder in Bosnia and Herzegovina: Cross-Sectional Study. *Croat Med J* 2008b; 49:491-8.
30. Klarić M, Klarić B, Stevanović A, Grković J, Jonovska S: Psychological Consequences of War Trauma and Postwar Social Stressors in Women in Bosnia and Herzegovina. *Croat Med J* 2007; 48:167-76.
31. Koenen KC, Lyons MJ, Goldberg J, et al.: A high risk twin study of combat-related PTSD comorbidity. *Twin Research* 2003; 6:218-26.
32. Kulka RA, Schlenger WE, Fairbank JA, Hough RL, Jordan BK, Marmar CR, et al.: *Trauma and the Vietnam War Generation: Report of Findings from the National Vietnam Veterans Readjustment Study*. New York (NY): Brunner/Mazel, 1990.
33. Manguno-Mire G, Sautter F, Lyons J, Myers L, Perry D, Sherman M, Glynn S, Sullivan G: Psychological distress and burden among female partners of combat veterans with PTSD. *J Nerv Ment Dis* 2007; 195:144-51.
34. Murthy RS, Lakshminarayana R: Mental health consequences of war: a brief review of research findings. *World Psychiatry* 2006; 5:25–30.
35. O'Donnell C, Cook JM, Thompson R, Riley K, Neria Y: Verbal and physical aggression in World War II former prisoners of war: role of posttraumatic stress disorder and depression. *J Trauma Stress* 2006; 19:859-66.
36. Ruger W, Wilson SE, Waddoups SL: Warfare and welfare: Military service, combat, and marital dissolution. *Armed Forces & Society* 2002; 29:85–107.
37. Salganik MJ & Heckathorn DD: Sampling and Estimation in Hidden populations Using Respondent-Driven Sampling. *Sociol Methodol* 2004; 34:193-239.
38. Savoca E & Rosenheck R: The civilian labor market experiences of Vietnam-era veterans: the influence of psychiatric disorders. *J Ment Health Policy Econ* 2000; 3:199-207.
39. Sheehan DV, Janavs J, Baker R, Harnett-Sheehan K, Knapp E, Sheehan M: *The Mini-International Neuropsychiatric Interview (M.I.N.I.) 5.0.0 - Croatian Version*. Copyright, 2000.
40. Wilson JP, Keane TM: *Assessing psychological trauma and PTSD*. 2nd ed. New York, Guilford press, 2004.
41. Zlotnick C, Zimmerman M, Wolfsdorf BA, Mattia JI: Gender differences in patients with posttraumatic stress disorder in a general psychiatric practice. *Am J Psychiatry* 2001; 158:1923-5.

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