

Stressor Characteristics and Post-traumatic Stress Disorder Symptom Dimensions in War Victims

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Aim. To evaluate how the type of trauma is related to specific symptom patterns in patients with post-traumatic stress disorder (PTSD) according to the Diagnostic and Statistical Manual of Mental Disorders – Fourth Edition (DSM-IV) criteria.

Methods. A total of 136 PTSD patients exposed to war-related traumatic experiences were divided in four groups: 79 veterans, 18 former prisoners (who witnessed or were subject to torture or frequent assaults), 15 victims of rape, and 24 refugees from Bosnia and Herzegovina. Each group was homogenous in regard to traumatic experiences.

Results. Significant inter-group differences were found in symptoms listed in the DSM-IV criteria, and under criteria C (avoidance) and D (arousal). No such differences were observed in symptoms listed under criterion B (intrusive symptoms). The results indicate that stressor characteristics may play a role not only in the variety of symptoms exhibited, but particularly in the number of avoidance and arousal symptoms. Victims of rape tended to present with more avoidance symptoms and fewer hyperarousal symptoms, whereas former prisoners and veterans tended to report more hyperarousal symptoms. Rape victims and former prisoners also reported more symptoms than the other groups.

Conclusion. There is a strong indication that stressor characteristics influence the variety and number of exhibited intrusive, avoidance, and arousal symptoms. More research is needed to precisely define individual symptom dimensions possibly relating to particular stressor characteristics. Additional studies are needed to determine whether PTSD, as it is currently defined in the DSM-IV, is really a homogenous diagnostic category.

Key words: *biological psychiatry; classification; combat disorders; diagnostic techniques and procedures; military psychiatry; prisoners; psychiatric diagnosis; psychiatric status rating scales; rape; stress disorders, post-traumatic; war*

Complex clinical features of post-traumatic stress disorder (PTSD) frequently overlap with other psychiatric, occasionally co-morbid disorders. This is causing considerable difficulties in determining the frequency and intensity of PTSD core symptoms. Although symptom clusters, as defined in the Fourth Edition of the Diagnostic and Statistical Manual (DSM-IV) (1), may not provide the best conceptualization of PTSD symptoms (2), lack of research involving stressor-related and demographic characteristics concerning appearance frequency of disorder symptoms and their mutual interdependence impede the acceptance of alternative models. Still, despite an increasing number of screening and diagnostic instruments developed for research and clinical management of PTSD, DSM-IV remains the most widely used diagnostic instrument.

A few research projects have focused on the analysis of detectable factors that might influence the development of PTSD and its specific symptom clusters (3-8). There are several reports on some clinical features that could be attributed to a specific traumatic experience, such as war-related imprisonment, assault, combat, or refuge (9-13). War-related imprisonment has been shown as a stressful event associ-

ated with the exhibition of higher rates and greater intensity of posttraumatic stress reactions, compared with war veterans who were not imprisoned (5). This indicates that wartime captivity produces stress residuals of considerable depth, range, and persistence. Trauma severity during captivity is the best predictor of long-term PTSD symptomatology (13). Torture seems to be the factor that particularly influences the severity of overall PTSD symptoms, as well as the symptoms of depression and anxiety (6) with pronounced emotional withdrawal/retardation (7). Combat experiences produce hyperarousal symptoms, which are more severe than symptoms of re-experiencing or avoidance (9). Female victims of assault-related violence have greater probability of experiencing avoidance and numbing symptoms (10), the latter symptom being of particular importance in identifying individuals with PTSD (11). In addition to stressor type and gender, there is evidence that the symptom profile might also be influenced by the victim's age, with elderly adults scoring higher on arousal symptoms and lower on intrusive symptoms (8).

A positive correlation between stressor intensity and traumatic sequelae is frequently reported. However, Southwick et al (9) found in persons exposed to

combat experiences that a statistical relationship between the level of combat exposure and PTSD symptoms existed only after a span of two years, and not before. That finding suggests a role of time in the evolution of traumatic consequences.

Recent research analyzing the symptoms exhibited in PTSD patients suggested re-evaluation of the DSM-IV diagnostic criteria for PTSD (14,15). Overlapping with symptoms present in other disorders, which can occur as a consequence of trauma additionally impedes the recognition of PTSD core symptoms. This particularly refers to generalized anxiety disorder (16) and major depression (12). Depression is believed to be an independent sequela of traumatic events. It interacts with PTSD and increases distress and dysfunction (17), leading to a high correlation between the severity of emotional-numbing and the presence of melancholic features in PTSD patients (18). Overall depression scores in PTSD patients are comparable to those in a major depressive disorder, with particularly high ratings in insomnia, somatic anxiety, and diurnal variations (19). The findings of Maes et al (20) support the concept of existence of a two-factorial symptom structure of PTSD, the first labeled "depression-avoidance dimension", and the second "anxiety-arousal dimension". Research by Foa et al (11) on female victims of sexual and non-sexual assaults yielded three symptom factors: arousal/avoidance, numbing, and intrusion, which were somewhat different from the symptom clusters in the DSM system. The authors concluded that numbing and avoidance behavior related differently to other post-trauma symptoms. Others hypothesize that "flashbacks" might represent obsessional imagery (21). Asmundson et al (2) have proposed a hierarchical four-factor model, comprised of four first-order factors corresponding to re-experiencing, avoidance, numbing, and hyperarousal, all subsumed under a higher-order general factor. Watson et al (22) proposed even five factors: intrusive thoughts and their effects, increased arousal, impoverished relationships, guilt, and cognitive interference. All these research efforts emphasize the need for additional findings which could contribute to improved sensitivity and specificity in trauma syndrome definitions.

With regard to the natural course of the disorder, it appears that, at least in cases of severe traumatic events, there is an overall increase in PTSD symptoms in the short to medium term (9). Long-term (20 years) recovery rates seem to be a function of the duration and severity of the stressor (23). The rate of recovery was considerably higher in those exposed to combat stress (almost 2/3 recovered) than in the prisoners of war (less than 1/2 recovered). The intensity of some individual symptoms, such as the startle response (24), can vary in relation to the time elapsed since the traumatic event. Other symptoms, such as those from the hyperarousal cluster of symptoms, stay unchanged over time in patients with combat experiences (9). The evolution and course of individual symptoms over time have rarely been studied. However, an interesting finding is that the prevalence of PTSD would decrease by as much as one half if an additional crite-

rium requiring the occurrence of symptoms twice per week would be added (25).

A high number of war trauma victims have been treated in Croatian hospitals after the 1991-1995 war in Croatia and 1992-1995 war in Bosnia and Herzegovina. Over 300,000 people from Croatia (total population of 4.7 million) were expelled from their homes, the huge majority being directly exposed to missile and artillery attacks on their towns or villages, and a portion witnessed combat situations in their surroundings (26). Over 6,000 people, including combatants and civilians, were captured and transferred to prisons on the Serbian territory, where most were held for several months before being exchanged or released. During this time, a significant number of prisoners experienced or witnessed torture or other frequent assaults. During and after the war in Bosnia and Herzegovina, Croatia experienced a large influx of refugees, more than a million at certain periods. Before their arrival in Croatia, many refugees were also imprisoned in Serbian camps. Some of them were raped, as well as many of those who were not imprisoned. All these events led to an unusually high proportion of civilian victims, especially women, who had been exposed to a wide range of traumatic events (27). Although all victims of war who needed psychiatric assistance were treated in Croatian hospitals from the beginning, the exact prevalence of PTSD in Croatia is still not known.

This situation made PTSD one of the most frequent psychiatric disorders in Croatia, enabling practitioners to assess PTSD symptoms in regard to different types of war-related stressors. The aim of this study was to assess whether the type of trauma influenced the symptom profile in PTSD patients.

Patients and Methods

Patient Selection

Symptoms were assessed in four groups of PTSD patients exposed to war-related traumatic experiences: veterans, prisoners, rape victims, and refugees. To avoid intra-group heterogeneity as much as possible, several inclusion criteria, in addition to a PTSD diagnosis, were applied for each of the groups. Veterans in this research were defined as people who (a) had voluntarily joined Croatian defense forces, (b) were directly exposed to combat experiences for longer than 15 days, and (c) had directly witnessed the act of killing or severe injuring of at least one person. A prisoner in the context of this research was defined as a person who was (a) forcibly taken into custody by opposing military or paramilitary forces, (b) was held in prison or prisoners' camp for at least 1 month, during which time (c) the person witnessed or was subject to torture or other frequent assaults; and, if a member of the armed services, (d) did not witness the act of killing or severe injuring prior to arrival into the prison or prisoner's camp. Since this group comprised both civilians and military personnel, the usual term of "prisoner of war" was omitted in this report. Rape victims included in this study were women who (a) were raped by one or more military or paramilitary members, (b) the act of rape was not done in a presence of the closest family members, (c) the victim did not bear a child as a consequence of the sexual assault, and (d) the person was not a witness or subject to torture either before or after rape. The refugee group consisted of individuals who (a) lived for at least 5 days under direct armed attacks in their home towns or villages; (b) witnessed killed or severely injured person, but were not direct witnesses to the act of killing or severe injuring; (c) were not detained; and (d) were not directly subject to rape or any other severe human assault.

For all four groups, the following additional criteria were applied to preserve sample homogeneity: (a) there was an exposure to stressor during the 1991-1993 period, (b) the person had not had any psychiatric diagnosis before the war-related stressful events, (c) there were no co-morbid psychiatric disorders at the time of the assessment, and (d) the person had a current diagnosis of PTSD according to DSM-IV criteria.

The patients were selected in the following way: in a first step, 200 patients with trauma experience were identified through hospital records of the Vrapče Psychiatric Hospital. According to the information obtained from the records, 4 preliminary groups were formed. Schematic description of the selection process is given in Figure 1.

At their next visit to the hospital (scheduled between January 1 and April 30, 2000) additional data were collected from each patient to confirm conformity with the stressor characteristics, as described above. The interviews conducted during these visits revealed that the stressor criteria were not fulfilled in 14 patients from the veterans group, 6 from the rape victims group, 14 from the refugees group, and in 6 from the prisoners group. Two patients from the preliminary veterans group and 3 from the preliminary refugees group did not attend their visit as scheduled, or came at a later date (up to the end of the study period, on April 30, 2000).

Diagnostic Criteria

Two skilled psychiatrists using Structured Clinical Interview for DSM-IV (28) assessed diagnostic criteria, presence of individual symptoms, and existence of co-morbid psychiatric disorders. The assessments were done independently and the final scoring was done with mutual consensus. At that stage, psychiatric co-morbidity, not reported earlier, was found in four patients from the veteran group, three patients from the refugee group, and in one patient from the prisoner group. Additionally, one patient from the veteran group, one from the rape victim group, and five from the refugee group were excluded from further study since they did not fully meet diagnostic criteria of current PTSD. Three rape victims and one patient from the refugee group did not give consent for the participation in the research, which led to a total of 136 patients. The final study sample consisted of 79 veterans (58% of the total number of patients in the study), 15 victims of rape (11%), 24 refugees (18%), and 18 prisoners (13%). The median time elapsed between the time when PTSD was first diagnosed and the time of assessment was 7 years (range, 4-9 years).

The percentage of patients who reported the symptom was calculated for every individual symptom of the DSM-IV criteria. In addition, each patient in the study received a total score on

each criterion, calculated as an unweighted sum of exhibited symptoms.

Exhibited symptoms in each group were described by mean values, although such a measure is not the most appropriate indicator in discontinued variables. In addition to requesting more abstraction for getting impression about the observed differences, median and percentile values may not be illustrative in all cases, since some of the PTSD criteria in DSM-IV consist of several items only. Also, DSM-IV requires minimal number of symptoms to be present under each criterion to reach a diagnosis. The approach to sum discontinued variables (ie, signs or symptoms) to assess the variety of clinical features was also used in other PTSD studies (29-31).

Statistics

The variables were evaluated descriptively and analyzed by non-parametric statistical tests (Kruskal-Wallis test and Mann-Whitney U test with Bonferroni correction). Data were also analyzed by cluster analysis (K-means clustering). Statistica release 5.5 software package (StatSoft, Tulsa, OK, USA) was used in data analysis. Significance tests were performed at the α -level of 0.05.

Results

The median age of 136 PTSD patients in the study was 38 years (range, 19-63); 75% were men and 25% women (Table 1). Over the course of the illness, the most commonly used therapeutic strategies were psychotherapy (in 95 patients, 70%), benzodiazepines (105 patients, 77%), selective serotonin reuptake inhibitors (78 patients, 57%), and antidepressants (in 53 patients, or 40%).

Symptoms in DSM-IV Criteria for PTSD

The proportion of patients in each study group reporting individual symptoms is listed in Table 2. As DSM-IV diagnostic criteria require the presence of both conditions listed in Criterion A (faced with stressful event and person's intense response to it), duration of disturbance longer than one month (Criterion E), and significant distress or impairment in social, occupational, or other important areas of functioning (Criterion F). Those 4 items were naturally present in all patients and were not subject to further analysis.

Under the Criterion B, veterans reported on average of 2.5 ± 1.1 symptoms, victims of rape 3.0 ± 1.1 , refugees 2.9 ± 0.9 , and prisoners of war 2.5 ± 1.2 symptoms. There was an average of 2.6 ± 1.1 Criterion B symptoms found among all patients. The differences between the four trauma groups were not statistically significant (Kruskal-Wallis test: $n = 136$; $H = 5.83$; $df = 3$; $p = 0.12$). The mean number of symptoms, together with the standard deviation and standard error, is shown for every patient group in Figure 2.

With regard to the reported number of symptoms in the Criterion C, we observed a significant difference between the 4 trauma groups (Fig. 3; Kruskal-Wallis

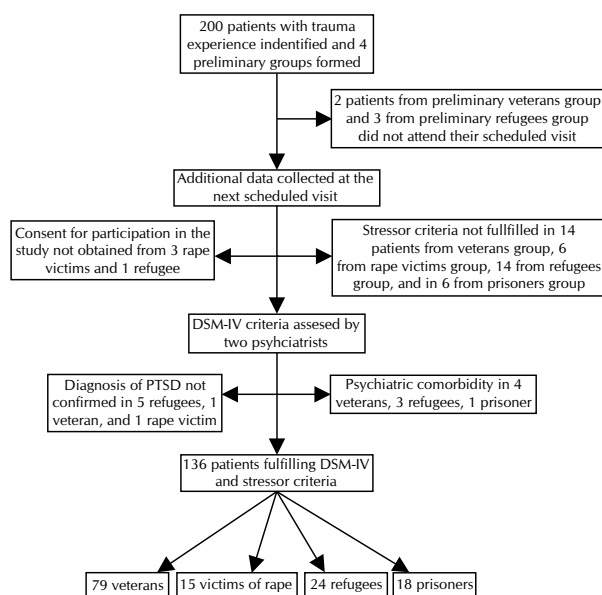


Figure 1. Profile of the study.

Table 1. Sex and age characteristics of the four study groups (veterans, rape victims, refugees, and prisoners)

Group	No.	Age [median (range)]	Sex (No., %)	
			men	women
Veterans	79	36.0 (19-45)	78 (99)	1 (1)
Rape victims	15	38.0 (19-44)	0	15 (100)
Refugees	24	42.5 (38-63)	9 (38)	15 (44)
Prisoners	18	38.5 (21-45)	15 (83)	3 (17)
Total	136	38.0 (19-63)	102 (75)	34 (25)

Table 2. Proportion of patients exhibiting a particular symptom listed in DSM-IV criteria, by stressor groups

Item	Stressor group (No., %)				
	veterans	rape victims	refugees	prisoners	total
Criterion A ^a					
A1	79 (100)	15 (100)	24 (100)	18 (100)	136 (100)
A2	79 (100)	15 (100)	24 (100)	18 (100)	136 (100)
Criterion B					
B1	40 (51)	8 (53)	16 (67)	9 (50)	73 (54)
B2	37 (47)	10 (67)	13 (54)	8 (44)	68 (50)
B3	18 (23)	5 (33)	9 (38)	8 (44)	40 (29)
B4	52 (66)	10 (67)	11 (46)	6 (33)	79 (58)
B5	49 (62)	12 (80)	21 (88)	14 (78)	96 (71)
Criterion C					
C1	53 (67)	14 (93)	19 (79)	14 (78)	100 (74)
C2	33 (42)	15 (100)	8 (33)	12 (67)	68 (50)
C3	24 (30)	10 (67)	12 (50)	11 (61)	57 (42)
C4	66 (84)	14 (93)	16 (67)	17 (94)	113 (83)
C5	41 (52)	13 (87)	10 (42)	10 (56)	74 (54)
C6	54 (68)	12 (80)	15 (63)	17 (94)	98 (72)
C7	55 (70)	14 (93)	14 (58)	8 (44)	91 (67)
Criterion D					
D1	71 (90)	14 (93)	22 (92)	17 (94)	124 (91)
D2	56 (71)	6 (40)	19 (79)	15 (83)	96 (71)
D3	60 (76)	9 (60)	13 (54)	15 (83)	97 (71)
D4	56 (71)	1 (7)	10 (42)	11 (61)	78 (57)
D5	36 (46)	2 (13)	6 (25)	10 (56)	54 (40)
Criterion E					
E1	79 (100)	15 (100)	24 (100)	18 (100)	136 (100)
Criterion F					
F1	79 (100)	15 (100)	24 (100)	18 (100)	136 (100)

^aRow titles refer to the criteria and items as listed in DSM-IV; ie, A1 is the first item under criterion A – an exposure to a traumatic event, when the person experienced, witnessed, or was confronted with, an event or events that involved actual or threatened death or serious injury, or a threat to physical integrity of self or others, followed by intense fear, helplessness, or horror (A2).

The second criterion refers to persistent re-experiencing of the event, that should be present in at least one of the following ways: recurrent and intrusive distressing recollections of the event, including images, thoughts, or perceptions (B1); recurrent distressing dreams of the event (B2); acting or feeling as if the traumatic event were recurring, which includes a sense of re-living the experience, illusions, hallucinations, and dissociative flashback episodes, including those that occur on awakening or when intoxicated (B3); intense psychological distress at exposure to internal or external cues that symbolize or resemble an aspect of the traumatic event (B4); or physiological reactivity on exposure to internal or external cues that symbolize or resemble an aspect of the traumatic event (B5).

The third criterion requires the presence of at least three symptoms of persistent avoidance of stimuli associated with the trauma and numbing of general responsiveness (not present before the trauma). These are the following: efforts to avoid thoughts, feelings, or conversations associated with the trauma (C1); efforts to avoid activities, places, or people that arouse recollections of the trauma (C2); inability to recall an important aspect of the trauma (C3); markedly diminished interest or participation in significant activities (C4); feeling of detachment or estrangement from others (C5); restricted range of affect (C6); and sense of a foreshortened future (C7).

At least two persistent symptoms of increased arousal (not present before the trauma) should be present according to the fourth criterion: difficulty in falling or staying asleep (D1); irritability or outbursts of anger (D2); difficulty in concentrating (D3); hypervigilance (D4); or exaggerated startle response (D5).

The last two criteria require that the duration of the disturbance is longer than one month (Criterion E) and that the disturbance causes clinically significant distress or impairment in social, occupational, or other important areas of functioning (Criterion F).

test: $n = 136$; $H = 34.07$; $df = 3$; $p < 0.001$). The highest mean number of 6.1 ± 1.1 symptoms was reported by the rape victims, followed by the prisoners group, who reported an average number of 4.9 ± 1.1 symptoms. The veterans group had 4.1 ± 1.0 symptoms, and the group of refugees had 3.9 ± 0.8 symptoms. The mean number of the Criterion C symptoms in all patients was 4.4 ± 1.2 . After applying Bonferroni correction, the following individual inter-group significant differences were observed: between veterans group and rape victims group (Mann-Whitney U test: $U = 125$; $Z = -4.98$; $p < 0.001$); veterans and former prisoners ($U = 424$; $Z = -2.77$; $p = 0.006$); rape victims and refugees ($U = 26$; $Z = 4.62$; $p < 0.001$); rape victims and prisoners ($U = 60.5$; $Z = 2.77$; $p = 0.006$); and refugees and former prisoners ($U = 100$; $Z = -3.12$; $p = 0.002$).

The widest range in the percentage of patients exhibiting a particular symptom was noticed for the symptoms in the Criterion D (Fig. 4). For example, whereas only 7% of rape victims showed symptom

D4, 94% of prisoners had symptom D1 (difficulty falling or staying asleep). Among all the symptoms and all the criteria, D1 was presented with the highest frequency (91% of the total number of patients). Among the particular groups, former prisoners manifested each particular symptom under the Criterion D at higher frequencies than the refugees and rape victims.

The highest mean number of the Criterion D symptoms was observed in the former prisoners group (3.8 ± 0.8), followed by the veterans group (3.5 ± 0.9), refugee group (2.9 ± 1.1), and the rape victims group (2.1 ± 0.5). Those differences were statistically significant (Kruskal-Wallis test: $n = 136$; $H = 32.10$; $df = 3$; $p < 0.001$). Significant individual differences were noticed after applying Bonferroni correction: between the veterans and the rape victims (Mann-Whitney U test: $U = 129.5$; $Z = 5.00$; $p < 0.001$); between the veterans and refugees ($U = 623$; $Z = 2.66$; $p = 0.008$); the rape victims and refugees ($U = 103$; $Z = -2.66$; $p = 0.008$); the rape victims and prisoners

($U=17.5$; $Z=-4.54$; $p<0.001$); and between the groups of refugees and former prisoners ($U=116$; $Z=-2.66$; $p=0.008$).

In relation to the total number of symptoms falling under criteria, which allow choices between the listed symptoms (criteria B, C, and D) (Fig. 5), all 136 patients had an average of 12.3 ± 1.9 symptoms (adding 4, to account for mandatory criteria, would represent the total number of symptoms listed according to DSM-IV criteria for PTSD). The highest average number of symptoms was observed in the rape victims group (13.3 ± 1.8), followed by a similar average in the group of former prisoners (13.2 ± 2.0). A somewhat lower average number of symptoms for criteria B, C, and D was observed in the veterans group (12.1 ± 1.8), whereas the lowest average was found in the refugees group (11.8 ± 1.7). The differences between the four groups were statistically significant (Kruskal-Wallis ANOVA: $F[3, N=136]=11.06$; $p=0.011$).

Cluster Analysis

K-means cluster analysis was applied to further explore the differences in the number of symptoms each group exhibited (Fig. 6). The number of observed symptoms under criteria B, C, and D (three DSM-IV criteria for PTSD allowing multiple choices) was subjected to analysis forming four clusters to assess whether they (which could be viewed as four distinctive symptom patterns) conform to four groups studied in this research.

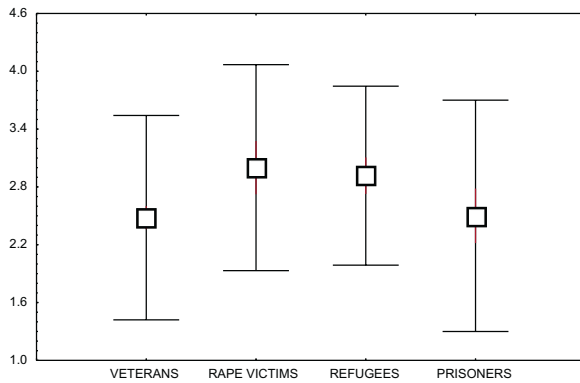


Figure 2. Average number of the Criterion B symptoms, expressed as a total score (mean \pm standard deviation).

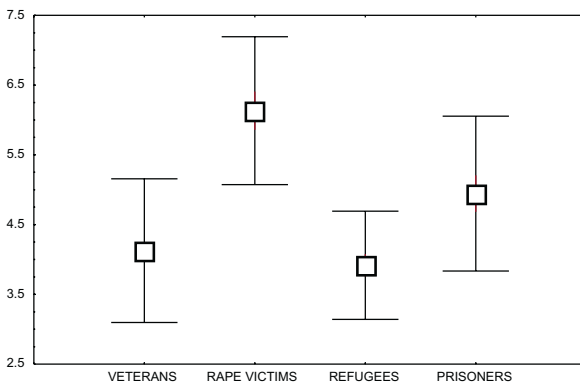


Figure 3. Average number of the Criterion C symptoms, expressed as a total score (mean \pm standard deviation).

The cluster analysis revealed statistical differences in the total score of symptoms in Criterion B (between sum of squares /SS/=92.64; $df=3$; within $SS=61.48$; $df=132$; $F=66.30$; $p<0.01$), in Criterion C (between $SS=126.44$; $df=3$; within $SS=68.67$; $df=132$; $F=81.01$; $p<0.01$), as well as in Criterion D (between $SS=63.62$; $df=3$; within $SS=71.02$; $df=132$; $F=39.42$; $p<0.01$).

The first cluster arising from this analysis had a lower number of symptoms in the Criterion B, and

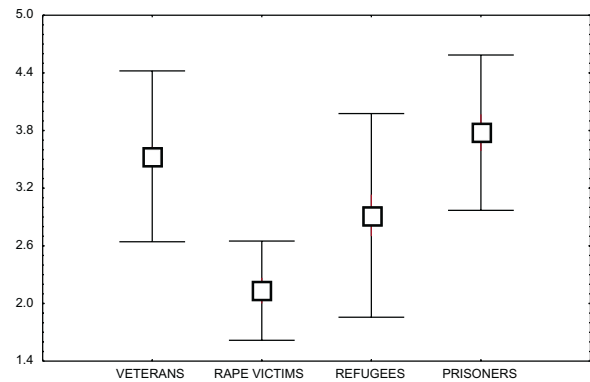


Figure 4. Average number of the Criterion D symptoms, expressed as a total score (mean \pm standard deviation).

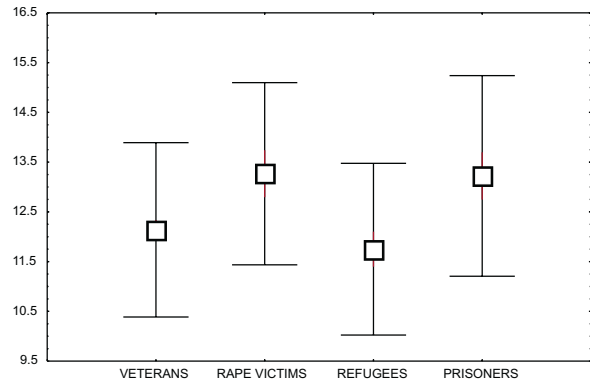


Figure 5. Average number of the Criterion B, C, D symptoms, expressed as a total score (mean \pm standard deviation).

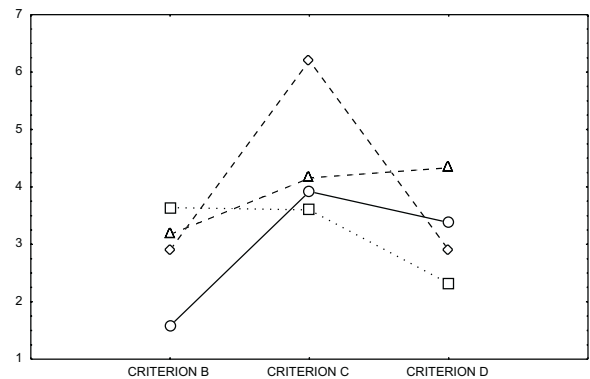


Figure 6. Cluster analysis of symptoms in PTSD criteria B, C, and D. Mean total number of symptoms in DSM-IV criteria B, C, and D for PTSD is shown for each of four studied clusters. The mean number of symptoms in each criterion: circle – the first cluster; square – the second cluster; diamond – the third cluster; triangle – the fourth cluster.

higher number in the Criterion D, or, in other words, a low number of intrusive and a high number of arousal symptoms. Conversely, the second cluster contained a high number of symptoms in the Criterion B (intrusive), but a low number in the Criterion D (arousal). The third cluster was characterized by a very high number of symptoms in the Criterion C (avoidance), but rather low number in the Criterion D (arousal). The final, fourth, cluster had the highest number of arousal symptoms in the Criterion D, but a moderate number of symptoms in the remaining two criteria.

Analysis of the cluster membership revealed that in the cluster marked by the low number of intrusive, but high number of arousal symptoms (cluster 1), more than half of the cluster members (34 out of 50, or 68%) were veterans, whereas the remaining cluster members were 8 refugees (16%), 7 former prisoners (14%), and 1 victim of rape (2%). In the cluster characterized by high number of intrusive and low number of arousal symptoms (cluster 2), the distribution of particular group members was similar to the previous one: 15 veterans (60% of the cluster members), 8 refugees (32%), 2 rape victims (8%), and no prisoners. In the cluster with high number of avoidance symptoms and low number of arousal symptoms (cluster 3) rape victims (12 women, or 40%) comprised the largest group, followed by 11 veterans (37%), 5 former prisoners (17%), and 2 refugees (7%). Twelve out of 15 rape victims were found in that cluster (80% of the total number of rape victims). The largest group represented in the cluster described as having a high number of arousal symptoms but a moderate number of symptoms in the other two criteria analyzed (cluster 4) were veterans (19, 6% of cluster members); followed by 6 refugees (19%) and 6 prisoners (19%), but no rape victims. The most obvious particular pattern could be seen in rape victims. Sixty seven percent of veterans were divided between two clusters with a higher number of arousal symptoms – 43% of them in cluster 1 and 24% in cluster 4, whereas the remaining number was divided between cluster 2 (15, or 19%), and cluster 3 (11, or 14%). Both clusters were described as with a lower number of arousal symptoms, but the first one had a higher number of intrusive, and the second one of avoidance symptoms. As with the former group, 13 (or 72%) of prisoners were divided between clusters 1 and 4. Those two clusters had a high number of arousal symptoms. The remaining number (5, or 28%) was loaded into the cluster described by a high number of avoidance, but a low number of arousal symptoms. No particular pattern could be observed in the members of the refugees group – they were almost equally distributed among clusters 1, 3, and 4 (8, 8, and 6, respectively), and the remaining 2 (7%) were loaded into cluster 3.

Discussion

We have shown that the number of intrusive, avoidance, and arousal symptoms in PTSD differ by stressor characteristics. It is important to note that this study was not concerned with the severity of PTSD symptoms among different groups defined according

to stressor characteristics. For example, if the first patient had 10 symptoms present, which is the minimum requirement for PTSD diagnosis in DSM-IV, and another patient exhibited 15 symptoms, this did not automatically mean that the disorder was more severe in the second patient. We analyzed the presence of symptoms according to stressor characteristics, ie, describing the range of clinical features. The groups analyzed here differed by total number of present symptoms. The highest number of symptoms was observed in the rape victims and prisoners group, lower in the veterans group, and the lowest among refugees. Again, this does not necessarily indicate higher severity, but only a larger variety of symptoms expressed in victims of rape and former prisoners.

In the analysis of the rates at which each particular symptom was manifested, the symptoms listed under different DSM-IV criteria varied considerably among the groups in the range of occurrence and in overall frequency of appearance. Some symptoms had a narrow frequency range among the groups (such as B1 – recurrent and intrusive distressing recollections, or D1 – difficulty falling or staying asleep, whereas others had a considerably wider range (e.g., C2 – efforts to avoid activities, places, or people that arouse recollections of the trauma, or D4 – hypervigilance). This indicates that some symptoms appear more regularly, as it was suggested before (19), whereas others may be more specific to stressor characteristics. In addition, presence of some symptoms may change over the course of illness. That could be the case with observed lower rate of exaggerated startle response in overall number of patients (40%), as published elsewhere (24).

The symptoms in the Criterion B behaved quite differently from the symptom sets in the remaining two variable criteria (C and D). Symptoms in the Criterion B appeared less frequently on average, but their range between particular groups was much narrower than the range of symptoms in the other two criteria. The mean percentage of reported symptoms in the Criterion B was 52%, whereas the average of those in the Criterion C and the Criterion D was 63% and 66%, respectively. The symptoms in the Criterion B not only appeared less frequently, but also varied less between the groups. This suggests that intrusive symptoms may be more specific to the illness itself, whereas avoidance and arousal symptoms may be related to a higher degree to specific stressor characteristics. There was a rather high loading on avoidance and arousal symptoms, even though we excluded patients with generalized anxiety disorder and major depressive disorder, which are thought to impede the recognition of PTSD core symptoms (12,16).

The analysis of the number of exhibited symptoms in each criterion in four studied groups allowed assuming a higher dependency of avoidance and arousal symptoms on stressor characteristics. We were not able to prove statistically significant differences in the number of observed intrusive symptoms among the 4 analyzed groups. On the other hand, such differences were observed in criteria containing avoidance and arousal symptoms. Victims of rape mani-

fested high number of avoidance symptoms (averaging 6.1 out of a possible 7), as expected, whereas refugee and veteran groups had a comparatively lower number of these symptoms (3.9 and 4.1, respectively). The group of former prisoners had a somewhat higher score than the latter two groups, which conforms to the stated pronounced withdrawal/retardation symptoms in the victims of torture (7). In contrast, rape victims manifested a considerably lower number of hyperarousal symptoms than the veterans and prisoners groups. Therefore, we could assume that in rape victims the disorder was characterized by a higher number of avoidance symptoms and lower number of arousal symptoms than in others (32). Similar to some previous findings (9), the disorder in veterans was primarily manifested by a high number of arousal symptoms and a relatively low number of avoidance symptoms. For the refugee group we were not able to recognize any particular predominant pattern for any specific group of symptoms. This may be caused by the fact that the stressor characteristics for the group of refugees were the most broadly defined, whereas in other groups a particular event(s) was listed.

We can only speculate about the causes for different numbers and types of symptoms predominantly expressed under the influence of various stressors. One characteristic by which the stressors may differ is the ratio of psychological and physical trauma components.

We tried to separate stressor characteristics in as large an extent as possible. However, the groups differed only in broader stressor characteristics. Several subdivisions within each group were possible, but limited sample size prevented more detailed analysis of stressor relation to symptom manifestation. We analyzed the stressors that were, more or less, war-related. As the war itself involves prolonged fear and helplessness in almost all persons, it was impossible to exclude cumulative stressor effect. It is also important to note that more than 7 years on average had passed from the moment when PTSD was diagnosed for the first time to the time of assessment of the patients. The influence of time on the manifestation of particular symptom or symptom patterns should also be additionally analyzed to determine whether the predominance of avoidance and arousal symptoms in particular groups is a constant finding, or it varies as a function of time (5,9). In future studies it would be worthwhile to dedicate special attention to the role of applied therapeutic strategies during the course of the disorder and their effect on the intensity and stability of symptoms over a longer period. Although therapeutic efficacy of commonly used drugs was frequently studied, no research has analyzed their efficacy over a longer period among groups defined by stressor characteristics.

We have concentrated primarily on the presence of particular symptoms, since the main purpose was to contribute to possible future improvements in the delineation of individual diagnostic entities. Our conclusion is that there is a strong indication that stressor characteristics could play a certain role in the variety

of symptoms present and relate to the number of intrusive, avoidance, and arousal symptoms in a victim. However, extensive additional research is needed to define more precisely the detailed symptom dimensions that may relate to particular stressor characteristics. It would be useful to establish whether PTSD is a diagnostic category homogenous in nature or containing entities that would be described better by another approach.

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