

# **Analysis of the Peculiarities of Post-traumatic Stress Disorder in Participants in the Anti-terrorist Operation**

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## **Abstract**

Post-traumatic stress disorder (PTSD) is a mental health condition which is characterized by an anxiety, neurotic, stress related, and somatoform disorders. The main types of PTSD syndromes are anxiety, asthenic, dysphoric, somatoform. PTSD can disrupt job, personal relationships, health and everyday activity. Having PTSD may increase the risk of other mental health disorders, such as depression and anxiety, alcohol and drug addiction, eating disorders, suicide behavior. The incidence of head injuries among anti-terroristic operation (ATO) participants with war injuries rate 16,8-23,2%. The aim of the study was to determine the features of PTSD in participants of the anti-terrorist operation (ATO) in Ukraine and the differences between those participants, who also underwent closed brain injury (CBI). The number of 148 participants of ATO, who took part in the study, were divided into 2 groups: Group 1 participants of ATO (91 people) and Group 2 participants of ATO after closed brain injury (CBI) (57 people). Study results showed that PTSD is more common among ATO participants with a history of closed brain injury than without it (23,1% in Group 1 vs 40% in Group 2). Symptoms of clinical depression were found more often among the ATO participants after CBI (14,2% in Group 1 vs 33,3% in Group 2). Among the participants of ATO with history of CBI, the most common PTSD syndromes were asthenic and dysphoric (39,1% and 34,8% respectively among 23 patients with PTSD and history of CBI). The most common PTSD syndromes among the participants of ATO without CBI were asthenic and anxiety (33,3% and 28,6% respectively among 21 patients with PTSD). The number of injured participants of the anti-terrorist operation will increase every day, because, for those with PTSD, their families, the environment, the war will continue. Therefore, further researches of diagnostics and rehabilitation of participants of ATO with PTSD are necessary.

**Keywords:** post-traumatic stress disorder; traumatic exposure; participants of anti-terroristic operation.

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## **1. Introduction**

Post-traumatic stress disorder (PTSD) is a mental health condition which is characterized by an anxiety, neurotic, stress related, and somatoform disorders. The main criterion of PTSD is that the person has experienced a severe stressor (sexual violence, war or military skirmishes, road accident, child abuse, domestic violence or other life-threatening conditions). People, who underwent psycho-traumatic event, could suffer from flashbacks, nightmares and severe anxiety, as well as uncontrollable thoughts about the event. If the above symptoms worsen, if they last for months or years, and interfere with the personal daily activity, PTSD could be diagnosed [1]. The main types of PTSD syndromes are anxiety, asthenic, dysphoric, somatoform.

In spite of recent acceptance of PTSD by the psychiatrists (DSM-III in 1980), the conception of psychotrauma and post-traumatic stress has been discussed in the military by the Ancient Greeks [2]. In 1916 Emil Kraepelin was the first who described traumatic neurosis, which manifests in the form of severe psychological disorders that can remain for a long period and increase over time [3].

In the literature, the incidence of PTSD among those who have suffered a traumatic exposure ranges from 10% (among witnesses) to 95% (among severely injured). Epidemiological studies conducted after the Vietnam War found that the number of veterans with PTSD reached 15-30%. Subclinical manifestations were additionally detected in 22% of the war participants [4]. Spottswood M. and his colleagues in their systematic review found the median point prevalence of PTSD in the civilian population is 11,1%; in the special-risk population - 12,5%; and in veterans - 24.5% [5].

PTSD can disrupt job, personal relationships, health and everyday activity. Having PTSD may increase the risk of other mental health disorders, such as depression and anxiety, alcohol and drug addiction, eating disorders, suicide behavior [6].

Manifestation of mental disorders in case of PTSD occurs in the form of influx memories of traumatic exposure. It is accompanied with affective reactions: anxiety, fear, feelings of guilt. Obsessive-compulsive disorder usually occurs without external stimuli. The most common symptoms of the disease are sleep disorders, irritability, decreased memory and attention. Patients have poor contact with others, find it difficult to coexist in the family due to irritability and periodic unmotivated attacks of aggression [7].

Almost all patients have disorders of autonomic regulation. In addition, they are constantly disturbed by problems of falling asleep or by horrible, disturbing dreams during deep sleep. Patients develop alienation, agedonia. Everyday life experience typically seem unimportant to them. Patients are reassured that people who have not underwent the same traumatic exposure cannot understand them. At this stage, they communicate only with other veterans, creating informal groups. This often leads to alcoholism and antisocial behavior. After 4-6 months on the background of sleep disturbances, despair, hopelessness, pessimistic assessment of the situation in 15-45% of patients develop depression [8].

The incidence of head injuries among anti-terroristic operation (ATO) participants with war injuries rate 16,8-23,2% [9, 10].

The aim of the study was to determine the features of PTSD in participants of the anti-terrorist operation in Ukraine and the differences between those participants, who also underwent closed brain injury.

## **2. Materials and Methods**

The study involved 148 participants of ATO, who studied in Odessa military academy from 2014 to 2020 years (the informed consent was obtained from all the participants).

All participants of the study were divided into 2 groups:

- Group 1 participants of ATO (91 people).
- Group 2 participants of ATO after closed brain injury (CBI) (57 people).

All participants were male. The average age in Group 1 was 25,8 years (19-36) and in Group 2 - 24,1 years (19-33) ( $p>0,05$ ).

The time of closed brain injury in Group 2 ranged from 3 to 38 months. All examined participants suffered a closed craniocerebral injury. In Group 2 the patients with concussion and contusion of mild severity (mild traumatic brain injury) made up 64,9% (37 people), patients with moderate brain contusion (moderate traumatic brain injury) - 29,8% (17 people); patients with severe brain contusion in combination with compression impact (severe traumatic brain injury) - 5,2% (3 people).

Clinical assessment of mental and neurological status of patients was performed by standard methods. All participants passed the Posttraumatic Diagnostic Scale for DSM-5 self-report questionnaire for the diagnosis of PTSD. Hamilton's scales were used to assess the degree of depression and anxiety: Hamilton depression rating scale (HAM-D) and Hamilton Rating scale for anxiety (HAM-A); Beck's scale for self-assessment of depression, the Spielberger-Khanin questionnaire for assessing the severity of reactive and personal anxiety, and the Scale for assessing well-being, activity and mood (SAN). The state of cognitive functions was determined using the Mini Mental Scale (MMS).

The limitation of the study is sample profile (only student sampling) without varies profiles.

Pearson's chi-squared test, Mann-Whitney U-test and Wilcoxon signed-rank test were used for statistical evaluation of the material.

## **3. Results and discussion**

According to the obtained data from the Posttraumatic Diagnostic Scale for DSM-5 questionnaires, PTSD was diagnosed among 21 people (23,1%) in Group 1 and among 23 people (40%) in Group 2 ( $p<0,05$ ) (tab.1). PTSD is statistically more common among participants of ATO with history of CBI. The same results were obtained in the research of R. Bryant [11]. It is possible that closed brain injury increases the risk of PTSD developing because neural damage sustained in the injury compromises the critical neural circuitry required to regulate fear

following the traumatic experience [12]. Disruption in brain circuitry because of CBI, may underlie the comorbidity of CBI and PTSD [13].

Among the psychological signs of PTSD that predominate in participants of the investigation are the following: sleep disorders (8,7% in Group 1 and 15,7% in Group 2); irritability, inability to relax (6,5% and 10,5%); emotional instability (7,6% and 14%); memory impairment (4% and 8,8%); poor concentration (10,9% and 19,3%); isolation and indifference (5,5% and 10,5%).

In Group 1 the most common syndromes of PTSD were asthenic and anxiety (33,3% and 28,6% respectively among 21 patients with PTSD). In Group 2 the most common syndromes of PTSD were asthenic and dysphoric (39,1% and 34,8% respectively among 23 patients with PTSD and history of CBI) (tab.1).

The symptoms of depression were identified among 13 people (14,2%) in Group 1 and among 19 people (33,3%) in Group 2 ( $p<0,05$ ) using the Hamilton depression rating scale (HAM-D) and Hamilton Rating scale for anxiety (HAM-A); Beck's scale for self-assessment of depression, the Spielberger-Khanin questionnaire for assessing the severity of reactive and personal anxiety, and the Scale for assessing well-being, activity and mood (SAN) (tab.1).

**Table 1:** Characteristics of participants of ATO with/without history of CBI.

	Group 1 (without CBI), n	Group 2 (with CBI), n	p-value
PTSD	21	23	$p<0,05$
Depression	13	19	$p<0,05$
PTSD syndromes:			
Asthenic	7	9	$p>0,05$
Dysphoric	4	8	$p<0,05$
Anxiety	6	4	$p>0,05$
Somatoform	4	2	$p>0,05$

The asthenic syndrome of PTSD was dominated by symptoms dominated by feelings of impaired mental activity and increased fatigue, lethargy. Low mood was combined with a sense of loss of pleasure in life, the predominance of thoughts about their own inferiority. Behavior was passive. Sleep disorders are characterized by hypersomnia with inability to get out of bed, a feeling of drowsiness throughout the day.

In the dysphoric syndrome of PTSD there are no manifestations of vital components, daily and seasonal fluctuations. The person is completely focused on the traumatic situation.

The anxiety syndrome of PTSD was characterized by high levels of unmotivated anxiety with painful experiences, most often characterized by attacks, sometimes to panic, with the nature of obsession. The feeling of internal discomfort, irritability, tension were common. Sleep disorders were accompanied by difficulty falling

asleep, with a predominance in the minds of anxious thoughts about their condition, fear of painful dreams.

The increase in the incidence of PTSD and depression level in Group 2 may be due to the restriction of habitual social contacts, reduced sense of independence, self-confidence [14].

#### 4. Conclusions

PTSD is more common among ATO participants with a history of closed brain injury than without it. Symptoms of clinical depression were found more often among the ATO participants after CBI. Among the participants of ATO with history of CBI, the most common PTSD syndromes were asthenic and dysphoric. The most common PTSD syndromes among the participants of ATO without CBI were asthenic and anxiety.

The number of injured participants of the anti-terrorist operation will increase every day, because, for those with PTSD, their families, the environment, the war will continue. Therefore, further researches of diagnostics and rehabilitation of participants of ATO with PTSD are necessary.

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#### References

- [1]. American Psychiatric Association (2013). *Diagnostic and Statistical Manual of Mental Disorders* (5th ed.). Arlington, VA: American Psychiatric Publishing, 2013, pp. 271–80.
- [2]. M. Creamer, D. Wade, S. Fletcher, D. Forbes. *PTSD among military personnel*. International Review of Psychiatry, 2011, 23(2), pp. 160–165. doi:10.3109/09540261.2011.559456
- [3]. M. Linden, C. P. Arnold. *Embitterment and Posttraumatic Embitterment Disorder (PTED): An Old, Frequent, and Still Underrecognized Problem*. Psychotherapy and Psychosomatics, 2020, hh. 1–8. doi:10.1159/000511468
- [4]. C.R. Marmar, W. Schlenger, C. Henn-Haase, et al. *Course of Posttraumatic Stress Disorder 40 Years After the Vietnam War: Findings From the National Vietnam Veterans Longitudinal Study*. JAMA Psychiatry. 2015;72(9), pp. 875–881. doi:10.1001/jamapsychiatry.2015.0803
- [5]. M. Spottswood, D. S. Davydow, H. Huang. *The Prevalence of Posttraumatic Stress Disorder in Primary Care: A Systematic Review*. Harv Rev Psychiatry. 2017 Jul/Aug;25(4):159-169. doi: 10.1097/HRP.000000000000136.
- [6]. J. I. Bisson, S. Cosgrove, C. Lewis, N. P. Robert. *Post-traumatic stress disorder*. BMJ. 2015, pp. 351: h6161. doi:10.1136/bmj.h6161.
- [7]. J.Jr. Hart, T. Kimbrell, P. Fauver, et al. *Cognitive dysfunctions associated with PTSD: evidence from World War II prisoners of war*. J. Neuropsychiatry Clin. Neurosci., 2008, 20(3), pp. 309–316.
- [8]. S. Angelakis, R. Nixon. *The Comorbidity of PTSD and MDD: Implications for Clinical Practice and Future Research*. Behaviour Change, 2015, 32. pp. 1-25.

- [9]. I. M. Gaida, M. I. Badyuk, Yu. I. Sushko. *Peculiarities of structure and current of modern combat trauma among servicemen of the Armed Forces of Ukraine*. Pathologia. 2018, 15 (1), pp. 73-76.
- [10]. V. Tarasenko, O. Kuchmistova, A. Solomennyyi, O. Pidlisnyi. *Characreristics structuring and consequences of battle trauma of armed forces members*. Ukrainian Journal of Military Medicine, 2019, 19(4), pp. 111-117.
- [11]. R. Bryant. *Post-traumatic stress disorder vs traumatic brain injury*. Dialogues Clin Neurosci. 2011;13(3), pp. 251-62. doi: 10.31887/DCNS.2011.13.2/rbryant.
- [12]. R.A. Bryant. *Disentangling mild traumatic brain injury and stress reactions*. N Engl J Med.2008;358, pp. 525–527.
- [13]. G.B. Kaplan, K.A. Leite-Morris, L. Wang, K.K. Rumbika, S.C. Heinrichs, X. Zeng, et al. (2018). *Pathophysiological bases of comorbidity: traumatic brain injury and post-traumatic stress disorder*. J. Neurotrauma 2018, 35, pp. 210–225.
- [14]. M.M. Matyash, L.I. Khudenko. *Ukrainian syndrome: post-traumatic stress disorder features in participants of anti-terrorist operation*. Ukrainian Medical Journal. 2014, 6, pp. 124-127.