

DOI: <https://doi.org/10.17816/rmmar562808>

Research Article

# Psychological consequences of combat trauma at the hospital stage of rehabilitation

Evgeniy V. Kryukov, Dmitriy V. Ovchinnikov, Vladislav V. Yusupov, Konstantin P. Golovko, Natalya V. Zelenina, Vladimir A. Korzunin, Ivan I. Dorofeev, Evgeniy A. Chernyavskiy

Military Medical Academy, Saint Petersburg, Russia

## ABSTRACT

**BACKGROUND:** Currently, the issues of restoring the somatic and mental health of combatants undergoing treatment and rehabilitation in hospital conditions are becoming particularly relevant.

**AIM:** To examine and compare the mental states and psychological consequences of combat trauma at the hospital stage of rehabilitation of combatants.

**MATERIALS AND METHODS:** The study involved 97 combatants with various wounds and injuries that were hospitalized in the clinical units of the surgical and therapeutic profile of the Military Medical Academy. Of these, 44 people were examined in 2014 and 53 people in 2022.

**RESULTS:** Comparison of independent samples of combatants in 2014 and 2022 at the stage of treatment and rehabilitation showed a statistically significant twofold decrease in asthenic manifestations from 38.6% in 2014 to 20% in 2022 ( $p < 0.05$ ). The relative number of combatants with negative psychological consequences of combat trauma in the form of manifestations of post-traumatic stress disorder in 2014 and 2022 was similar and amounted to 15.9% and 17%, respectively, which is apparently due to the homogeneity of the sample and the similarity of factors causing these stress-reactive changes. Uncompensated negative psychological consequences of combat trauma can be fixed in the form of combatant accentuation and chronic, irreversible personality change. These stress-reactive changes reduce both the professional qualities of the combatants and their quality of life.

**CONCLUSION:** The clinical and psychological characteristics of patients indicate the need for psychological assistance, starting from the moment of injury and continuing throughout the wound disease.

**Keywords:** combat trauma; combatants undergoing treatment and rehabilitation; medical and psychological rehabilitation; mental state; post-traumatic stress disorder; psychological assistance; psychological consequences of hostilities.

## To cite this article:

Kryukov EV, Ovchinnikov DV, Yusupov VV, Golovko KP, Zelenina NV, Korzunin VA, Dorofeev II, Chernyavskiy EA. Psychological consequences of combat trauma at the hospital stage of rehabilitation. *Russian Military Medical Academy Reports*. 2023;42(3):219–228. DOI: <https://doi.org/10.17816/rmmar562808>

Received: 22.07.2023

Accepted: 12.08.2023

Published: 29.09.2023

УДК 159.9: 616-001.1

DOI: <https://doi.org/10.17816/rmmar562808>

Научная статья

## Психологические последствия боевой травмы на госпитальном этапе реабилитации

Е.В. Крюков, Д.В. Овчинников, В.В. Юсупов, К.П. Головкин, Н.В. Зеленина, В.А. Корзунин, И.И. Дорофеев, Е.А. Чернявский

Военно-медицинская академия, Санкт-Петербург, Россия

### АННОТАЦИЯ

**Актуальность.** В настоящее время вопросы восстановления соматического и психического здоровья комбатантов, проходящих лечение и реабилитацию в госпитальных условиях, приобретают особую актуальность.

**Цель исследования** — изучить и сравнить психические состояния и психологические последствия боевой травмы на госпитальном этапе реабилитации у комбатантов.

**Материалы и методы.** В исследовании приняли участие 97 комбатантов с различными ранениями и травмами, госпитализированных в клинические подразделения хирургического и терапевтического профиля Военно-медицинской академии. Из них 44 человека были обследованы в 2014-м и 53 — в 2022 г.

**Результаты.** Сравнение независимых выборок комбатантов 2014 и 2022 гг. на этапе лечения и реабилитации показало статистически значимое двукратное снижение астенических проявлений с 38,6 % в 2014-м до 20 % в 2022 г. ( $p < 0,05$ ). Относительное количество комбатантов с негативными психологическими последствиями боевой травмы в виде проявлений посттравматического стрессового расстройства в 2014 и 2022 гг. было сходным и составило 15,9 и 17 % соответственно, что обусловлено, по-видимому, однородностью выборки и сходностью факторов, вызывающих эти стресс-реактивные изменения. Некомпенсированные негативные психологические последствия боевой травмы могут закрепиться в виде комбатантной акцентуации и хроническом, необратимом изменении личности. Эти стресс-реактивные изменения снижают как профессиональные качества комбатантов, так и качество их жизни.

**Заключение.** Клинико-психологические особенности пациентов свидетельствуют о необходимости оказания психологической помощи начиная с момента травмы и далее на всем протяжении раневой болезни.

**Ключевые слова:** боевая травма; комбатанты, проходящие лечение и реабилитацию; медико-психологическая реабилитация; посттравматическое стрессовое расстройство; психическое состояние; психологическая помощь; психологические последствия боевых действий.

### Как цитировать:

Крюков Е.В., Овчинников Д.В., Юсупов В.В., Головкин К.П., Зеленина Н.В., Корзунин В.А., Дорофеев И.И., Чернявский Е.А. Психологические последствия боевой травмы на госпитальном этапе реабилитации // Известия Российской военно-медицинской академии. 2023. Т. 42. № 3. С. 219–228. DOI: <https://doi.org/10.17816/rmmar562808>

## BACKGROUND

Modern armed conflicts can be considered a qualitatively new stage of military operations, where more modern types of protective equipment, weapons, and military equipment, including unmanned vehicles, are used. The methods and tactics of combat operations have changed qualitatively and continue to improve, and their intensity has increased immeasurably.

In this regard, conducting a comparative analysis and considering the characteristics of combat injuries and wounds, as well as manifestations of mental trauma and their consequences for combatants, are significant and relevant for improving the medical support for combat operations, reducing the time required, and improving the quality of medical and medical-psychological care at various stages of treatment and rehabilitation.

The experience gained by Russian and international military psychiatrists and psychologists based on extensive material from modern local wars and armed conflicts convincingly indicates that a state of combat stress occurs in most combatants, subsequently leading to pronounced psychogenic reactions. Moreover, wounds and injuries enhance the negative effect of combat influences on mental health [1, 2].

According to psychiatrists at the S.M. Kirov Military Medical Academy (MMA), the primary psychogenic reactions of combatants during battle trauma are most often represented by nonpsychotic disorders of the asthenic range, often complicated by signs of posttraumatic stress disorder (PTSD) [3, 4].

Globally, three stages (i.e., hospital, outpatient, and sanatorium) of rehabilitation of the wounded and sick are generally distinguished [5, 6]. The key stage for rehabilitation is the hospital stage. This period is accompanied by prolonged psychoemotional stress caused by physical and mental trauma in a significant proportion of combatants. In this period, characterized by the plasticity of adaptive response processes, even mild mental disorders must be promptly identified, preventing their transformation into negative "combatant" accentuation or persistent personality deformation [3]. Thus, the success of the treatment and rehabilitation of wounded and traumatized combatants in the hospital phase is largely related to the restoration of their mental health and psychological well-being. To date, the system of psychological assistance to combatants has not been sufficiently elaborated.

*This study aimed to examine and compare the mental states of combatants and the psychological consequences of combat trauma during hospital rehabilitation.*

## MATERIALS AND METHODS

In total, 97 combatants with various wounds and injuries who underwent treatment and rehabilitation in

surgical and therapeutic clinics of the MMA participated in the study. Of these patients, 44 were examined in 2014 and 53 in 2022. The most common injuries were head (ICD10 S00–S09), shoulder and shoulder girdle (S40–S49), and abdomen, lumbar spine, and pelvis (S30–S39) injuries, as well as their combinations. In both groups, the combatants were male and had comparable ages. The average age of group 1 was 34.1 (SD = 8.5; 21–56) years, which did not differ from that of group 2 with 32.6 (SD = 7.4; 19–49) years ( $p > 0.05$ ). The duration of participation in hostilities ranged from 1 week to 6 months. The duration of hospitalization at the time of examination ranged from 4 days to 3 months.

For a subjective rapid assessment of the mental state of wounded and traumatized combatants in 2014, the "State Self-Assessment Questionnaire" (SSAQ) developed at the MMA was used. On a 7-point scale, the technique assesses the state of physical and mental performance, engagement and motivation for activity, general health, and prevailing mood and identifies the main complaints about health [7].

In 2022, to assess the physical and mental states and identify asthenia and fatigue of combatants, the Multi-dimensional Fatigue Inventory20 (MFI 20 E.M. Smets, B Garssen., B. Bronke et al., 1995) was used instead of the SSAQ questionnaire. This questionnaire consists of 20 statements describing various aspects of well-being and current physical and mental state, similar in content to the SSAQ questionnaire (subscales "activity," "motivation," "general asthenia," "physical asthenia," and "mental asthenia"), and the expressiveness of indicators was assessed on a 5-point scale.

In 2014, to identify the negative behavioral and psychological consequences of combat stress and combat mental trauma in combatants, the presence and severity of signs of PTSD were assessed using the express method developed at the MMA for assessing the state of sociopsychological adaptation (SPA) by V.A. Korzunin and P.A. Ziborova [8]. The questionnaire contains 70 questions compiled in accordance with the diagnostic clusters for assessing PTSD of the American Diagnostic and Statistical Manual of Mental Disorders, fourth edition (DSM-IV), namely, reexperiencing symptoms (cluster B), avoidance symptoms (cluster C), symptoms of anxiety and excessive agitation (cluster D), and impairment of social functioning (cluster F).

In 2022, the Stanford Acute Stress Reaction (ASR) Inventory (Cardena E. et al., 2000) was used to assess PTSD signs, which can be used to retrospectively assess the degree of mental impairment in response to a traumatic event and identify PTSD signs. The patients rate each of the 30 items of the questionnaire on a 6-point scale, ranging from 0 ("not experienced") to 5 ("experienced very often"). The scales of the questionnaire correspond to the four symptom clusters of PTSD according

to DSM-IV and include a self-assessment scale for the severity of retrospectively assessed dissociative symptoms at the time of battle trauma.

The results obtained were processed using mathematical and statistical analysis methods from the Statistica 12 application package.

RESULTS AND DISCUSSION

This study included mathematical and statistical analyses of the correspondence of the results on the scales of the SSAQ questionnaire, obtained in 2014, according to the law of normal distribution. The frequency distribution for all scales with a high level of significance differed from the normal (significance level:  $0.00000 < p < 0.01$ ). This result was the basis for further division of combatants according to the scales of the SSAQ questionnaire using the K-means of the cluster analysis (CA) to divide them into a given number of homogeneous groups (clusters) located at maximum distances from each other. The initial hypothesis was the need to identify two

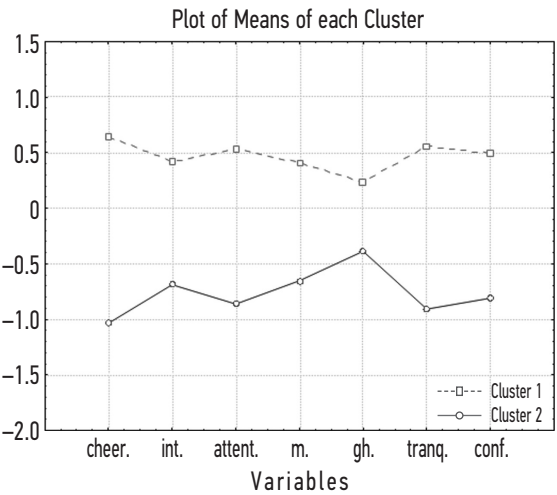
groups, namely, those with low and high scores on the SSAQ questionnaire. Preliminary normalization was performed, that is, converting the original data into dimensionless quantities, because the variables used for analysis in 2014 and 2022 had different units of measurement. Consequently, clusters with statistically significantly different mean values of the centers were obtained. Figure 1 presents a graphical representation of the normalized average values of the centers of the resulting clusters.

Table 1 presents the F-statistics and the results of the analysis of variance of clustering. F-statistic values are an indicator of the quality of cluster discrimination. Between SS refers to the sum of the squared deviations between cluster centers, within SS refers to the sum of the squared deviations of objects from cluster centers, and  $p$  is the level of significance of the differences between cluster centers.

The presented results of the analysis of variance and F-statistics value indicate a high level of significance of differences between the clusters. The level of significance of the differences between cluster centers on the SSAQ questionnaire was very high ( $0.05 < p < 1.71E-9$ ), except for the “general health” scale ( $p < 0.075$ ), which is apparently caused by the uncertainty of understanding this characteristic, although it also had a pronounced tendency to differ (Table 1).

Cluster 1 was conditionally designated as the “asthenics” group. In this group, combatants who were wounded and injured (17 of 44 examined, or 38.6%) had more pronounced manifestations of physical and mental asthenia, decreased mood and general health, feelings of anxiety, self-distrust, and failure of attention. Group 2 (sthenic group) included most of the combatants ( $n = 27$ , or 61.4% of all examined) whose specified health and mood indicators were significantly higher, and manifestations of asthenia were not pronounced.

By utilizing a similar algorithm, the survey results of combatants who participated in hostilities in 2022 were analyzed using the MFI-20 questionnaire. The frequency



**Fig. 1.** Normalized average values of cluster centers according to the scales of the 2014 SSA questionnaire for combatants (cheer., cheerfulness; int., interest in work; attent., attentiveness; m., mood; gh, general health; tranq., tranquility; conf., self-confidence)

**Table 1.** Results of the analysis of variance and F-statistics for dividing clusters according to the scales of the SSA questionnaire among combatants in 2014

Indicator	Between SS	Within SS	F	p
Cheerfulness	22.54880	10.45120	69.04105	1.71E-9
Interest in work	9.97529	23.02471	13.86378	0.000757
Attentiveness	15.67680	17.32320	28.95873	0.000007
Mood	8.95277	24.04723	11.91358	0.001587
General health	3.16371	29.83629	3.39314	0.074752
Tranquillity	17.36763	15.63237	35.55215	0.000001
Self-confidence	13.79763	19.20237	22.99322	0.000036

**Table 2.** Results of the analysis of variance and F-statistics for separating clusters of combatants in 2022 according to the MFI-20 questionnaire scales

Indicator	Between SS	Within SS	F	<i>p</i>
General asthenia	7.79020	30.20980	9.54119	0.003800
Physical asthenia	3.65127	34.34874	3.93309	0.054804
Activity	13.86154	24.13846	21.24730	0.000047
Motivation	11.54000	26.46000	16.13681	0.000277
Mental asthenia	4.85512	33.14488	5.41983	0.025484

distribution for all scales with a high level of significance differs from the normal distribution (significance level:  $0.01 < p < 0.001$ ). By using CA, two groups with statistically significantly different average center values were identified. Figure 2 presents a graphical representation of the normalized average values of the centers of the clusters.

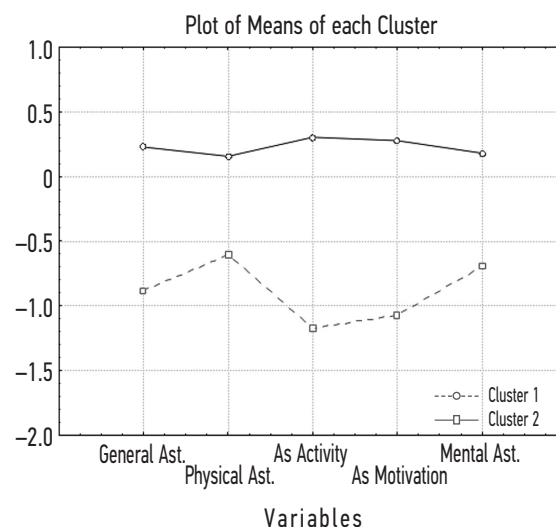
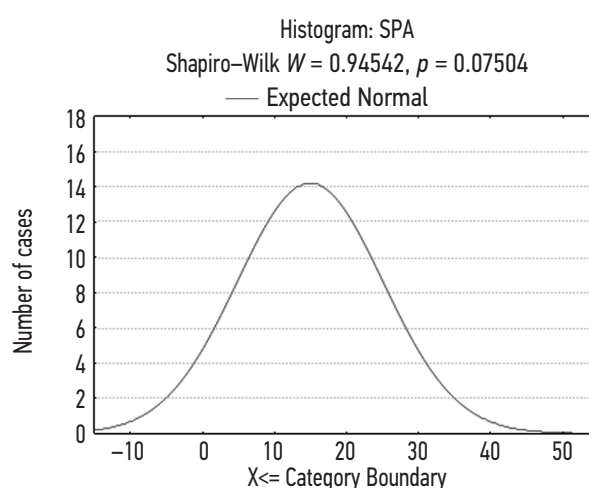
The analysis of variance and F-statistics indicate a high level of significance of the differences between the clusters, except for the “physical asthenia” scale ( $p < 0.055$ ), which also has a pronounced tendency to differ (Table 2).

Similar to the results of the examination of wounded combatants in 2014, according to the results of the examination of combatants using the MFI-20 questionnaire in 2022, two similar groups (clusters) were identified, conventionally designated as the “asthenic” and “sthenic” groups. Moreover, the “asthenic” group included 10 combatants, or 20% of those examined. The absolute majority of wounded combatants undergoing rehabilitation were included in the “sthenic” group ( $n = 17$ , or 80% of those examined).

Comparative analysis of independent samples from 2014 and 2022 according to the nonparametric Pearson  $\chi^2$  test showed a statistically significant, nearly twofold, decrease in the relative number of combatants with asthenic manifestations from 38.6% in 2014 to 20% in 2022 ( $p < 0.05$ ). Thus, the results of the self-assessment of the current well-being of combatants undergoing treatment and rehabilitation for battle injuries and wounds in 2022 were significantly higher than those in 2014. This is apparently due to an increase in the quality of equipment, first aid and medical care, mass information, and social support.

Mathematical and statistical analyses of the results of the 2014 SPA survey of combatants showed that the frequency of scores was normally distributed (Fig. 3, Shapiro–Wilk  $W = 0.94542$ ,  $p = 0.07504$ ).

To identify combatants with negative psychological consequences of battle trauma, they were divided into three groups using the K-means CA method. Clusters were obtained with statistically significantly different average values of the centers, namely, (1) high, (2) average, and (3) low values of indicators (Table 3, Fig. 4).

**Fig. 2.** Normalized average values of cluster centers according to the scales of the MFI-20 questionnaire for combatants in 2022 (General Ast., general asthenia scale; Physical Ast., physical asthenia scale; As Activity, activity scale; As Motivation, motivation scale; Mental Ast., mental asthenia scale)**Fig. 3.** Results of the analysis of the frequency distribution of SPA questionnaire scores among combatants in 2014, expected normal distribution, and the Shapiro–Wilk test

Notably, the higher the quantitative values according to the SPA method, the more pronounced the PTSD signs and the worse the prognosis for the further development of mental maladaptation disorders.



**Table 3.** Characteristics of groups (clusters) according to the results of the SPA method among combatants in 2014 ( $n = 44$ )

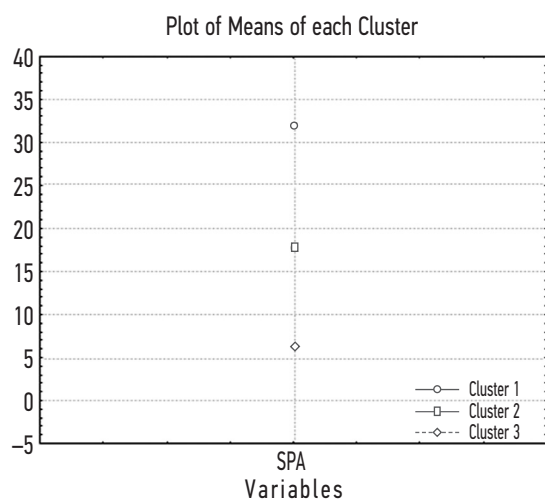
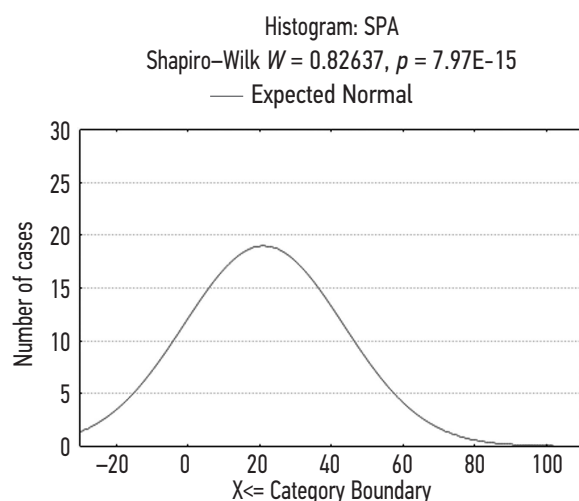
Clusters by the SPA method indicators	Average value of the cluster center	Standard deviation	$n$ (%)
High values	32.0	6.2	7 (15.9)
Average values	17.6	3.5	17 (38.6)
Low values	6.2	3.2	20 (45.5)

**Table 4.** Results of analysis of variance and F-statistics for separating clusters of combatants in 2014 using the SPA method

Indicator	Between SS	Within SS	F	$p$
SPA	3074.237	499.6518	101.5205	7.97E-15

**Table 5.** Characteristics of clusters of combatants according to the ASR method among combatants in 2022 ( $n = 53$ )

Clusters by the SPA method indicators	Average value of the cluster center	Standard deviation	$n$ (%)
High values	61.4	20.7	9 (17)
Average values	13.0	10.5	44 (83)

**Fig. 4.** Average values of cluster centers according to the SPA method for combatants in 2014, points**Fig. 5.** Results of the analysis of the frequency distribution of ASR questionnaire scores among combatants in 2022, expected normal distribution, and the Shapiro-Wilk test

The results of the analysis of variance and F-statistics indicate a high level of significance of differences between the clusters ( $p < 7.97E-15$ ) (Table 4).

Thus, pronounced manifestations of the negative psychological consequences of combat stress and physical and mental trauma such as individual PTSD signs in 2014 were identified in 15.9% of the combatants. In the remaining 84.1% of the patients, these manifestations were much less pronounced.

A similar analysis of the results of the ASR technique, which was used during the psychological examination of combatants in 2022 to identify mental maladaptation disorders and PTSD signs, showed that the frequency of scores was not normally distributed (Fig. 5, Shapiro-Wilk  $W = 0.82637$ ,  $p = 7.97E-15$ ). Similar to the results of the SPA technique, high quantitative values for the technique indicate greater severity of negative posttraumatic consequences for the psyche of combatants with combat wounds and injuries.

Based on the results of the ASR method, the combatants were distributed into two groups using CA by the K-means method. The resulting clusters differed statistically significantly in the average values of the centers (Table 5, Fig. 6).

The results of the analysis of variance and F-statistics indicate a high level of significance for the differences between the clusters ( $p < 2.90E-14$ ) (Table 6).

An analysis of identified groups (clusters) based on the results of the examination of combatants using the ASR method in 2022 revealed that pronounced manifestations of the negative psychological consequences of combat stress and physical and mental trauma, such as individual PTSD signs, were identified in 17% of the combatants. In the remaining 83% of cases, these manifestations were more than four times less pronounced.

**Table 6.** Results of the analysis of variance and F-statistics for separating clusters of combatants in 2022 using the ASR method

Indicator	Between SS	Within SS	F	p
ASR score	17551.52	8211.199	109.0130	2.90E-14

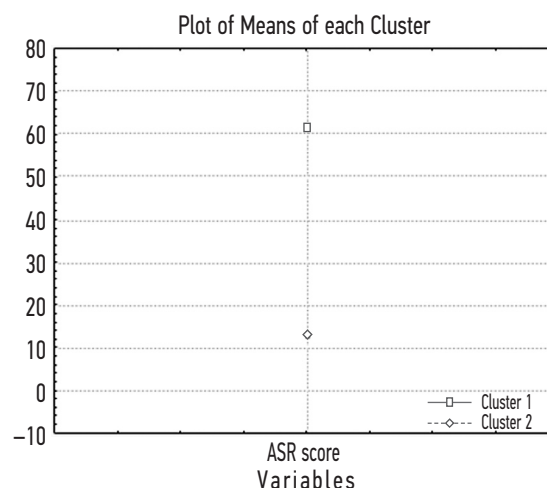
Thus, the results of a comparative survey of combatants with combat wounds and injuries in 2014 and 2022 revealed that the absolute majority of them (83–84%) maintain a high level of mental adaptation (stress resistance). Simultaneously, the number of combatants with negative psychological consequences of combat trauma in both research segments (2014 and 2022) was comparable, at 15.9% and 17%, respectively. This was apparently due to the homogeneity of the sample, comparable effect of combat stress factors on combatants, and nature of the treatment and rehabilitation measures performed.

Special attention should be paid to medical and psychological support at the hospital stage of rehabilitation for combatants with signs of mental maladaptation and negative psychological consequences of combat stress, wounds, and mental trauma. Three groups of pathogenetic factors are of key importance in PTSD development, namely, nature of the traumatic event, personal characteristics, and socioeconomic support of combatants [9].

Military psychiatrists at the academy substantiated that certain PTSD manifestations can become stable in the form of persistent personality change, the so-called “combatant accentuation.” The problem with the rehabilitation of such combatants consists of the fact that a significant proportion of them experience alienation and stance of distance from other people, believe that others will not be able to understand their experiences and help them, do not consider themselves sick, and therefore do not seek help. This is true for combatants who have not been demobilized from the army. These stress-reactive changes reduce both the combatant’s professional performance and quality of life [3, 10–12].

In other cases, PTSD uncompensated for several years transforms into “chronic, irreversible personality changes after a disaster” (ICD10 F62.0). These changes are characterized by signs such as a hostile or distrustful attitude toward the world, social isolation, alienation, a feeling of emptiness and hopelessness, a chronic feeling of constant threat, and a desperate existence.

These data clearly indicate the need to organize a system for providing early psychophysiological and medical–psychological assistance at the hospital stage of rehabilitation of combatants with battle wounds and injuries to relieve psychoemotional stress, overcome pain and asthenic manifestations, create an optimistic attitude toward the future, recover an objective and holistic presentation of traumatic events, and prognosis of future life activity and interaction in society.

**Fig. 6.** Average values of cluster centers according to the 2022 ASR methodology for combatants and points

The MMA already had a generalized positive experience in performing such work based on the results of an analysis of the provision of medical care, medical and psychological care, and rehabilitation measures to participants in combat operations in Afghanistan and Chechnya [5]. In this manual, within the psychophysiological, medical–psychological, and pharmacological support to wounded and sick patients at the hospital stage of rehabilitation using the assistance and means of military medical treatment institutions, rehabilitation programs for combatants were recommended for PTSD prevention. These included a complex of sociopsychological and psychophysiological methods, namely, individual psychological counseling with elements of rational psychotherapy, training in the elements of autotraining (Schultz stage 1), and training in the basics of active muscle relaxation by Jacobson. This complex was used to develop an optimal behavioral style in interpersonal communication in convalescents, relieve excessive neuroemotional stress while in the hospital, and develop the necessary psychosomatic relaxation skills, which could help reduce the effect on the psyche of the negative consequences of combat stress and mental trauma.

At the present stage, the main aims and objectives of rehabilitation measures for combatants remain unchanged, whereas the introduction of new technologies requires changes to the programs and methodological support of medical and psychological rehabilitation.

Activities for the medical and psychological rehabilitation of wounded and traumatized combatants, conducted in the surgical and therapeutic clinics of the academy with the help of psychologists and medical psychologists, include the following:

- Psychological diagnostics (survey, questionnaire, and express examination).
- Group counseling and psychocorrection.
- Individual consultations with medical personnel and the relatives of combatants.
- Psychological support for combatants in the Rehabilitation and Educational Center aimed at providing psychological support to persons with signs of additive behavior, suicidal tendencies, and PTSD.
- Psychotherapy using biofeedback, eye tracking methods, etc.
- Cognitive behavioral therapy, gestalt therapy, and psychoanalysis.
- Training and conducting individual and group training in mental self-regulation.

If neurotic or psychotic symptoms are identified, patients consult psychiatrists and psychotherapists and prescribe psychopharmacological correction.

Currently, a system of medical and psychological rehabilitation of combatants at the hospital stage in military medical organizations of the Ministry of Defense is being actively improved.

## CONCLUSION

The results of the study focused on the comparison of some clinical and psychological consequences of injuries and wounds in combatants at the hospital stage of rehabilitation, revealing certain positive trends in the mental state of combatants (better health, mood, general

motivation, activity, and reduction in general and mental asthenia) at research stage 2 (in 2022) compared with those at stage 1 (2014).

Moreover, a significant number of combatants demonstrated negative psychological consequences of combat stress and physical and mental trauma in 2014 and 2022, which were comparable (15.9% and 17%, respectively). In the future, these personality changes and deformations can form the “combatant accentuation” and “chronic, irreversible personality changes” described by military psychiatrists.

To prevent the negative psychological consequences of combat stress and mental trauma, a system for providing early medical and psychological assistance at the hospital stage of rehabilitation of combatants with battle wounds and injuries is necessary. Currently, such a system of medical and psychological rehabilitation is being formed and tested at the academy.

## ADDITIONAL INFORMATION

**Funding:** The study received no external funding.

**Conflict of interest:** The authors declare no conflict of interest.

**Ethical considerations:** The study was approved by the local ethics committee of S.M. Kirov Military Medical Academy, Ministry of Defense of the Russian Federation.

**Author contributions:** All authors made significant contributions to the study and preparation of the article and read and approved the final version before publication.

## REFERENCES

1. Kryukov EV, Shamrey VK, eds. *Military psychiatry in the XXI century: modern problems and development prospects*. Saint Petersburg: SpetsLit Publ.; 2022. 367 p. (In Russ.)
2. Yusupov VV, Baurova NN, Chernyavsky EA, Yatmanov AN. Psychological features of combatants who received severe wounds. *Russian Journal of Humanistic Psychology*. 2021;8(3):48–56. (In Russ.)
3. Litvintsev SV, Snedkov EV, Reznik AM. *Combat trauma*. Moscow: Meditsina Publ.; 2017. 98 p.
4. Zelenina NV, Nazarov SS, Marchenko AA, et al. Features of adaptation after mental traumatic stress in military personnel performing special tasks. *Bulletin of the Russian Military Medical Academy*. 2018;3(63):153–158. (In Russ.)
5. Shanin YuN., ed. *Medical rehabilitation of the wounded and sick: a guide*. Saint Petersburg: SpetsLit Publ.; 1997. 958 p.
6. Yusupov VV, Kobryanova IV, Chermnyanin SV, et al. Goals and objectives of medical and psychological rehabilitation. In: *Medico-psychological rehabilitation: problems, trends, prospects*. Materials of the scientific-practical conference. Main Military Medical Directorate of the Russian Ministry of Defense; Federal State Institution “SKK “Krymsky” of the Ministry of Defense of Russia. Sevastopol; 2019. 2019. P. 90–93. (In Russ.)
7. Belevitin AB, ed. *Medical and psychological correction of specialists of “power” structures: a methodological guide*. Saint Petersburg: Aising Publ.; 2010. 268 p. (In Russ.)
8. Korzunin VA, Ziborova PA. An express method for assessing the state of socio-psychological adaptation and predicting the likelihood of developing maladjustment disorders and signs of PTSD in people who have experienced a real vital threat. In: Rybnikov VYu, Chermnyanin SV, eds. *Psychodiagnostic methods for identifying maladjustment disorders in the practice of clinical psychologists: a textbook*. Saint Petersburg: Pharmindex Publ.; 2009. P. 216–222. (In Russ.)
9. Maercker A, Schützwohl M, Solomon Z, eds. *Post-Traumatic Stress Disorder: A Lifespan Developmental Perspective*. Seattle: Hogrefe&Huber; 2008.
10. Ivanov DA, Rychka OV. Psychological and psychiatric support of military personnel in combat conditions. *Management and Personnel: psychology of management, sociotics and sociology*. 2016(7–8(163–164)); 34–47. (In Russ.)
11. Narov MYu, Semke VYa, Aksenov MM. Features of clinical correlations of acute and protracted reactions to stress. *Siberian Bulletin of Psychiatry and Narcology*. 2006(4 (43)):17–20. (In Russ.)
12. Belinsky AV, Golov YuS, Lyamin MV. The effectiveness of medical and psychological rehabilitation of combatants in a multidisciplinary hospital. In: Ushakov IB, Golov YuS, eds. *Pain stress: correction strategies*. Moscow: State Scientific Research Testing Institute of Military Medicine of the Ministry of Defense of the Russian Federation Publ. House; 2002. P. 127–134. (In Russ.)



## СПИСОК ЛИТЕРАТУРЫ

1. Военная психиатрия в XXI веке: современные проблемы и перспективы развития / Под ред. Е.В. Крюкова и В.К. Шамрея. СПб.: СпецЛит, 2022. 367 с.
2. Юсупов В.В., Баурова Н.Н., Чернявский Е.А., Ятманов А.Н. Психологические особенности комбатантов, получивших тяжелые ранения // Живая психология. 2021. Т. 8, № 3. С. 48–56.
3. Литвинцев С.В., Снедков Е.В., Резник А.М. Боевая психическая травма. М.: Медицина, 2017. 98 с.
4. Зеленина Н.В., Назаров С.С., Марченко А.А., и др. Особенности адаптации после психического травматического стресса у военнослужащих, выполнявших специальные задачи // Вестник Российской военно-медицинской академии. 2018. № 3(63). С. 153–158.
5. Медицинская реабилитация раненых и больных: руководство / Под ред. проф. Ю. Н. Шанина. СПб.: СпецЛит, 1997. 958 с.
6. Юсупов В.В., Кобрянова И.В., Чермянин С.В., и др. Цели и задачи медико-психологической реабилитации. В сб.: Медико-психологическая реабилитация: проблемы, тенденции, перспективы. Материалы науч.-практ. конф. Главное военно-медицинское управление Минобороны России; ФГУ «СКК «Крымский» Минобороны России. Севастополь, 2019 г. 2019. С. 90–93.
7. Медико-психологическая коррекция специалистов «силовых» структур: методическое пособие / Под ред. А.Б. Белевитина. СПб.: Айсинг, 2010. 268 с.
8. Корзунин В.А., Зиборова П.А. Экспресс-методика оценки состояния социально-психологической адаптации и прогноза вероятности развития дезадаптационных нарушений и признаков ПТСР у лиц, перенесших реальную витальную угрозу. В кн.: Психодиагностические методы выявления дезадаптационных нарушений в практике клинических психологов: учебное пособие / Под ред. проф. В.Ю. Рыбникова, проф. С.В. Чермянина. СПб.: Фарминдекс, 2009. С. 216–222.
9. Maercker A., Schützwohl M., Solomon Z., eds. Post-Traumatic Stress Disorder: A Lifespan Developmental Perspective. Seattle: Hogrefe&Huber, 2008.
10. Иванов Д.А., Рычка О.В. Психолого-психиатрическое сопровождение военнослужащих в боевых условиях // Менеджмент и кадры: психология управления, соционика и социология. 2016. № 7–8 (163–164). С. 34–47.
11. Наров М.Ю., Семке В.Я., Аксенов М.М. Особенности клинических соотношений острой и затяжной реакций на стресс // Сибирский вестник психиатрии и наркологии. 2006. № 4 (43). С. 17–20.
12. Белинский А.В., Голов Ю.С., Лямин М.В. Эффективность медико-психологической реабилитации участников боевых действий в условиях многопрофильного госпиталя. В сб.: Болевой стресс: стратегии коррекции / Под общ. ред. И.Б. Ушакова, Ю.С. Голова. М.: Гос. науч.-исслед. испытат. ин-т воен. медицины МО РФ, 2002. С. 127–134.

## AUTHORS' INFO

**Evgeniy V. Kryukov**, Academician of the Russian Academy of Sciences, M.D., D.Sc. (Medicine), Professor;  
ORCID: 0000-0002-8396-1936; Scopus Author ID: 57208311867;  
eLibrary SPIN: 3900-3441; Author ID: 879052;  
Researcher ID: AAO-9491-2020; e-mail: evgeniy.md@mail.ru

**Dmitriy V. Ovchinnikov**, M.D., Ph.D. (Medicine), Associate Professor; ORCID: 0000-0001-8408-5301;  
eLibrary SPIN: 5437-3457; Author ID: 634977;  
Scopus Author ID: 36185599800; Researcher ID: AGK-7796-2022;  
e-mail: dv.ovchinnikov-vma@yandex.ru

**Vladislav V. Yusupov**, M.D., D.Sc. (Medicine), Professor;  
ORCID: 0000-0002-5236-8419; Scopus Author ID: 57177317400;  
eLibrary SPIN: 9042-3320; Author ID: 787045;  
e-mail: vmed\_37@mail.ru

**Konstantin P. Golovko**, M.D., D.Sc. (Medicine);  
ORCID: 0000-0002-1584-1748; eLibrary SPIN: 2299-6153;  
Author ID: 299461; Researcher ID: C-6865-2017;  
e-mail: labws@mail.ru

**Natalya V. Zelenina**, Ph.D. (Biology), Associate Professor;  
ORCID: 0000-0002-8130-7690; Scopus Author ID: 6701602986;  
eLibrary SPIN: 1173-1255; Author ID: 326460;  
e-mail: zelnatvas@mail.ru

## ОБ АВТОРАХ

**Евгений Владимирович Крюков**, академик РАН, докт. мед. наук, профессор;  
ORCID: 0000-0002-8396-1936; Scopus Author ID: 57208311867;  
eLibrary SPIN: 3900-3441; Author ID: 879052;  
Researcher ID: AAO-9491-2020; e-mail: evgeniy.md@mail.ru

**Дмитрий Валерьевич Овчинников**, канд. мед. наук, доцент;  
ORCID: 0000-0001-8408-5301; eLibrary SPIN: 5437-3457;  
Author ID: 634977; Scopus Author ID: 36185599800;  
Researcher ID: AGK-7796-2022;  
e-mail: dv.ovchinnikov-vma@yandex.ru

**Владислав Викторович Юсупов**, докт. мед. наук, профессор;  
ORCID: 0000-0002-5236-8419; Scopus Author ID: 57177317400;  
eLibrary SPIN: 9042-3320; Author ID: 787045;  
e-mail: vmed\_37@mail.ru

**Константин Петрович Головко**, докт. мед. наук;  
ORCID: 0000-0002-1584-1748; eLibrary SPIN: 2299-6153;  
Author ID: 299461; Researcher ID: C-6865-2017;  
e-mail: labws@mail.ru

**Наталья Васильевна Зеленина**, канд. биол. наук, доцент;  
ORCID: 0000-0002-8130-7690; Scopus Author ID: 6701602986;  
eLibrary SPIN: 1173-1255; Author ID: 326460;  
e-mail: zelnatvas@mail.ru

## AUTHORS' INFO

**Vladimir A. Korzunin**, D.Sc. (Psychological), M.D.,  
Ph.D. (Medicine), Professor; ORCID: 0000-0001-7332-6771;  
eLibrary SPIN: 3172-2009; Author ID: 351048;  
e-mail: vakorzunin@rambler.ru

**\*Ivan I. Dorofeev**, M.D., Ph.D. (Medicine), Associate Professor;  
address: 6, Akademika Lebedeva str., Saint Peterburg, 194044,  
Russia; ORCID: 0009-0005-3195-3423; Scopus Author ID: 882071;  
eLibrary SPIN: 6068-7300; Author ID: 882071;  
e-mail: dorofeev.ivan@mail.ru

**Evgeniy A. Chernyavskiy**, M.D., major of medical service,  
adjunct; ORCID: 0000-0002-1097-2749;  
eLibrary SPIN: 9674-3636; Author ID: 873187;  
e-mail: cherskij@list.ru

\* Corresponding author / Автор, ответственный за переписку

## ОБ АВТОРАХ

**Владимир Александрович Корзунин**, докт. психол. наук,  
канд. мед. наук, профессор;  
ORCID: 0000-0001-7332-6771; eLibrary SPIN: 3172-2009;  
Author ID: 351048; e-mail: vakorzunin@rambler.ru

**\*Иван Иванович Дорофеев**, канд. мед. наук, доцент;  
адрес: Россия, 194044, г. Санкт-Петербург, ул. Академика  
Лебедева, д. 6; ORCID: 0009-0005-3195-3423;  
Scopus Author ID: 882071; eLibrary SPIN: 6068-7300;  
Author ID: 882071; e-mail: dorofeev.ivan@mail.ru

**Евгений Александрович Чернявский**, майор медицинской  
службы, адъюнкт; ORCID: 0000-0002-1097-2749;  
eLibrary SPIN: 9674-3636; Author ID: 873187;  
e-mail: cherskij@list.ru