

Socio-psychological causes and consequences of combat stress in armed conflict participants

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ABSTRACT

Aim: The aim is to determine the causes and consequences of combat stress in armed conflict participants.

Materials and Methods: The research involved 109 service members (under 30) who participated in the Russian-Ukrainian war in 2022-2024 on a rotational basis for different durations (from 4 to 18 months). Research methods included theoretical analysis and generalization of literary sources, interviews, questionnaires, and statistical methods.

Results: The causes of combat stress in service members participating in military operations have been identified. It has been established that during the first rotation, service members most often suffer from being in conditions of constant threats (71.6%), experience fear of death and injury (70.6%), fear of killing a person (67.9%), loud sounds (63.3%) and lack of sleep (52.3%). With the acquisition of combat experience, the frequency of these factors decreases. The research revealed the consequences of combat stress, which worsen depending on the duration of stay in a combat situation: increased aggressiveness (71.1%), anxiety, fear (68.4%), sleep problems (31.6%), cognitive impairment (28.9%), and psychosomatic disorders (26.3%).

Conclusions: Ensuring military personnel's access to qualified psychological assistance, creating a support and rehabilitation program, and raising public awareness of the problems faced by service members participating in combat operations will reduce the negative effects of combat stress and help improve the quality of life of military personnel and their families.

KEY WORDS: health, stress, combat stress, military personnel, armed conflict participants, war

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INTRODUCTION

The realities of the current Russian-Ukrainian war have forced many scientists to turn to stress as one of the main factors in the battle of attrition [1, 2]. Modern psychological science has not stayed away from this issue. Researchers note that stress is the main factor that affects the quality of people's lives and is closely related to both mental health and many physical health problems [3, 4]. A study on the causes and consequences of combat stress due to the full-scale invasion of Ukraine by the Russian federation is particularly relevant. However, despite the breadth of interest in the stress problem, insufficient research substantiates the relevant theories.

The analysis of scientific sources on various aspects of combat stress showed that much research has been conducted to address this problem. This is because an increase in local and regional armed conflicts around the globe has characterized recent decades [5]. These conflicts have diverse localizations and durations and

differences in strategic goals, intensity of hostilities, nature, and specifics of military operations. Unfortunately, Ukraine has faced such large-scale armed aggression, which has been going on for three years in a row. Hundreds of thousands of service members from both sides are involved in the fighting. Armed conflict participants experience the effects of combat stress for a long time [6]. The circumstances of service members' stay in conditions of significant psychological and physical stress with the need to make optimal decisions in a limited time make high demands on the mental health of service members, values, and motivation, as well as on their psychological and physical qualities and adequacy of behavior in a combat situation [7]. Despite the high motivation to protect the territorial integrity and sovereignty of Ukraine, to improve military professional and psychological training, some service members have mental health problems, which are manifested by the development of acute stress reactions, combat

and chronic stress and post-traumatic stress disorder (PTSD), and, as a result, an aggravation of a complex of problems at the interpersonal and social levels, and a deterioration in physical health.

Studies conducted over the past thirty years [8, 9, 10] have revealed the significance of the impact of combat stress on the psyche of a serviceman. Such factors as combat situation can influence the development of the consequences of combat stress, individual psychological characteristics of a person, the level of professional and psychological preparation of a combatant for combat, the nature, and level of motivation of a service member prediction of the impact of combat stress factors on the future life of servicemen in a “peaceful environment,” etc. [11]. However, this list of factors and their content, taking into account the realities of today, need to be clarified and supplemented in light of the experience of countering Russian armed aggression by the security and defense forces of Ukraine, which has led to the relevance of the research of this problem.

AIM

The aim is to determine the causes and consequences of combat stress in armed conflict participants.

MATERIALS AND METHODS

The research involved 109 male service members of Bohdan Khmelnytskyi National Academy of the State Border Guard Service of Ukraine (Khmelnyskyi, Ukraine) of the first and second age groups (under 25 and 30, respectively) who participated in the Russian war in 2022-2024 on a rotational basis for various periods (from 4 to 18 months). Among the service members interviewed, 42 were privates and non-commissioned officers, and 67 were officers.

To achieve the research aim, we used the following scientific methods: theoretical analysis and generalization of literary sources, interviews, questionnaires, and statistical methods. The method of theoretical analysis and generalization of literary sources was used to conduct an analytical review of scientific sources on the outlined range of issues (18 sources from PubMed, Scopus, Web of Science, Index Copernicus and other databases were analyzed). Interviews with armed conflict participants were conducted orally to determine the main factors, in their opinion, that cause combat stress in service members and the consequences of combat stress that they experience after returning from rotations. The questionnaire method involved surveying service members using a questionnaire developed by the author’s team. The questionnaire

contains 20 questions, that are aimed at studying the causes and consequences of combat stress in armed conflict participants.

The results of the survey revealed the frequency of combat stress symptoms experienced by service members during participation in military operations, depending on combat experience (during the first and second or subsequent rotations), as well as the consequences of combat stress depending on the duration of stay in a combat situation (up to 6 months or 12 months or more). The survey also asked service members to identify the factors that most influence the occurrence of combat stress, in their opinion. The factor that they considered the most traumatic was assigned the 8th rank, slightly less traumatic – the 7th rank, and so on, down to the least traumatic, which was assigned the 1st rank. Based on the results of the survey, we calculated the standardized ranks of combat stress factors and built their rating depending on the combat experience of the respondents (number of rotations and their duration) and depending on the category of service members (private, non-commissioned officer or officer) and, accordingly, the combat tasks performed during the rotations. The questionnaire was anonymous, which helped to increase the accuracy of the formulated conclusions. The questionnaire was assessed by the experts in this field (1 professor and 3 associate professors) and was approved by the Academic Council of Bohdan Khmelnytskyi National Academy of the State Border Guard Service of Ukraine (Khmelnyskyi, Ukraine) (Protocol No. 16 dated 19.08.2022). Consent to voluntary participation in the survey was obtained from all respondents involved in the study. Data collection, processing, and analysis were performed on a personal computer using MS Excel, a software package that can use statistical data processing methods. The procedure for organizing the study and the topic of the article were previously agreed with the committee on compliance with Academic Integrity and Ethics of the Bohdan Khmelnytskyi National Academy of the State Border Guard Service of Ukraine. Also this study followed the regulations of the World Medical Association Declaration of Helsinki. Informed consent was received from all participants who took part in this study.

RESULTS

Interviews with service members who participated in combat operations revealed that the psyche of a serviceman in combat conditions is affected by many factors that can lead to a pre-pathological destabilizing state of combat stress, including fear of death or injury, fear of killing a person (even if it is the enemy), being

Table 1. The frequency of combat stress factors experienced by service members during combat operations depending on their combat experience (n=109, %)

Combat stress factors	Frequency of factors manifestation			
	Often	Sometimes	Very rarely	Never
During the 1st rotation				
Fear of death and injury	70.6	21.1	8.3	0
Fear of killing a human enemy	67.9	17.4	12.8	1.9
Lack of support from commanders	12.8	24.8	25.7	36.7
Insufficient amount of sleep	52.3	33.0	13.8	0.9
Insufficient resources	10.1	14.7	30.3	44.9
Unfavorable climatic and geographical conditions	31.2	31.2	23.9	13.7
Living under constant threats	71.6	14.7	11.0	2.7
Loud sounds	63.3	25.7	11.0	0
During the 2nd and subsequent rotations				
Fear of death and injury	59.6	17.4	15.6	7.4
Fear of killing a human enemy	26.7	16.5	31.2	15.6
Lack of support from commanders	35.8	29.4	14.7	20.1
Insufficient amount of sleep	43.1	28.4	23.9	4.6
Insufficient resources	13.8	19.3	29.4	37.5
Unfavorable climatic and geographical conditions	33.0	29.4	26.6	11.0
Living under constant threats	56.9	17.4	16.5	9.2
Loud sounds	54.1	32.1	10.1	3.7

Table 2. Rating of combat stress factors of armed conflict participants (n = 109), depending on the category of service members and their combat experience, points

Combat stress factors	Privates and non-commissioned officers (n = 42)		Officers (n = 67)	
	During the 1st rotation	During the 2nd rotation	During the 1st rotation	During the 2nd rotation
Fear of death and injury	8	5	8	8
Fear of killing a human enemy	7	2	6	7
Lack of support from commanders	3	8	1	2
Insufficient amount of sleep	5	7	5	6
Insufficient resources	1	6	2	1
Unfavorable climatic and geographical conditions	2	4	3	4
Living under constant threats	6	3	7	5
Loud sounds	4	1	4	3

in conditions of the constant threat to life and health, unfavorable climatic and geographical conditions, lack of rest (sleep), insufficient resources, constant exposure to loud sounds, inadequate support from commanders. Let's look at each factor identified by armed conflict participants. *Fear of dying or being injured*, in other words, the fear of losing bodily integrity or seeing others seriously injured or killed. The human brain has centers for assessing the types of threats, so the stress level will be much higher if another person poses a threat. Thus, a service member may be most afraid of being

killed or seeing torture, killing of prisoners or civilians, or being injured by the actions of another person. Also, by default, every human being has an evolutionarily necessary socially oriented attitude of "*thou shalt not kill thy fellow man*," which is intended for the survival of the population of the human species in intraspecific forms of aggression. Given this, most people without serious military moral and psychological training are almost incapable of killing an "enemy person." This kind of act creates very strong stress. At the same time, psychological pressure in terms of the complexity of moral and

ethical dilemmas: between the obligation to execute a combat order, which may contradict personal moral principles, and the need to make quick decisions in conditions of uncertainty, most of which can have lethal consequences for the enemy, accelerates the mental exhaustion of a fighter. In addition, the complexity and danger of combat missions, limited by the amount of intelligence information, require a combatant to concentrate a lot of mental, emotional, purposeful, and physical effort to solve them.

It has also been established that *loud sounds* are a factor in combat stress. It is well known that humans, as a biological species, have historically evolved in an environment where loud sound was a priori perceived as dangerous. It was a signal to run away, to save your life as quickly as possible. The modern type of general military combat is full of loud sounds, ranging from unmanned systems, drones, airplanes, helicopters, tank shots, artillery systems, explosions of shells, mines, and small arms to the screams of wounded soldiers. *Long periods spent in an environment of constant threats* to the life and health of a serviceman due to the time required to move out, deploy, wait at combat positions, and regroup within the unit to other positions close to the enemy. This leads to the development of mental deprivation states caused by the inability to satisfy important life needs for a long time (change from a civilian to a military lifestyle, separation from loved ones, etc.). In addition, a state of frustration can arise when faced with the realization of objective insurmountable difficulties (inability to defeat the enemy for objective reasons of its better technical equipment and training) or subjective experiences of internal psychological conflict (prohibitions to defeat the enemy with actual capabilities, but due to the lack of such orders from the command). Peculiarities of *unfavorable climatic and geographical conditions* such as extreme heat, cold, wind, snow, or other precipitation. Unusual geographical conditions and a different mentality of the local population can significantly complicate the process of performing combat missions and increase the level of stress. *Insufficient rest and sleep time*, even if available, leads to physical and psycho-emotional exhaustion. Armed conflict participants are often forced to perform combat missions for long periods without the possibility of adequate rest, and the nervous system is in a prolonged state of excitement. *Lack of basic resources to maintain vital forces*, such as water and food, following the specifics of the combatant's physical or mental activity. We have also identified another group of factors contributing to combat stress: the *lack of proper support from the command*. The directive, dry style of communication between commanders and subordinates, the

remoteness of headquarters and command posts from the line of contact in the context of the combatant's actual location in the combat zone, and insufficient moral support from the leadership, or sometimes miscalculations in the planning of operations, can increase the level of helplessness and isolation of an armed conflict participant in the performance of their duties. Also, the nature of combat missions to repel an enemy offensive, rather than conducting active offensive operations, often causes frustration due to the mismatch between reality and the combatant's expectations.

The study results of the frequency of armed conflict participants' experience of the above factors of combat stress, depending on combat experience, are presented in Table 1.

The results presented in Table I show that during the first rotation, service members most often experience the following combat stress factors: being under constant threat – 71.6 %, fear of death and injury – 70.6 %, fear of killing a person – 67.9 %, loud sounds – 63.3 %, and lack of sleep – 52.3 %. With the acquisition of combat experience, during the second and subsequent rotations to the combat zone, the frequency of combat stress factors most often experienced by service members decreased significantly: fear of death and injury – by 11.0 %, being under constant threat – by 14.7 %, fear of killing a person – by 41.2 %, loud sounds – by 9.2 %, and lack of sleep – by 9.2 %. Instead, the frequency of such a factor as lack of support from commanders increased by 23.0 %.

Studying service members' opinions about the factors that most influence the occurrence of combat stress, we calculated the standardized ranks of combat stress factors and built their ratings depending on the combat experience of the respondents (number of rotations) and the category of service members (private, non-commissioned officer, or officer) (Table 2).

It has been found that the rating of combat stress factors has significant differences between service members with the rank of privates and non-commissioned officers and officers, especially after the second rotation. Thus, during the 1st rotation, the first place (8 rating points) for privates and non-commissioned officers was taken by the factor referred to as "fear of death and injury," the second – "fear of killing a person," the third – "being in conditions of constant threats"; among officers – the first place – "fear of death and injury," the second – "being in conditions of constant threats," the third – "fear of killing a person". During the 2nd rotation, the first place for privates and non-commissioned officers was taken by the factor "lack of support from commanders," the second – "lack of sleep," the third – was "lack of resources"; for officers – the first place was

Table 3. The frequency of manifestation of combat stress effects in service members depending on the duration of participation in combat operations (n = 109)

Consequences of combat stress	Frequency of factors manifestation			
	Often	Sometimes	Very rarely	Never
Rotation duration – up to 6 months (n = 71)				
Increased anxiety, fear	19.7	39.4	28.2	12.7
Depression	8.5	11.3	45.1	35.1
Suicidal thoughts	0	11.3	12.7	76.0
The onset of alcohol dependence	0	5.6	16.9	77.5
Increased aggressiveness	32.4	42.3	18.3	7.0
Violation of relations in the team	9.8	25.4	19.7	45.1
Violation of family relationships	2.8	8.4	18.3	70.5
Problems with sleep	12.7	21.1	39.4	26.8
Psychosomatic disorders	7.1	15.5	29.6	47.8
Cognitive impairment	4.2	8.4	18.3	69.1
Rotation duration – 12 months or more (n = 38)				
Increased anxiety, fear	68.4	21.1	10.5	0
Depression	28.9	39.5	21.1	10.5
Suicidal thoughts	7.9	15.7	18.4	58.0
The onset of alcohol dependence	18.4	42.1	26.3	13.2
Increased aggressiveness	71.1	15.7	7.9	5.3
Violation of relations in the team	23.7	39.5	26.3	10.5
Violation of family relationships	7.9	18.4	21.1	52.6
Problems with sleep	31.6	50.0	15.8	2.6
Psychosomatic disorders	26.3	39.5	28.9	5.3
Cognitive impairment	28.9	34.2	26.3	10.6

taken by “fear of death and injury,” the second – “fear of killing a person”, the third – “lack of sleep”. It is important to add that for privates and non-commissioned officers during the second rotation, such factors as “being under constant threat,” “fear of killing a person” and “loud sounds” received the lowest number of rating points and, accordingly, are the least significant in the formation of combat stress. Among officers, the lowest number of points corresponds to such factors as “loud sounds,” “lack of support from commanders,” and “insufficient resources.” Thus, with the acquisition of combat experience and depending on the combat tasks that servicemen have to perform in a combat environment, the strength of the impact of a particular combat stress factor changes.

The survey also revealed the consequences of combat stress on service members, depending on the duration of their stay in a combat situation (Table 3).

It has been found that after a rotation lasting up to 6 months, service members most often show such consequences of combat stress as increased aggressiveness (32.4 %), anxiety and fear (19.7 %), and sleep problems

(12.7 %). However, after rotations lasting 12 months or more, the effects of combat stress are more pronounced: increased aggressiveness (71.1 %), increased anxiety, fear (68.4 %), sleep problems (31.6 %), cognitive disorders (memory problems, decreased concentration – 28.9 %), depression (28.9 %), psychosomatic disorders (cardiovascular diseases, digestive system problems, headaches, fatigue, etc. – 26.3 %). It should be noted that the number of armed conflict participants with frequent signs of alcohol dependence (18.4 %), disruption of team and family relationships (23.7 %), and suicidal thoughts (7.9 %) has increased.

DISCUSSION

Significant physical and mental health problems occurred among U.S. and coalition forces service members during and after combat operations in Iraq and Afghanistan [12, 13]. Mental disorders in combatants were manifested in persistent performance disorders, fatigue, sleep problems (depth, quality, and duration), headaches, convulsive disorders, vomiting, tachycardia,

panic attacks, and other reactions associated with the impact of various stressors in the combat environment, as well as the emergence of more complex and severe mental disorders such as PTSD and depression [14].

The results of the analysis of theoretical and methodological approaches to the study of the socio-psychological causes and consequences of combat stress on service members are highlighted in the works of many scientists [3, 5, 8, 15], but these studies were conducted before the Russian aggressor's full-scale invasion of Ukraine. After the outbreak of the Great War, the scale of this problem has increased significantly, and both the factors of combat stress and their consequences need to be clarified. Thus, we generally agree with the conclusions of scientists [7, 16] regarding the lack of research on combat stress and its impact on the personality of a serviceman. Firstly, there are many different points of view on the nature of this phenomenon, which makes it difficult to coordinate approaches to its study. Secondly, the complexity of conducting research in combat and clinical settings limits the possibility of obtaining a complete picture of what is happening and the reliability of the data since most of the material is a reproduction of the memories of armed conflict participants. Thirdly, the lack of specialized tools for psychodiagnosis of combat stress in real combat environments significantly complicates its study and diagnosis [17]. Given these limitations, we analyzed the objective and subjective groups of factors of the combat environment in which a service member may experience the effects of combat stress. It has been found that the frequency of combat stress factors significantly depends on the combat experience of service members.

In general, understanding the essence of the term "combat stress," which we interpret as a short-term, multi-level process of intensive attempts of adaptive activity of the serviceman's body in response to extreme conditions of the combat environment, accompanied by a significant strain on biological and psychological mechanisms of self-regulation, allows us to correct the consequences and find ways to avoid negative consequences.

It has been found that combat stress's effects on service members vary in intensity from mild to severe. As the stressors increase, the manifestations of combat stress can become more pronounced and lead to serious social and psychological consequences. Service members may face problems in interpersonal relationships, including in the family, which often leads to conflicts and divorces. The lack of adequate social support and understanding of society can also exacerbate these problems, causing isolation and alienation.

In its more severe stages, combat stress can lead to serious mental disorders, such as post-traumatic stress disorder, depression, and suicidal tendencies. The loss of comrades-in-arms and the experience of personal loss can cause deep emotional trauma that affects the ability of service members to perform their duties and adapt to civilian life [14, 15, 18].

Particular attention should be paid to combat stress's social and psychological aspects, such as changes in public opinion and perceptions of the military's role in society. Public support and positive attitudes toward veterans can be important in their rehabilitation and integration into civilian life. At the same time, negative attitudes or indifference can increase feelings of isolation and hopelessness.

CONCLUSIONS

The article has identified the social and psychological causes of combat stress in armed conflict participants. It has been found that during the first rotation, service members most often suffer from being in conditions of constant threats (71.6 %), experience fear of death and injury (70.6 %), fear of killing a person (67.9 %), loud sounds (63.3 %), and lack of sleep (52.3 %). With the acquisition of combat experience, the frequency of combat stress factors significantly decreases. Based on the study of combat stress factors, their rating depends on combat experience and the service members' category.

The consequences of combat stress in service members, depending on the duration of their stay in a combat situation, have been revealed: after a rotation of up to 6 months, service members most often have increased aggression (32.4 %), anxiety and fear (19.7 %), and sleep problems (12.7 %); after rotations of 12 months or more, they have increased aggression (71.1 %), anxiety, fear (68.4 %), sleep problems (31.6 %), cognitive impairment (28.9 %), depression (28.9 %), and psychosomatic disorders (26.3 %).

Combat stress effects are multifaceted and require a comprehensive approach to studying and overcoming them. Service members must be provided with access to qualified psychological assistance, support, and rehabilitation programs must be created, and public awareness of the problems faced by armed conflict participants must be raised. This will help reduce the negative effects of combat stress and improve service members' and their families' quality of life.

PROSPECTS FOR FURTHER RESEARCH

It is planned to substantiate a program of rehabilitation measures to reduce the effects of combat stress in armed conflict participants.

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CONFLICT OF INTEREST

The Authors declare no conflict of interest

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