

Dynamics of components of physical and mental health of law enforcement officers during the period of martial law

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ABSTRACT


Aim: To investigate the dynamics of law enforcement officers' physical and mental health components while performing their duties during the war in Ukraine.

Materials and Methods: The research, which was conducted in 2022-2024, involved 114 law enforcement officers (male) from the Kharkiv oblast (Ukraine) of different ages: under 30 (n = 35), under 40 (n = 41), over 40 (n = 38). To test law enforcement officers' physical and mental health indicators, we used 3 methods: 1) "Fatigue-Monotony-Oversaturation-Stress"; 2) "Well-being-Activity-Mood"; 3) "Assessment of Nervous and Emotional Stress"

Results: The negative dynamics of most components of the physical and mental health of law enforcement officers of all three groups while performing their duties during the martial law were revealed. The most pronounced significant changes occurred in such components as "Fatigue", "Oversaturation", "Stress", "Well-being", "Mood", "Nervous and Emotional Stress". The most pronounced negative changes in most components occurred in law enforcement officers over 40 years old, which is due to both the age characteristics of the subjects and their length of service.

Conclusions: The research confirms the high complexity and extremity of law enforcement officers' service activities during the martial law, as well as the high requirements for law enforcement officers' readiness to perform tasks in the context of a significant expansion of the National Police's powers. The results obtained also necessitate the search for effective ways to preserve and maintain the physical and mental health of law enforcement officers.

KEY WORDS: physical health, mental health, law enforcement officers, police, martial law, war

Wiad Lek. 2024;77(6):1174-1180. doi: 10.36740/WLek202406110 

INTRODUCTION

The National Police of Ukraine is a state law enforcement agency, which is designed to protect human rights and freedoms, combat crime and maintain public order and public safety. The tasks of the National Police are: ensuring public safety and public order; protecting and defending human rights and freedoms, as well as the interests of society and the state; combating crime; providing, within the limits established by law, assistance services to persons who, for personal, economic, social reasons or as a result of emergencies, need such assistance [1]. With the introduction of martial law in Ukraine on February 24, 2022, the powers of the National Police were expanded to strengthen necessary and legitimate security measures [2]. Thus, the legal regime of martial law provides for the following additional law enforcement measures: enhanced protection of public order and security; combating sabotage and reconnaissance forces; protection of strategically important facilities and vital communications; ensuring the interaction of territorial defense entities; facilitating

the activities of the military administration, courts, prosecutors, judicial authorities during the period of martial law; escorting persons detained on suspicion of committing a criminal offense, taken into custody, accused or sentenced to imprisonment, as well as guarding them in the courtroom; apprehending in detention centers of persons arrested for committing criminal or administrative offenses, persons subject to detention as a preventive measure, persons subject to administrative arrest, as well as accused and convicted persons; operational demining: detection, neutralization and destruction of explosive devices; technical and forensic support for the inspection of the scene, including those related to fires, and special explosive works in the event of explosions, reports of suspicious explosive devices, threats of explosion, activities during curfew and service at checkpoints, in conditions where active hostilities are taking place (as part of the process of de-occupation of territories); evacuation of Ukrainian citizens from dangerous areas, sending humanitarian aid to areas where active hostilities are taking place,

etc. [3, 4]. In addition, police officers were given the right to use coercive measures against persons involved in armed aggression against Ukraine without taking into account the established requirements and prohibitions on the use of physical force, weapons, etc. [1, 5]. All of the above indicates that the introduction of the martial law regime has significantly increased the requirements for the quality of law enforcement and, accordingly, for the professional psychophysical readiness of law enforcement officers to perform their duties in a toughened environment. According to many scientists [6, 7], the intense activities of law enforcement officers during martial law, as well as several negative factors that accompany it, lead to a deterioration in both the physical and mental health components of law enforcement officers. This is reflected in the functioning of the cardiovascular, respiratory, endocrine, digestive, and nervous systems of law enforcement officers; many show signs of mental disorders (aggression, irritability, increased anxiety, emotional exhaustion, deterioration of relationships with colleagues, family, and others), a decrease in mental and physical working capacity, and, as a result, a decline in the effectiveness of professional and service tasks [8, 9]. Therefore, the research on the dynamics of law enforcement officers' physical and mental health components while performing their duties during the war in Ukraine is relevant to substantiate further directions for ensuring and maintaining both the physical and mental health of law enforcement officers, as well as preventing the negative impact of factors of service activities during the legal regime of martial law.

AIM

The aim is to investigate the dynamics of law enforcement officers' physical and mental health components while performing their duties during the war in Ukraine.

MATERIALS AND METHODS

The research was conducted at the Department of Sociology and Psychology of Kharkiv National University of Internal Affairs (Kharkiv, Ukraine) in 2022-2024. The research involved 114 law enforcement officers (men) of different ages who performed their service duties in the Kharkiv oblast during the legal regime of martial law: under 30 years old (group a, $n = 35$), under 40 years old (group b, $n = 41$), over 40 years old (group c, $n = 38$). The study of law enforcement officers' physical and mental health indicators was conducted in two stages (during the advanced training courses at Kharkiv National University of Internal Affairs): the first stage – April-May

2022, and the second – April-May 2024. During the war, all law enforcement officers performed their duties in practical units of the National Police.

To achieve the purpose of the research, we used the following methods: theoretical (analysis, synthesis, and generalization), empirical (pedagogical observation, testing of physical and mental health indicators), and statistical (sampling method). To test law enforcement officers' physical and mental health indicators, we used 3 methods: 1) "Fatigue-Monotony-Oversaturation-Stress"; 2) "Well-being-Activity-Mood"; 3) "Assessment of Nervous and Emotional Stress" [10, 11].

The Fatigue-Monotony-Oversaturation-Stress method is an adapted version of the German BMS II questionnaire and is designed to assess the severity of the four components of the current functional state of law enforcement officers that are manifested during their service activities. The method contains 40 statements that need to be evaluated on a 4-point scale: rarely – 1 point, sometimes – 2 points, often – 3 points, almost always – 4 points. The results are processed by calculating four coefficients (fatigue coefficient (Fc), monotony coefficient (Mc), oversaturation coefficient (Oc), and stress coefficient (Sc)). If the value of any coefficient is 18 points or less, the component under study is not expressed; 19-29 points – moderately expressed; 30 points and more – strongly expressed.

The method referred to as "Well-being-Activity-Mood" is designed to quickly assess such functional states of law enforcement officers as well-being, activity, and mood. The respondent had to correlate his or her state with several signs on a multi-stage scale. The scale consists of indices (3 2 1 0 1 2 3) and is arranged between thirty pairs of words (ten for each state) of opposite meanings, which reflect mobility, speed, and pace of functions (activity), strength, health, fatigue (well-being), and characteristics of the emotional state (mood). When processing the data, the respondents' scores were recorded as follows: index 3, which corresponds to poor health, low activity, and low mood, is taken as 1 point; the next index 2 is taken as 2 points; index 1 is taken as 3 points, and so on until index 3 on the opposite side of the scale, which is taken as 7 points. For each functional state, arithmetic averages were calculated and evaluated as follows: if the average score was from 1 to 3 points, the law enforcement officer's state was considered low; 4, 5 – average; 6, 7 – high.

The method referred to as "Assessment of Nervous and Emotional Stress" contains signs of nervous and emotional stress based on clinical observations and includes 30 characteristics of this state, divided into three degrees of severity (a – low degree (complete absence), b – average degree, c – high degree). The

Table 1. Results of assessing law enforcement officers' physical and mental health components using the "Fatigue-Monotony-Oversaturation-Stress" method (n = 114, in points)

Components	Groups (n)	Years of study		Δ	t; p
		2022	2024		
Fatigue	a (n=35)	23.7±0.38	25.4±0.41	1.7	3.04; ≤0.01
	b (n=41)	27.2±0.33	29.4±0.36	2.2	4.50; ≤0.001
	c (n=38)	28.8±0.35	31.2±0.37	2.4	4.71; ≤0.001
Monotony	a (n=35)	17.3±0.27	17.7±0.29	0.4	1.01; ≥0.05
	b (n=41)	16.8±0.26	17.4±0.27	0.6	1.60; ≥0.05
	c (n=38)	17.5±0.30	17.8±0.29	0.3	0.72; ≥0.05
Oversaturation	a (n=35)	22.3±0.32	25.7±0.35	3.4	7.17; ≤0.001
	b (n=41)	21.8±0.29	25.3±0.31	3.5	8.24; ≤0.001
	c (n=38)	23.2±0.31	27.1±0.34	3.9	8.48; ≤0.001
Stress	a (n=35)	31.2±0.40	34.1±0.41	2.9	5.06; ≤0.001
	b (n=41)	30.6±0.35	32.9±0.37	2.3	4.52; ≤0.001
	c (n=38)	31.3±0.37	33.2±0.39	1.9	3.53; ≤0.001

Note: n – the number of law enforcement officers; Δ – the difference between the indicators for 2022 and 2024; t – the value of the Student's t-test; p – the confidence interval.

characteristics include physical discomfort; pain; muscle tone; coordination of movements; amount of motor activity; self-assessment of the cardiovascular system; gastrointestinal tract; respiratory system; sweating and skin rashes; sleep patterns; state of the will; peculiarities of mental processes (memory, attention, thinking); intellectual working capacity; mental discomfort, etc. By choosing one of the three options (a, b, c), law enforcement officers assessed their current state. The data is processed by summing the scores: for answers a – 1 point, b – 2 points, c – 3 points. The range from 30 to 50 points characterizes a low level of nervous and emotional stress, 51-70 points – average; from 71 to 90 points – high.

The significance of the difference between the studied indicators of law enforcement officers was determined by means of Student's t-test. The statistical significance was set at $p < 0.05$. All statistical analyses were performed with the SPSS software, adapted to medical and biological researches. This research was carried out in accordance with the requirements of the Regulations on Academic Integrity of the Kharkiv National University of Internal Affairs. This research also followed the regulations of the World Medical Association Declaration of Helsinki. Informed consent was received from all law enforcement officers who took part in this research.

RESULTS

The dynamics of law enforcement officers' physical and mental health components according to the "Fa-

tigue-Monotony-Oversaturation-Stress" method are presented in Table 1.

Fatigue is a functional state of the body caused by intense or prolonged activity, accompanied by a decrease in working capacity and deterioration in the quality of activity. Thus, according to the component referred to as "Fatigue", law enforcement officers of all three groups showed a significant deterioration of indicators by 1.7-2.4 points, which confirms the increase in the complexity of service activities during the legal regime of martial law. The greatest changes in the "Fatigue" component can be seen in law enforcement officers over 40 years old. At the same time, in all three groups in 2022 and groups a and b in 2024, this component is moderately pronounced, and in group c in 2024 it is highly pronounced, which can be explained by the age characteristics of the subjects. Monotony is a functional state of the body that occurs as a result of monotonous activity and is accompanied by a decrease in tone, and control, deterioration of memory, and attention, and decreased interest in work. According to the "Monotony" component, the indicators of the subjects of all three groups have not changed significantly during the war and are not pronounced at all stages of the research, which is explained by the diversity of tasks of law enforcement officers of practical police units during the war. Oversaturation is a condition that results from intense and complex activities, which can also lead to the search for ways to change activities. The "Oversaturation" component shows a significant deterioration in the indicators of law enforcement officers of all three groups by 3.4-3.9 points, which suggests the complexity and extremity of law enforcement activities in the legal

Table 2. Results of assessing law enforcement officers' physical and mental health components using the "Well-being-Activity-Mood" method (n = 114, in points)

Components	Groups (n)	Years of study		Δ	t; p
		2022	2024		
Well-being	a (n=35)	6.5±0.17	5.6±0.18	0.9	3.64; ≤0.001
	b (n=41)	6.2±0.14	5.1±0.16	1.1	5.17; ≤0.001
	c (n=38)	5.8±0.16	4.3±0.17	1.5	6.43; ≤0.001
Activity	a (n=35)	6.7±0.18	5.9±0.19	0.8	3.06; ≤0.01
	b (n=41)	6.5±0.15	5.6±0.16	0.9	4.10; ≤0.001
	c (n=38)	6.1±0.17	4.9±0.18	1.2	4.85; ≤0.001
Mood	a (n=35)	4.2±0.14	3.3±0.15	0.9	4.39; ≤0.001
	b (n=41)	4.6±0.13	3.5±0.14	1.1	5.76; ≤0.001
	c (n=38)	4.1±0.15	2.9±0.16	1.2	5.48; ≤0.001

Note: n – the number of law enforcement officers; Δ – the difference between the indicators for 2022 and 2024; t – the value of the Student's t-test; p – the confidence interval.

Table 3. Results of assessing law enforcement officers' physical and mental health components using the "Assessment of Nervous and Emotional Stress" method (n = 114, in points)

Components	Groups (n)	Years of study		Δ	t; p
		2022	2024		
Nervous and Emotional Stress	a (n=35)	53.7±1.81	64.2±1.87	10.5	4.03; ≤0.001
	b (n=41)	51.9±1.57	61.8±1.65	9.9	4.35; ≤0.001
	c (n=38)	52.4±1.63	60.9±1.71	8.5	3.60; ≤0.001

Note: n – the number of law enforcement officers; Δ – the difference between the indicators for 2022 and 2024; t – the value of the Student's t-test; p – the confidence interval.

regime of martial law. At the same time, the oversaturation indicators correspond to a moderate level of severity in all three groups, both in 2022 and 2024. Stress is a functional state of the body that occurs as a result of the negative impact of activity factors on mental functions, nervous processes, and the activity of its organs and systems. In the "Stress" component, all groups of respondents showed a significant deterioration in their scores by 1.9-2.9 points. Moreover, in both 2022 and 2024, the level of stress was highly pronounced in all groups, and no significant difference was found between the scores of respondents of different ages, which confirms our previous conclusions about the complexity of the conditions of service of law enforcement officers of different ages during the war.

The study of the components of physical and mental health of law enforcement officers using the "Well-being-Activity-Mood" method allows us to conclude that all three states in all age groups of law enforcement officers have significantly deteriorated over the two years of war (Table 2). Thus, according to the "Well-being" component, which was assessed by such characteristics as a sense of strength, working capacity, health, freshness, fatigue level, endurance, cheerfulness, etc., the indicators of the group a employees deteriorated by 0.9 points, group b – by 1.1 points, group c – by 1.5 points. It was found that

in 2022, the "Well-being" of law enforcement officers of groups a and b corresponded to a high level, and of group c – to an average level, while in 2024, all groups recorded an average level.

The component referred to as "Activity" is characterized by such features as mobility, activity, speed, enthusiasm, excitement, attentiveness, etc. Thus, the value of deterioration in this component is 0.8 points in group a, 0.9 points in group b, and 1.2 points in group c. The level of the "Activity" component in all groups deteriorated from high to average. In the "Mood" component, which is characterized by happiness, cheerfulness, optimism, calmness, hope, and satisfaction, the scores significantly deteriorated in all groups by 0.9-1.2 points. At the same time, the level of this component dropped from average in 2022 to low in 2024. It has been found that the most pronounced negative changes in the "Well-being", "Activity", and "Mood" components occurred in law enforcement officers of group c (aged 40 and older). This is due to age-related changes in the body of law enforcement officers, the length of law enforcement activity, which leaves an imprint on their health, and the body's reaction to the negative factors of service activities under the legal regime of martial law.

The study of the dynamics of law enforcement offi-

cers' physical and mental health components using the "Assessment of Nervous and Emotional Stress" method shows that over the two years of war, in all three groups of subjects, there was a significant deterioration in indicators characterizing nervous and emotional stress (self-assessment of cardiovascular, respiratory, digestive and excretory systems, quality of sleep; the state of the emotional and volitional sphere; peculiarities of cognitive processes, etc.) by 10.5 points in group a, by 9.9 points in group b and by 8.5 points in group c (Table 3).

It should be added that in both 2022 and 2024, the nervous and emotional stress of law enforcement officers of all three groups corresponds to the average level. At the same time, the most pronounced changes were found in law enforcement officers under the age of 30, which may be due to their lack of emotional maturity and the large volume of tasks in practical police units during the war in Ukraine.

DISCUSSION

Martial law is a special legal regime introduced throughout the country or in certain areas in the event of armed aggression or threat of attack, imminence to the state independence of Ukraine, and its territorial integrity and provides for the granting of powers to the relevant state authorities, military command, military administrations and local self-government bodies necessary to avert the threat, repel armed aggression and ensure national security, eliminate the threat to the state independence of Ukraine, its territorial integrity as well as temporary restrictions of constitutional rights and freedoms of a person and citizen and the rights and legitimate interests of legal entities caused by the threat, indicating the duration of these restrictions [12, 13]. Under the decision of the National Security and Defense Council of Ukraine, enacted in accordance with the established procedure by a decree of the President of Ukraine, military formations formed following the laws of Ukraine are involved together with law enforcement agencies in solving tasks related to the introduction and implementation of measures of the martial law regime, following their purpose and specifics of activity [2].

According to scientists [5, 14], the National Police officers focus their activities on the internal threat of martial law in Ukraine, especially social criminalization, the development of the "shadow economy", various manifestations of terrorism, inadequate law and order, and low security. Therefore, the main function of law enforcement agencies in ensuring martial law is to respond to threats, which is achieved by addressing issues such as fighting crime, and terrorism in all its forms, ensuring public safety, etc. Scientists also [2, 12,

13] identify the following priority areas of activity of police bodies during the legal regime of martial law: recording and qualification of war crimes in Ukraine; investigation of war crimes in conditions of active hostilities; demining of territories and buildings; protection of public order and ensuring public safety; detection of cases of unlawful acts against children; use of modern information technologies, systems and means of information protection; psychological support of the activities of police bodies in conditions of martial law and provision of primary psychological assistance by police officers to various categories of citizens. All of this eloquently demonstrates the complexity and extreme nature of law enforcement officers' service activities during the legal regime of martial law, which is accompanied by high risk to the lives of law enforcement officers, stress, and high nervous as well as emotional stress, and with prolonged exposure can lead to deterioration of physical and mental health and the emergence of several diseases [15-17]. The results of our research complement and extend the findings of many scientists [18, 19], who argue about the negative impact of law enforcement officers' service activities on the components of their physical and mental health. Among the practical recommendations of experts on the prevention of negative changes in the physical and mental health of law enforcement officers we find [20-22]: regulation (if possible) of work and rest (sleep) regimes; balanced nutrition; constant motor activity (regular exercise of varying intensity depending on the age and health status of law enforcement officers); application of mental self-regulation methods (autogenous training, breathing exercises, meditation, self-massage, work with biologically active points, exercises to relieve tension, etc.); giving up bad habits. All of these areas require further research.

CONCLUSIONS

The negative dynamics of most components of the physical and mental health of law enforcement officers of all three groups while performing their duties during the legal regime of martial law were revealed. The most pronounced significant changes occurred in such components as "Fatigue" (by 1.7-2.4 points), "Oversaturation" (by 3.4-3.9 points), "Stress" (by 1.9-2.9 points), "Well-being" (by 0.9-1.5 points), "Mood" (by 0.9-1.2 points), "Nervous and Emotional Stress" (by 8.5-10.5 points). The most pronounced negative changes in most components occurred in law enforcement officers over 40 years old, which is due to both the age characteristics of the subjects and their length of service.

The research confirms the high complexity and extremity of law enforcement officers' service activities during the legal regime of martial law, as well as the high requirements for law enforcement officers' readiness to perform tasks in the context of a significant expansion of the National Police's powers. The results obtained also necessitate the search for effective ways to preserve and maintain the physical and mental health of law enforce-


ment officers, as well as to prevent the negative impact of law enforcement factors during wartime.

PROSPECTS FOR FURTHER RESEARCH

It is planned to investigate the dynamics of physical and mental health indicators in female law enforcement officers during the martial law.

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This study is a fragment of the research project for 2020-2024 under topic "Psychological, pedagogical and sociological support of law enforcement activity" (state registration number 0113U008196).

CONFLICT OF INTEREST



The Authors declare no conflict of interest



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 – Work concept and design,  – Data collection and analysis,  – Responsibility for statistical analysis,  – Writing the article,  – Critical review,  – Final approval of the article

RECEIVED: 09.02.2024

ACCEPTED: 27.05.2024

