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### Реферати

#### ТРИВОГА ТА ЇЇ ЗНАЧЕННЯ В СТРУКТУРІ СОМАТОФОРМНИХ РОЗЛАДІВ У ДІТЕЙ, А ТАКОЖ РОЛЬ СЕРОТОНІНУ І ТРИПТОФАНУ В ЇХ ВИНИКНЕННІ

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Метою роботи було дослідити наявність, вираженість та значення тривоги у виникненні соматоформних розладів (СР) у дітей, встановити роль серотоніну і триптофану в її розвитку. Обстежено 111 дітей, в яких було діагностовано СР. У 109 (98,2%) дітей діагностовано надмірну тривогу. Рівень серотоніну у дітей з особистісною і реактивною тривогою складав  $1,16 \pm 0,33$  мкмоль/л та  $1,17 \pm 0,33$  мкмоль/л, відповідно, і був нижчим, порівняно з контрольною групою, де його рівень сягав  $1,35 \pm 0,34$  мкмоль/л, ( $p < 0,004$  і  $p < 0,008$ , відповідно). Рівень серотоніну у хворих на тривогу в поєднанні з депресією був нижчим у порівнянні з хворими на тривогу без депресії ( $p < 0,0001$ ). Можна запідозрити існування декількох підтипів СР, де один може виникати як варіант депресії з соматичними проявами і вторинною тривогою, в якому порушення обміну серотоніну може відігравати ключову роль, тоді як другий варіант СР може виникати як варіант тривожного розладу з соматичними проявами і вторинною депресією, як реакція особистості на захворювання, в якому обмін серотоніну не відіграє ключову роль в розвитку патології.

**Ключові слова:** соматоформний розлад, тривога, серотонін, триптофан, діти

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#### ТРЕВОГА И ЕЕ ЗНАЧЕНИЕ В СТРУКТУРЕ СОМАТОФОРМНЫХ РАССТРОЙСТВ У ДЕТЕЙ, А ТАКЖЕ РОЛЬ СЕРОТОНИНА И ТРИПТОФАНА В ИХ ВОЗНИКНОВЕНИИ

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Целью работы было исследовать наличие, выраженность и значение тревоги в возникновении соматоформных расстройств (СР) у детей, определить роль серотонина и триптофана в ее развитии. Обследовано 111 детей, в которых было диагностировано СР. В 109 (98,2%) детей диагностирована высокий уровень тревоги. Уровень серотонина у детей с личностной и реактивной тревогой составлял  $1,16 \pm 0,33$  мкмоль/л и  $1,17 \pm 0,33$  мкмоль/л, соответственно, и был ниже по сравнению с контрольной группой, где его уровень достигал  $1,35 \pm 0,34$  мкмоль/л, ( $p < 0,004$  и  $p < 0,008$ , соответственно). Уровень серотонина у больных с наличием тревоги в сочетании с депрессией был ниже по сравнению с больными с тревогой но без депрессии ( $p < 0,0001$ ). Можно подозревать существование нескольких подтипов СР, где один может возникать как вариант депрессии с соматическими проявлениями и вторичной тревогой, в котором нарушение обмена серотонина может играть ключевую роль, тогда как второй вариант СР может возникать как вариант тревожного расстройства с соматическими проявлениями и вторичной депрессией, как реакция личности на заболевание, в котором обмен серотонина не играет ключевой роли в развитии патологии.

**Ключевые слова:** соматоформное расстройство, тревога, серотонин, триптофан, дети

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### EVALUATION OF HEALTHY LIFESTYLING LEVEL IN PATIENTS WITH CHRONIC OBSTRUCTIVE PULMONARY DISEASE

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In order to develop a personalized approach in patients with COPD - an individual and effective strategy to implement the recommendations, observance of the principles of healthy lifestyle in the first stage, the study of the main risk factors for the disease, on the basis of which developed for each patient an effective personalized strategy for observing the health of the elderly complex with the implementation of patients with curative respiratory gymnastics by Buteyko and hardening of the body - pouring cold water. The authors of the article prove that the observance by the patients with COPD of recommendations for the regulation of lifestyle, nutrition, systematic performance of therapeutic gymnastics by Buteyko and quenching of the body contribute to the achievement of long remission, improvement of quality of life.

**Key words:** healthy lifestyle (HLS), chronic obstructive pulmonary disease (COPD).

*The work is a fragment of the research project "Development of algorithms and technology for the introduction of a healthy lifestyle in patients with non-communicable diseases on the basis of studying the psycho-emotional status", state registration No. 0116U007798.*

Chronic Obstructive Pulmonary Disease (COPD) is one of the most important medical and social problems in Ukraine and in the world, according to the WHO, 0.8% of the world's population is affected today [3]. Due to the long-term effects of risk factors and the aging population around the world, an accelerated increase in COPD is observed [6]. Often severe exacerbations are associated with higher mortality. [3]. According to forecasts, by 2020, COPD will rank third among the leading causes of death

[5]. It is known that exacerbation of COPD negatively affects the quality of life of patients [9]. That's why, one of the main goals of treating patients with COPD is to prevent severe aggravation [10]. Prevention of exacerbations becomes of special urgency. At present, most countries in the world, including Ukraine, have joined the Global Plan of Action to Prevent Non-Communicable Diseases [1]. The strategic key points of the GOLD-2017 document is a personalized; prognostic; prophylactic approach, which involves patient's active participation in treatment [10]. Therefore, pulmonary rehabilitation is considered as one of the main stages of treatment for patients with COPD, which allows to achieve those positive changes, which is impossible only with medication therapy [5,11]. Current international recommendations for pulmonary rehabilitation of patients with COPD include aerobic physical exercises to improve tolerance to physical activity and quality of life of patients [11]. The study of the main risk factors in patients with COPD, providing recommendations for lifestyle management, nutrition, compliance with work and rest regimen, therapeutic exercises, hardening of the body contribute to the achievement of a long remission of the disease.

The use of natural factors in the system of hardening is affordable, effective, and helps to increase the body's resistance to disease. Temperament is considered as an adaptation, which is achieved by multiple training effects of a hardening factor. The systematic application of hardening processes produces a complex of conditioned reactions (reflexes) that help the body adequately respond to changes in temperature [2]. All this leads to a decrease in the number of colds. The effect of hardening is not only that the body's resistance to colds increases, but also that in the course of quenching, the internal system of the organism improves. As a result, the overall endurance and performance of the organism increase [12]. Flooding starts at a temperature of 34-35 ° C. Every 3-4 days, the temperature is reduced to 1-2 ° C, bringing it to room temperature.

It is known that classes by different types of breathing gymnastics contribute to the adaptation of the body of the patient, his cardiovascular system and respiratory organs to physical activity, increase his immunological reactivity with regard to viral and bacterial infection. With the purpose of rational restoration of the breathing act, the method of arbitrary breathing control for Buteyko is widely used - a method of volitional reduction of respiration (VLGD). The patient is explained that each breath consists of breathing, exhalation and respiratory pause; it is necessary to breathe only through a nose both at rest and at physical loading; Inspiration is slow, 2-3 seconds, as it is possible more superficial (0.3 – 0.5 l), followed by calm passive full exhalation 3-4 seconds, then pause 3-4 seconds, breath again, etc. The respiration rate should be 6-8 breaths per minute. Training should be carried out constantly, at least 3 hours per day in rest (at the beginning), then in the movement, the efforts of the will of the patient reduces the speed and depth of breath, and also breaks down after a complete, exhausting, trying to gradually bring the breath to normal [4]. In the end, the use of respiratory exercises leads to a more coherent work of the rib-diaphragm breathing mechanism with a great ventilation effect and with less energy for breathing. Improving the coordination of the work of the respiratory muscles increases the rate of inhalation and exhalation, which facilitates respiration with narrowed bronchial apertures, and promotes increased drainage function of the bronchi [4].

**The purpose** of the study is developing a personalized approach to COPD patients - an individual and effective strategy on the implementation of the necessary guidelines for the observance of healthy lifestyles.

**Material and methods.** The study included 50 patients with COPD gr.B in the stage of unsuccessful remission, and 35 practically healthy persons. The average age was 45.7±2.5 p. Groups were matched by age and gender. The diagnosis of COPD was formulated in accordance with the Ministry of Health Order of 27.06.2013. N555 [7]. The parameters of the external respiration function (ERF) were analyzed. A determination and assessment of the level of formation of the principles of a healthy lifestyle (HLS) was individually determined for each patient with COPD, using the questionnaire Nosova A.G "The formation of components of a healthy lifestyle" [8]. Bioimpedance assessment of the body composition with the determination of parameters: weight, body mass index (BMI), percentage of fat, internal fat, percentage of skeletal and muscle tissue, metabolism in complete rest was carried out on the monitor (model HBF-500-E, Omron, Japan) and screening testing, which allows detecting deviations from the ambiguities of the HLS [13]. For each patient, effective recommendations were developed, which included compliance with the HLS, the implementation of patients with curative respiratory gymnastics by Buteyko, hardening of the body - infusion with cold water. Water procedures started gradually, from wiping the body with a wet towel, hands, shoulders, neck, trunk, after morning exercise. Then they switched to watering with cold water (first the lower extremities: feet, legs, thighs, then the entire body, water temperature - 28-30 degrees, in each of the next two or three days, gradually decreased by one degree (up to 18 degrees), depending on from the individual characteristics of the body. The temperature in the room is 18-20 degrees.

At the second stage, after 6 months of follow-up, a re-examination of patients was conducted to evaluate, compare the results, and identify the most effective measures needed to select the most effective and economically most beneficial COPD relapse prevention strategy.

The probability of the obtained results was determined using the student's t-reliability criterion. Differences were believed to be plausible in the medical biology studies of the probability of error  $p < 0.05$ . For semi-quantitative and qualitative indicators, the frequency tables were constructed and the non-parametric U Mann-Whitney criterion was calculated as a nonparametric analogue of the Student's t-criterion.

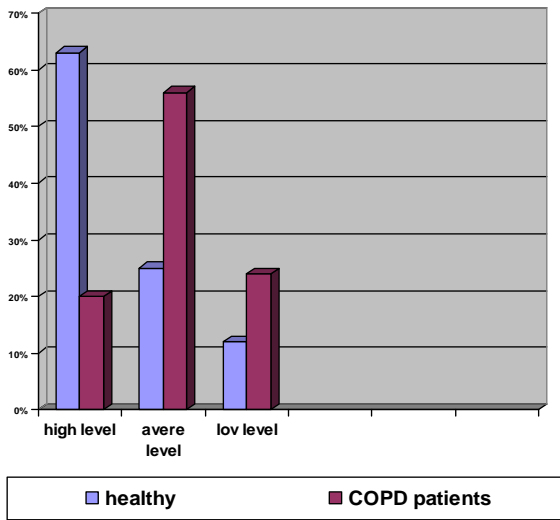


Fig. 1. Level of a healthy lifestyle formation from respondents of the main and the control group.

**Results of the study and their discussion.** In the primary examination of patients with COPD and practically healthy persons, with the help of a questionnaire Nosova AG, the level of the development of the HLS was determined. In COPD patients included in the study, the object-passive (low level - less than 50%) in all three components was found in 24% (12/50) persons, while in the group of practically healthy low levels were noted in 12% (4/35) ( $p < 0,05$ ); objective-active (average) level - in 56% (28/50) patients and 25% (9/35) of practically healthy ( $p < 0,05$ ); high (subjective) - in 20% (10/50) patients, compared with 63% (22/35) healthy ( $p < 0,05$ ). The received data is presented in fig. 1.

Thus, in the overwhelming majority of practically healthy persons - 63%, a high level of HLS was noted, which indicates the importance of observing the principles of HLS in the prevention of diseases.

When studying the level of shortness of breath in patients with COPD on the scale of mMDR, the mean level was  $0.92 \pm 0.48$  points, indicating an unstable remission at the time of the survey. According to the results of the ERF study in patients with COPD, the average FEV<sub>1</sub> values were  $73.2 \pm 0.89\%$ , OFV1/FVC -  $71.4 \pm 1.19\%$ . Results of ERF study in patients with COPD, depending on the distribution of the level of formation of the principles of healthy lifestyle, are given in table 1.

Table 1

**Indices of external respiration function in patients with COPD**

Index of dimension	Patients with COPD at the levels of healthy lifestyle formation		
	object-passive level (group I) 21%	object-active (average) level (group II) 55%	high level subjective (group III) 24%
VC, %	72.9±1.22	72.5 ±1.5	73.72±1.6
FEV <sub>1</sub> ,%	72.1±1.1	72.05±1.4	74.9±0.8*
FEF 25,%	57.9±1.8	56.4±1.43	58.4±1.61
FEF 50,%	50.6±1.1	51.3±1.9	50.9±1.32
FEF 75,%	55.2±1.3	54.8±1.42	56.4±1.2
FEV <sub>1</sub> /FVC,%	69.2±0.9	70.5±0.84	74.3±1.1*
Genci test	28.3±1.48	28.5 ±1.39	28.9±1.32

Notes: \* - significant differences between patients I and III ( $p < 0.05$ ),

From the data obtained, it is shown that in patients with high levels of healthy lifestyle components, FEV<sub>1</sub>, FEV<sub>1</sub>/FVC values were significantly higher compared to the group of patients with the object-passive level of lifestyle. In the study of bioimpedance analysis of the body in patients with COPD, when compared with the group of virtually healthy, significant differences were noted for the following indicators: BMI in patients with COPD was  $27.03 \pm 0.89$  kg /m<sup>2</sup>, whereas in patients of the control group  $29.8 \pm 0.96$  kg /m<sup>2</sup> ( $p < 0.05$ ); % of muscles –  $25.03 \pm 0.76$  in patients with COPD and  $28.1 \pm 0.93\%$  in patients in the control group ( $p < 0.05$ ). These results indicate a significant reduction in BMI and % of muscle in COPD patients, compared to a group of practically healthy individuals, suggest that metabolic disorders (body mass deficiency, peripheral myopathy) are often the background in which COPD manifests itself coincides with the views of the authors [4].

When evaluating the results of stage "B" - screening testing for detecting deviations from the basics of HLS, the presence of risk factors and objective evidence of HLS, significant differences were noted ( $p < 0.05$ ); between the respondents of the main and the control group on the following scales: 4 - Do you do the morning charge ?; 9 - Are you a cook?; 10.- Do you take more than 6 g of salt? The obtained results

allow to confirm the significant influence of the revealed factors - smoking, excessive salt intake and morning exercise on the development and course of COPD compared with a group of practically healthy respondents.

Based on the revealed violations in the behavior of patients with COPD, in relation to compliance with HLS, determination of dependence of indicators of FEV<sub>1</sub> from lifestyle, an individualized approach was developed, an algorithm of actions and personal behavior for each patient was determined. The algorithm of behavior involves eliminating the identified risk factors - smoking, excessive salt intake. In addition, each patient was given recommendations on the implementation of a complex of exercises of breathing gymnastics on Buteyko - 2 times a day, and hardening (watering) 1 time a day, in the morning.

The second stage of the study was conducted after 6 months of observation, after the implementation of patients with personalized recommendations, for compliance with the HLS, the performance of the therapeutic exercises on Buteyko and the body hardening (daily fluidization at a temperature of 18-20°) and included a reexamination of patients, with the definition of HLS, the study of the bioimpedance composition body, ERF indicators.

According to the results of a re-examination of patients with COPD, after 6 months, using the questionnaire Nosova AG Significant discrepancies were found between the levels of HLS in comparison with the results obtained during the primary examination. Thus, the object-passive (low level - less than 50%) was detected in 16% (8/50) patients, compared to 24% (12/50) in the primary examination ( $p>0,05$ ); the object-active (average) level was noted in 36% (18/50) versus 56% (28/50) ( $p<0,05$ ); high level of subjects - in 48% (24/50) versus 20% (10/50) patients ( $p<0,05$ ). The obtained results indicate that most patients are aware of the importance of HLS.

After 6 months of observation of COPD patients, we have identified groups: the main group - patients who followed the developed recommendations ( $n=21$ ) and the control group - patients who did not follow the recommendations ( $n=29$ ). At studying the level of shortness of breath in patients with COPD on the scale of MMDR in 6 months, the average level of shortness of breath in patients in the main group was 0 points, which indicates a stable remission at the time of the survey, while in patients in the control group -  $0.4\pm 0.12$  points. The analysis of ERF results after 6 months indicates a significant improvement in the indicators in the group of patients who performed personalized recommendations compared to a group of patients in the control group. The results obtained are presented in Table 2.

Table 2

**Indices of external respiration function in patients with COPD after 6 months**

Index of dimension	Patients with COPD			
	Main group (n=21)		Control group (n=29)	
	Initial examination	Repeated examination	Initial examination	Repeated examination
VC, %	72.3±1.11	77.12±1.05	72.9±1.22	72.2±1.19**
FEV <sub>1</sub> , %	72.4±1.28	80.5±1.16*	73.2±1.21	72.9±1.34**
FEF 25, %	57.3±1.52	58.4±1.61	56.1±1.19	56.7±1.22
FEF 50, %	50.8±1.18	51.2±1.32	50.2±1.28	50.1±1.08
FEF 75, %	54.9±1.26	56.8±1.12	53.5±1.14	53.2±1.27
FEV <sub>1</sub> /FVC, %	71.6±1.15	75.9±1.33*	70.9±1.16	70.1±1.28**
Genchi test	28.4±1.3	36.2±1.18*	28.6±1.5	28.1±1.39

Notes: \* - discrepancies are reliable in patients with the main group during a re-examination; \*\* - there are significant differences between patients in the primary and control groups with a re-examination.

In patients of the main group, after 6 months, significant positive results of the FEV<sub>1</sub> indicators were obtained at 10.1%, VC - 6.3%, FEV<sub>1</sub>/FVC by 5.7%, Genichi tests by 21.6%, indicating the effectiveness of the recommendations developed and coinciding with the results of researchers who used as a rehabilitation measure for patients with COPD a set of elements of respiratory gymnastics with volitional elimination of deep breathing by Buteyko [6]. According to the data of FEV<sub>1</sub>, one can judge the rate of tiredness of the respiratory muscles. In clinical practice, this indicator is used both to determine the severity of the disease and to assess the adequacy of treatment. Thus, adequate treatment is considered with the increase of the indicator by 10-12% of the initial [6]. The increase in VC by 6.0% also gives grounds for judging positive dynamics. The dynamics of the breath hold test has significantly increased in patients in the main group and amounted to 36.2% in the Genchi test. Improvement of the Genichi test in patients with the main group indicates that the breathing has become more productive. Then, in patients in the control group, after 6 months, reduction in FEV<sub>1</sub>-0.0.4%, VC by 0.96%, positive results of the FEV<sub>1</sub>/FVC by 1.13%.

A comparative analysis of the evaluation of bioimpedance analysis of the body in COPD patients by groups, after 6 months, indicates a significant increase in% muscle. Thus, in the main group of patients

adhering to the developed recommendations, % of muscles was  $27.05 \pm 0.43$  versus  $24.9 \pm 0.51$  group of patients who did not follow the recommendations ( $p < 0.05$ ). Significant changes in BMI in patients in the main and control group after 6 months were not noted  $26.12 \pm 0.62 \text{ kg/m}^2$  and  $25.58 \pm 0.48 \text{ kg/m}^2$  ( $p > 0.05$ ). In addition, in the group of patients with COPD who followed the developed recommendations for relapse of the disease for 6 months was not noted, while in patients with control group, there were 7 relapses (24%). These results suggest that the formation and strict observance of the components of CVL, respiratory gymnastics by Buteyko and hardening significantly improve the clinical and functional parameters in COPD patients, increase the duration of remission.

### Conclusion

Thus, the results of the conducted research allow to recommend inclusion in the comprehensive examination of patients with COPD testing using the Nosov questionnaire, assessment of bioimpedance analysis of the body, which will allow to develop personalized recommendations for each patient. Compliance with COPD patients with recommendations for lifestyle management, nutrition, the systematic implementation of medical gymnastics by Buteyko and the quenching of the body contribute to the achievement of long remission, quality of life.

*Prospects for further research* include further introduction of HLS in patients with COPD, analysis of indicators of biopendosometry, ERF in more distant observation time - after 12 months.

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### Реферати

**ОЦЕНКА РИВНЯ ЗДОРОВОГО СПОСОБУ ЖИТТЯ У ХВОРИХ НА ХРОНІЧНЕ ОБСТРУКТИВНЕ ЗАХВОРЮВАННЯ ЛЕГЕНЬ**  
Потяженко М.М., Ішейкін К.Є., Нastroга Т.В., Соколюк Н.Л., Кітура О.Є.

З метою розробки персоніфікованого підходу у пацієнтів з ХОЗЛ - індивідуальної та дієвої стратегії, щодо виконання дієвих рекомендацій дотримання засад здорового способу життя (ЗСЖ) на першому етапі проводилось вивчення основних факторів ризику захворювання, на підставі чого розроблялась для кожного пацієнта дієва персоніфікована стратегія щодо дотримання ЗСЖ в комплексі з виконанням хворими лікувальної дихальної гімнастики по Бутейко

**ОЦЕНКА УРОВНЯ ЗДОРОВОГО ОБРАЗА ЖИЗНИ У БОЛЬНЫХ ХРОНИЧЕСКОЙ ОБСТРУКТИВНОЙ БОЛЕЗНЬЮ ЛЕГКИХ**  
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С целью разработки персонифицированного подхода у пациентов с ХОБЛ - индивидуальной и действенной стратегии по выполнению действующих рекомендаций соблюдения принципов здорового образа жизни (ЗОЖ) на первом этапе проводилось изучение основных факторов риска заболевания, на основании чего разрабатывалась для каждого пациента действенная персонифицированная стратегия по соблюдению ЗОЖ в комплексе с выполнением больными лечебной дыхательной

і загартовування організму – обливання холодною водою. Авторами статті доведено, що дотримування хворими на ХОЗЛ рекомендацій щодо врегулювання способу життя, харчування, систематичне виконання лікувальної гімнастики по Бутейко та загартовування організму сприяють досягненню тривалої ремісії, підвищенню якості життя.

**Ключові слова:** здоровий спосіб життя (ЗСЖ), хронічне обструктивне захворювання легень (ХОЗЛ)  
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гимнастики по Бутейко и закаливание организма - обливание холодной водой. Авторами статьи доказано, что соблюдение больными ХОБЛ рекомендаций по урегулированию образа жизни, питания, систематическое выполнение лечебной гимнастики по Бутейко и закаливание организма способствуют достижению длительной ремиссии, повышению качества жизни.

**Ключевые слова:** здоровый образ жизни (ЗОЖ), хроническая обструктивная болезнь легких (ХОБЛ).  
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## CLINICAL CHARACTERISTIC OF AFFECTIVE VIOLATIONS IN DISORDERS OF ADAPTATION FROM COMBATANTS

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A comprehensive clinicopsychopathological and pathopsychological study of 186 combatants with diagnosed stress reactions and adaptation disorders, who underwent inpatient treatment in the clinical departments of the Vinnitsa Regional Clinical Hospital of War Veterans was performed. The study included socio-demographic (questionnaire), clinical-anamnestic, clinical-psychopathological (clinical interview), psychodiagnostic (pathopsychological) and statistical methods. In the course of this study, the severity of affective disorders in the study group was established, data variability was determined, and a statistical-mathematical analysis of the survey results was carried out. The results of the proposed algorithm of psychodiagnostic research reflect the structure of changes in the affective sphere and certain personal predispositions in patients with affective variants of adaptation disorders. It was revealed that a cognitive defect can be formed later through the consolidation and progression of organic changes, and the transition of an adaptation disorder to a behavioral level will be associated with personality traits and characteristics of respondents' social rehabilitation. Determination of clinical and psychopathological features of prevailing variants of adaptation disorders in combatants is the basis for the development of new diagnostic algorithms and integrated approaches to the treatment of this contingent.

**Key words:** affective violations, combatants, disorders of adaptation, psychotic and non-psychotic mental disorders, response to stress.

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Mental health protection is one of the most pressing problems of any state. Mental health is one of the parameters that determine the quality of life of the population. This is due to the fact that it is the mental health of its citizens that determines the national security of the country. The peculiarities and nature of psychiatric care in any country is determined by historical, economic, geographical, cultural, political and other factors. Thus, mental health - is a certain reserve of human strength that can overcome stress or difficulties that arise in exceptional circumstances [14].

The armed conflict between the illegal armed groups (for direct support and active participation of the Russian Army) and the Armed Forces of Ukraine in Donetsk and Luhansk regions resulted in getting into a war zone both military personnel and large numbers of civilians who suffer injuries of varying severity and killed [1, 4, 13]. According to the United Nations (UN), the war has somehow affected 5 million people [2]. At the same time, a large part of the military personnel entered the combat zone without knowing the basic rules and lacking the skills of providing first aid [2]. According to official United Nations (UN) statistics, 5486 soldiers were killed and 12,972 injured in the conflict in Ukraine. Among the most common injuries limb injuries (62.6%) and the head (37.4%) [2]. In addition to physical injuries, the soldiers also receive psychological injuries. About 80% of soldiers and civilians in the war zone have psychological and mental disorders - from combat fatigue to acute mental [1].

The experience of fighting in Vietnam, Afghanistan, the Persian Gulf and elsewhere in the world suggests that pharmacological agents can be used to enhance the activity of personnel actions in terms of danger and chronic fatigue (stimulants), removal of excessive mental tension (relaxers), accelerating the process of adaptation to extreme conditions of military life, increase performance efficiency of individual mental functions etc. [9, 10]. Psychological rehabilitation is part of the medical and psychological rehabilitation and carried out with military personnel undergoing treatment due to injuries, concussion, burns, radiation, mental disorders. In some cases, psychological and psychological rehabilitation is