

STRESS RESISTANCE OF PERSONS OF HAZARDOUS OCCUPATIONS IN CONDITIONS OF LOCAL ARMED CONFLICT

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Abstract. *The purpose of the study is to study professionally significant psychological features of persons of hazardous occupations (OP) in the conditions of an incomplete local armed conflict (LVK), to identify maladaptation states and to develop recommendations for improving the work of the medical and psychological service.*

Materials and methods of research. The study was conducted by specialists of the laboratory of Psychophysiological Support (PFO) on the basis of the Luhansk Republican Center for Emergency Medical Care and Disaster Medicine.

The object of the study – 590 respondents representatives of OP (470 - men, 120 - women) aged 20 to 60 years. All respondents have been working under the conditions of incomplete LVK since 2014 to the present.

To study neuropsychiatric stability and anxiety, the "Level of Neuropsychiatric Stability" method and the Spielberger-Hanin method were used. To identify significant differences in the psychological characteristics of persons of hazardous occupations, the Student's t-test was used.

The results of the study and their analysis. Professionally significant psychological features of persons of hazardous occupations working in the conditions of incomplete LVK are analyzed. A comparative analysis of the obtained data is carried out, taking into account the biological age and gender differences. The results of the study can be used in further study of the psychological indicators of respondents working in the conditions of LVK, and for the development of programs aimed at maintaining, correcting and forming the psychological health of the participants of LVK who are in high-risk conditions.

Key words: *disadaptation state, local armed conflict, neuropsychiatric stability, persons of hazardous occupations, psychological correction, psychological features, rehabilitation, stress resistance*

Conflict of interest. The authors declare no conflict of interest

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СТРЕССОУСТОЙЧИВОСТЬ ЛИЦ ОПАСНЫХ ПРОФЕССИЙ В УСЛОВИЯХ ЛОКАЛЬНОГО ВООРУЖЕННОГО КОНФЛИКТА

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Резюме. *Цель исследования – изучить профессионально значимые психологические особенности лиц опасных профессий (ОП) в условиях незавершенного локального вооруженного конфликта (ЛВК), выявить дезадаптационные состояния и разработать рекомендации по совершенствованию работы медико-психологической службы.*

Материалы и методы исследования. Исследование проведено специалистами лаборатории психофизиологического обеспечения (ПФО) на базе Луганского республиканского Центра экстренной медицинской помощи и медицины катастроф.

Объект исследования – 590 респондентов (мужчин – 470, женщин – 120) в возрасте от 20 до 60 лет, относящихся к лицам ОП. Все респонденты работают в условиях незавершенного ЛВК с 2014 г. по настоящее время.

Для изучения нервно-психической устойчивости (НПУ) и тревожности были использованы методика «Уровень нервно-психической устойчивости» и методика Спилберга – Ханина.

Для выявления достоверных различий психологических особенностей лиц опасных профессий применялся t-критерий Стьюдента.

Результаты исследования и их анализ. Проанализированы профессионально значимые психологические особенности лиц опасных профессий, работающих в условиях незавершенного ЛВК. Проведен сравнительный анализ полученных данных с учётом биологического возраста и гендерных различий. Результаты исследования могут быть использованы при дальнейшем изучении психологических показателей респондентов, работающих в условиях ЛВК, и разработки программ, направленных на поддержание, коррекцию и формирование психологического здоровья участников ЛВК, находящихся в условиях повышенной опасности.

Ключевые слова: *дезаптационное состояние, лица опасных профессий, локальный вооруженный конфликт, нервно-психическая устойчивость, психологическая коррекция, психологические особенности, реабилитация, стрессоустойчивость*

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The local armed conflict in the South-East of Ukraine has once again shown that prolonged stay under warfare can lead to an overstrain of mechanisms of mental adaptation and can result in disorders of mental and somatic health.

Due to their professional activities, persons of hazardous professions are more exposed to potentially traumatic events than persons of other professions - therefore, injuries sustained by persons of hazardous professions may have negative consequences both at the personal and organismic levels. In particular, it can be argued that such persons have a high risk of developing a maladaptive state. In general, maladjustment depends on nature, severity and recurrence of traumatic events. The psychological characteristics of the activities of persons of hazardous professions, abilities and limitations of human body, adaptation mechanisms and working conditions can allow, ultimately, to increase efficiency, reliability and safety of work performed, as well as attractiveness of work and satisfaction with it [1-4].

A hazardous profession is a type of professional activity with working conditions in which a specialist is exposed to harmful (dangerous) factors, which ultimately cause a threat to his health and life [5]. In most extreme professions - specialists of the Disaster Medicine Service, rescuers, military personnel, etc. - the cost of erroneous actions is so high that there is no right to make a mistake. Working in such conditions implies increased demands and criteria for health status and functions of the body of persons of hazardous professions [6-8].

The work of persons of hazardous professions has a number of specific features: threat to human health and life, psychophysiological overstrain, forced change in circadian rhythms, suddenness and lack of time. All these features, as well as detachment from one's family and change in lifestyle lead to an overload of the body [5, 9-11]. Working in such conditions requires a strong nervous system.

In the work of A.B. Leonova and M.A. Bagriya it is indicated that the majority of persons in hazardous professions have significant deviations in the state of mental and somatic health, and the level of general stress is higher than the permissible standards [12]. This indicates the need for additional study of psychological characteristics of individuals with hazardous professions working under the influence of such a stress factor as local military conflict.

The local armed conflict in Ukraine has led to an increase in the number of emergencies. Under these conditions, an unfavorable socio-economic environment arises, which leads to «military» stress among participants in the conflict,

which can be defined as a process of multifaceted adaptation of a person in the conditions of the local armed conflict, the influence of which determines a huge range of psychophysiological manifestations [13]. A short-term stress factor accumulates the body's capabilities, which, in turn, improves the performance of persons in dangerous professions. But a prolonged stress leads to an increase in psychological and somatic abnormalities in the body, provokes a surge in suicidal and homicidal behavior, leads to an increase in a number of errors, which ultimately affects the quality of the decisions made [14]. Long-term exposure to stress can cause psychological and social maladjustment [15-17].

In this regard, there is a special interest in the study of influence of a stress factor - a local armed conflict - on some psychological characteristics of persons of hazardous professions, taking into account their age, gender characteristics and stress resistance. The evaluation of the level of neuropsychic stability and anxiety (of different modality) is one of the mandatory criteria for professional selection, allowing to assess the resistance to stress, which ultimately will allow to preserve mental and physical health of people of dangerous professions [5, 9, 12, 13, 16].

Identification of maladjustment conditions and timely assistance to persons of hazardous professions is the main task of medical organizations related to hazardous activities.

The purpose of the study is to explore the level of neuropsychic stability and anxiety of persons of dangerous professions who are in conditions of a local armed conflict.

Materials and research methods. The study was carried out by specialists of the Laboratory of Psychophysiological Support on the basis of the Luhansk Republican Center for Emergency Medical Aid and Disaster Medicine.

The object of the research is 590 respondents (men - 470, women - 120) aged 20 to 60 years, belonging to persons of hazardous professions. All respondents have been working in local armed conflict from 2014 to the present. Taking into account biological age and sex differences of the respondents, we formed 4 groups: 1st group: mature age: 1st period - youth: 1st group: men 21-35 years old (m_21-35), n = 235; 2nd group: women 20-35 years old (f_20-35), n = 60; 2nd period: 3rd group: men 36-60 years old (m_36-60), n = 235; 4th group: women 36-55 years old (f_36-55), n = 60.

To study neuropsychic stability and anxiety, automated

¹ Возраст // Малая медицинская энциклопедия. М.: Медицинская энциклопедия, 1991. 996 с.

techniques were used:

1. Methodology «The level of neuropsychic stability» - developed by specialists of the St. Petersburg Military Medical Academy. It was originally intended for the selection of employees for the work at the EMERCOM of Russia. The technique allows to assess resistance to stress and to stressful situations; It is used for identification of persons with signs of neuropsychic instability, in whom an emotional breakdown can be expected in difficult stressful conditions. The technique is based on the analysis of biographical information, characteristics of the subject's behavior in various situations. It can be successfully used by operators who will work in extreme conditions and includes a number of questions for which the sincerity and reliability of the respondent's answers are checked [18].

2. The Spielberger-Khanin methodology was developed by Ch.D. Spielberger (USA) and adapted by Yu.L. Khanin. This technique is a reliable and informative way to self-assess the level of anxiety at the moment: reactive anxiety - as a state and personal anxiety - as a stable characteristic of a person. Personal anxiety characterizes a stable tendency to perceive a wide range of situations as threatening, to react to such situations with a state of anxiety, which means it characterizes adaptive mechanisms of formation of an actual mental state. Reactive anxiety is characterized by tension, nervousness, and its change is associated with activation of homeostatic mechanism of mental adaptation. Very high reactive anxiety causes disturbances in attention, sometimes - disturbances in fine coordination [18–19].

All the obtained experimental material was processed biometrically using Statistica 10 program. To identify significant differences in psychological characteristics of persons of dangerous professions, the Student's t-test was used.

Research results and their analysis. In the course of the study aimed at a research of neuropsychic stability, it was found that average sincerity indices according to the NPU method were: in the 1st group (m_21–35) - (3.77 ± 1.1) points; in the 2nd (f_20–35) - (3.79 ± 0.9); in the 3rd (m_36–60) - (3.80 ± 1.2); in the 4th group (w_36–55) - (4.22 ± 0.8) points, which indicates the reliability of the results obtained in all groups.

Assessment of the level of neuropsychic stability

Average indicators in all groups were within the normal range. When comparing the data in the 1st (m_21–35) and 3rd (m_36–60) group, it can be seen that there were no significant differences, however, further qualitative analysis

showed their practical significance. The data in the 2nd group (w_20–35) are significantly ($p \leq 0.05$) lower than the data in the 4th group (w_36–55) - (7.50 ± 0.9) and (10.38 ± 1,1) points, respectively (Fig. 1).

The results in the 4th group indicate the presence of a tendency towards an increase in overt or latent disturbances in emotional, volitional and intellectual regulation in aged women.

Under the influence of numerous external factors - socio-economic, environmental, physical, psycho-traumatic and others, conditioned by local military conflict and by professional activity, the state of psychological health is constantly changing, which requires special attention from the psychological and medical service.

Qualitative analysis of neuropsychic stability

A high level of neuropsychic stability was revealed: in the 1st group - in 88.28% of respondents, in the 2nd - in 95.83; in the 3rd - in 85.00; in the 4th group - 78.33% of the respondents (Figure 2). For respondents with a high level of neuropsychic stability, breakdowns are unlikely.

An average level of neuropsychic stability was identified: in the 1st group - in 7.03% of respondents; in the 2nd - in 4.17; in the 3rd - in 10.00; in the 4th group - in 11.67% of the respondents. Workers with an average level of neuropsychic stability are mentally stable, but they have a potential for neuropsychic breakdowns during an emergency.

A low level of neuropsychic stability was revealed: in the 1st group - in 4.69% of respondents; in the 3rd - in 5.00; in the 4th group - in 10.00% of respondents. Respondents with a low level of neuropsychic stability have a high probability of neuropsychic breakdowns.

Individuals of hazardous professions who have an average and low level of neuropsychic stability need to pay increased attention to this fact. It is necessary to take individual complex psychological and medical measures to help them increase the level of neuropsychic stability in emergency situations, especially in conditions of local armed conflict

Level of personal and reactive anxiety

A quantitative analysis of the data showed that in all groups reactive anxiety was at a low level: in group 1 - 18.5 points; in the 2nd - 20.6; in the 3rd - 20.7; in the 4th group - 22.2 points (Fig. 3).

All respondents had indicators of personal anxiety at an average level. For employees whose activities are related to the performance of work of increased danger in the conditions of a local military conflict, this is an acceptable indicator.

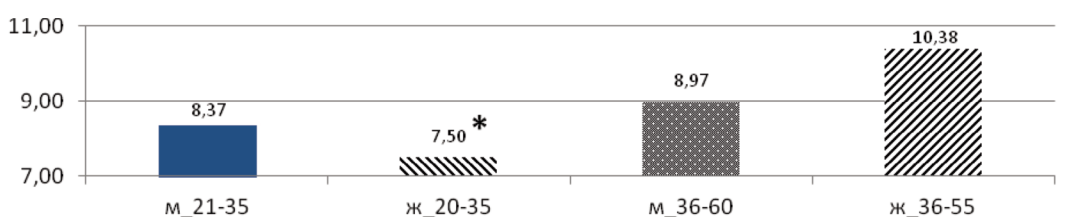


Рис. 1. Показатели уровня нервно-психической устойчивости, баллы;

* $p \leq 0,05$ – достоверность различий между 2-й и 4-й группами

Fig. 1. Indicators of the level of neuropsychic stability, points

* ($p \leq 0.05$) the significance of the differences between groups II and IV

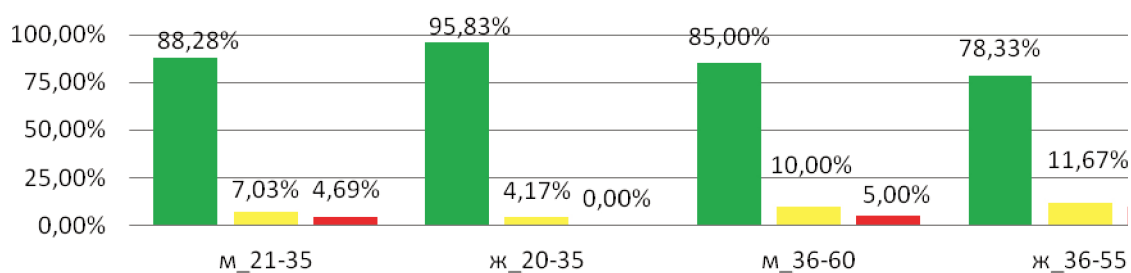


Рис. 2. Показатели уровня НПУ: качественный анализ, %
Fig. 2. Indicators of the level of neuro-psychiatric stability. Qualitative analysis

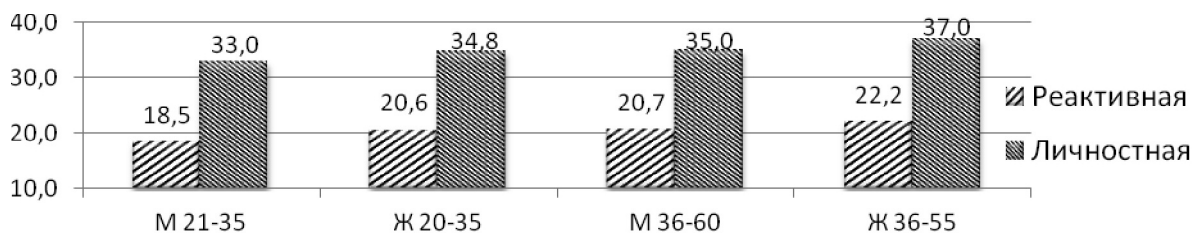


Рис. 3. Реактивная и личностная тревожность, баллы
Fig. 3. Reactive and personal anxiety, points

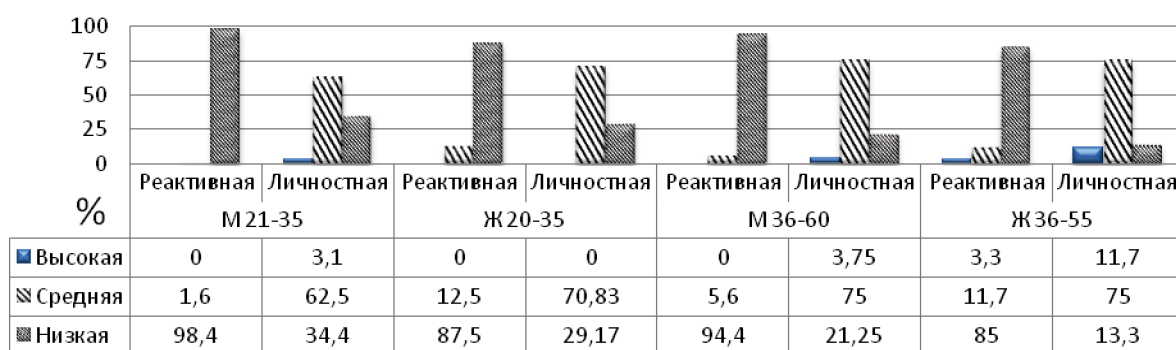


Рис. 4. Реактивная и личностная тревожность: качественный анализ, %
Fig. 4. Reactive and personal anxiety. Qualitative analysis, %

At the same time, a qualitative analysis revealed features of anxiety in some groups. For example, high reactive anxiety was found in 3.3% of women in the second half of maturity (Fig. 4).

High personal anxiety was revealed in men of both age groups: in the 1st - in 3.1%, in the 3rd - in 3.75% of respondents, which indicated a weak tendency to develop high personal anxiety. In women, high personal anxiety was revealed only in the 4th group - 11.7%.

Respondents with high reactive anxiety are characterized by manifestations of tension, anxiety, impaired attention, decreased performance, increased fatigue and rapid exhaustion.

Respondents with high personal anxiety tended to perceive almost all situations as threatening and to react to them with a strong anxiety. High personal anxiety can be a cause of neurotic conflict, emotional breakdown and psychosomatic illness.

For persons of hazardous professions performing their of-

ficial duties, especially in the conditions of a local armed conflict, such indicators are unacceptable.

Conclusion

1. The results of diagnostics of neuro-psychic stability indicate that 7% of men of the first age and 5% of men of the second age, as well as 10% of women of the second age have a low level of neuro-psychic stability.

2. High reactive anxiety is recorded in women of the second period of maturity - 3.3% of respondents.

3. High personal anxiety is recorded in 3.1% of men of the first age and 3.75% of men of the second age, as well as in 11.7% of women of the second age.

4. Thus, the results obtained indicated the presence of maladjustment states in almost all groups, which possibly influenced the level of stress resistance.

5. While the results of the above study may seem prom-

ising, it should be considered a pilot study. In our opinion, it is relevant and promising, especially for people of hazardous professions working in conditions of increased stress, and requires further research. In particular, it must be supplemented with large double-blind studies with control

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groups. This would make it possible to personalize approaches to professional selection, as well as to prevention and to correction of psychological deviations in this category of specialists, to make them effective and accessible to almost all segments of the population.

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