

# Psychological Safety of the Individual in Normal and Extreme Conditions of Professional Activity: Neurophysiological Aspects

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**Abstract:** Psychological signs of professional safety in special conditions of professional activity are considered in the context of comparison of specificity of performance of professional activity in normal and special (extreme) conditions and disclosure of specific requirements to experts of professions of risk group are considered. It is noted that human activity in special conditions is associated with mental stress and is often accompanied by stress. The purpose of the study is to summarize, classify and determine the relevance of the Ukrainian theory and practice of occupational safety against the background of the latest trends and challenges. It is emphasized that the process of overcoming an emotionally stressful situation depends on the mental states of a person, the integral characteristic of which in certain conditions forms a neuro-functional state; the algorithm of the analysis of stay of the person in emotionally-tense situations is considered; outlined quantitative and qualitative indicators of the result of activities in special conditions that determine its quality, productivity and reliability; the content of the professional norm, the main figure of observance of which is a person is determined. It is stated that performing professional activities in special conditions is often combined with danger to health and life. Appearance of stressful situations, require the employee to use individual resources (personal, cognitive, social and instrumental) to overcome them. Ensuring human life in special conditions requires the use of adaptive resources of the specialist, which ensure the activation of productive processes, and determine the construct of occupational health of the individual specialist.

**Keywords:** Occurrence of stress, emotionally stressful situation, mental states, special conditions, subjectivity, meaning, responsibility.

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## Introduction

Personal safety issues occupy one of the leading places in the field of neurophysiology, general psychology and psychology of the safety of professional activity. These questions are very relevant now. This led to dramatic socio-economic changes in modern life, which affect both society as a whole and the professional sphere. Quite often moments of realization in professional activity which has the norms and samples connected with aspects of intrapersonal problems of the expert in experience of contradictions of adaptation to these conditions. This contradiction raises the question of the determinants of professional realization, where the central position is occupied by the problem of professional safety of the specialist. This problem acquires a double urgency when it comes to specialists working in special (extreme conditions). However, the informational, communicative and technological congestion of modern society becomes stressful even for specialists in the humanities (Demchenko, 2021; Prots, 2021; Kosholap, 2021).

Modern neuropsychology proceeds from the premise that stress is not only normal, but also a necessary condition for human life and activity. This is a natural reaction of the organism to changes in living conditions, caused by the mobilization of its reserve (adaptation) capabilities. It is only important that stress does not go into its extreme forms, which have a devastating effect on the human body, namely emotional burnout. This negative consequence should be the main subject of study in the psychology of work in special conditions, however, it must be admitted that in practice it is not yet given due attention to its latency (secrecy) - and millions of workers are exposed to its constant, usually not taken into consideration influence.

In the world of psychological science, there are scientifically based theoretical models of psychological stress, which include indicators of individual differences as regulators of the development of this condition and prognostic signs of its effects. Thus, the "Michigan" model presents the processes by which objective stressors lead to short-term (emotional, physiological, cognitive and behavioral reactions) and to long-term health effects: objective characteristics of work affect the subjective perception occupational stress. This perception induces physiological and psychological reactions and, constantly repeating over time, short-term reactions cause deterioration in health. However, stress processes are not invariant, both as environmental factors and how the individual characteristics of the subject affect the cause-and-effect relationship. Thus, the main categories of

indicators of individual characteristics of the subject, which affect the manifestation of coping strategies, include demographic factors, personal characteristics, professional expectations, preferences and satisfaction, skills of social interaction and organizational behavior.

In Ukrainian sources there are a number of concepts related to the characteristics of professional safety of the individual: professional adaptability, neuropsychological stability and stress (coping behavior), professional mobility, ability to work, professional maturity, professional identity, etc. They contain an understanding of the level of general readiness of a specialist for the corresponding professional activity (Drobot, O. 2012 & Markova, A. 1996, et al). Also and a significant number of studies have also been conducted in which the ratio of personal properties and requirements of professional activity was studied (Baklanova N., 1994; Bodrov B., 2001, et al.).

The professional activity of specialists in many fields in modern society takes place in difficult conditions, denoted by the concepts of "special", "difficult", "crisis", "stressful", "extraordinary", "extreme". In the modern psychological literature, a large number of works relate to different types of professional activities in special conditions: the activities of pilots, military specialists, law enforcement officers, firefighters (Myronets, S. 2002 & Popkov, V. 1999, et al). Consider such aspects of human activity in special conditions as features of extreme factors, functional mental states, psychological qualities of the person, indicators (Levi, L. 1989 & Markova, A. 1996, et al).

These works carefully take into account the general laws: in the special conditions of professional activity, the possibility of a person's work with the maximum benefit for society is determined not only by his professional training and purposefulness, but also by his resistance to emotional influences.

However, in Ukraine, the neurophysiological aspects of performing professional activities in special (extreme) conditions have not been sufficiently studied. In our opinion, its separation from a significant part of the available research will be able to inventory the most expedient and relevant theories for the present time and avoid various interpretations.

We will try to solve the main goal of the theoretical research using the methods of generalization, comparison, extrapolation to modern globalization conditions: to carry out the rethink the views of Ukrainian occupational safety specialists and exclude current scientific and effective theories. In our opinion, this will help to eliminate traditional mechanistic

approaches to human security and to establish a subjective and centric paradigm in the Eastern European security theory.

### **Modern neuroscientific approaches to personal and professional safety**

Modern researchers are working to conceptualize the essence of personal and group occupational and household safety in the context of a globalized society, where “the external globalized and internal mentalized world are threats” (Kononov & Zhukov, 2020). The general essence of such a concept is in its structure: man - community - society - power - international interaction. At the same time, personal safety is the main focus. Household personal safety is a process and a relative result of adaptation to the rapidly changing nature of society and the technogenic environment. Professional safety presupposes social and professional adaptation and specific competencies aimed at self-preservation, and at the highest levels of safety, it is necessary to form a system of collective, corporate safety, international cooperation and a discourse on non-use or "soft use of force" (Stefanov, Terziev, Banabakova, 2018).

We noticed that the issue of personal and professional safety in the studies of the 2000s is considered in the context of making non-standard, spontaneous, but expedient decisions in a situation of uncertainty. This has given rise to a number of interdisciplinary studies integrating neurophysiological and neuropsychological aspects (Kahneman, & Tversky 2000).

It is interesting that social security and professionalization are considered primarily through the adaptability of the subject and the nature of the subjectivity of a modern person: responsibility for oneself, mobility, stress resistance and high performance in the environment: a) specific, local stress or tension; b) the general informational and changing environment, which is stressful (Ivanov, Serry, Yanitskiy, 2017). At the same time, self-regulation and social regulation of the mental state of the subjects of society is multi-level. However, it is important to maintain psychological balance in the current context (ordinary or spontaneous). A lot of professionally oriented and general psychological techniques of personal adaptation have already been developed through “awareness of one's own postmodern Ego,” which mentally, verbally or technologically cooperates with the functional environment and other fundamentally equivalent “Ego” (Coan, Beckes, Gonzalez, Maresh, Brown 2017). Fortunately, in a postcolonial society, hierarchical social ties (vertical) are weakened and no longer “put pressure”

on a person. Horizontal ties and interpersonal contacts are more important. Spontaneous communicative entry into a new social situation, while "more perceived social support corresponds to less brain tension" (Coan, Beckes, Gonzalez, Maresh, Brown, Hasselmo, 2017). Based on laboratory medical studies of fast autonomic and slow cortical emotional responses, the neurophysiology of the process of professionalization and adaptation to stress has already been described, McDonald (2017). From the point of view of natural sciences, this helped to substantiate the advisability of the formation of empathy, switching, the ability to simulate situations, enter into new communication, and make decisions. Psychology and practical methods of the professionalization process are based on this basis.

It is clear that in this article we are not talking about fundamentally dangerous professions, mentioning them only for a complete scientific picture. We are more interested in the issue of occupational safety in social situations, moral conflicts, where various preventive psychological tools of self-defense against stress can be applied (Shane, Bush 2015).

It is possible to consider the study of occupational safety in the social sphere in the framework of intersubjective dependence. Scientists have noticed that workers in the education, social sphere show a significant emotional reaction to directive, administrative instructions or situations of tactical failure. This determines the need to strengthen the subject position, responsibility and even change the values and beliefs of the participants in educational relations. At the same time, professional dependence presupposes overcoming the obsessive and protective mechanisms of professional activity, which are characterized by "the presence of social conformism, the absence of one's own position, the search for an authoritative leader" (Khusainova, Mishina, Shlychkov, Shlychkova, Redkina, & Yusupov, V. (2017)). It is clear that the psychological safety of educators is closely related to the safety of the educational environment and maintaining a balance in an environment of constant interactivity, the presence of a management hierarchy.

Also, the "trusted professional activity" of teachers, doctors, social workers, on whom other persons depend, has a stressful potential. Currently using the newest term "professional activity that can be trusted (EPA)" (Wagner, Dolansky & Englander, 2018). Integration of the safe and professional competencies of such workers will allow solving the safety issues of a specialist and his client, but it requires changes in the curricula of assessment in education, medicine, and social support.

Another area of current research is the formation and forecasting of a safety culture. Recent sociological research and regression analysis of the

management of workers' safety, the safety of the professionals themselves and their safety culture have determined that at the group level, a positive safety culture is determined by four factors: "safety informing by the chiefs of operations; concern for the safety of employers; and the coordination and regulation of safety by safety professionals "(Wu, Lin, & Shiao, 2010). To a greater extent, these observations relate to the service professions for the rendering of one or another type of assistance.

According to T. Stecker, within the framework of the theory of behavioral inhibition (Gray and McNaughton, ("The neuropsychology of anxiety", Oxford University Press, Oxford, 2000), educational strategies can be used to form and temper cognitive functions and form the competencies of personal resistance, self-control, predictability and responsibility (Steckler, 2005). At the instinctual level, the neuropsychological nature of a person presupposes patterns of dominance and obedience, the ability to manipulate and the willingness to be controlled; avoidance of a stimulus and its affective or volitional overcoming. There is also a significant discrepancy in the gender, temperamental and phenotypic characteristics of the individual. However, the beginning of professionalization is always associated with a number of psychological dangers. Currently, neurophysiologists and psychologists have proven that affirming one's own "Ego" reduces the level of subjective experience of stress, and the expectation of help and hope for social support does not contribute to professionalization and stress resistance in any profession (Sheinov, 2016).

Neurosociologists have also proved that the development of personal and professional subjective reflection and all types of feedback is an effective means of psychological safety, but such development should not be forced, but desirable. In this case, social or technological conditions become not obstacles, but rather attractors of personal development (Kazlauskiene, & Barabanova 2020).

Given this subjective-centered and reflective nature of occupational safety in neuroscientific research, the most valid views of Ukrainian scientists should be summarized, which can be applied in educational and psychological training of specialists.

### **Performing professional activities in normal and special (extreme) conditions**

Normal working conditions differ from special, extreme and super-extreme working conditions. In our opinion, this difference lies not in the

presence of destructive factors, but in the frequency, duration of effect and quantitative characteristics of their intensity (power, effectiveness). "The category" special conditions of activity " is fair for those situations when the activity of a specialist is associated with an episodic, unstable action of extreme factors or a high perceived probability of their occurrence, while extreme factors do not have high power and intensity, and the emerging negative functional states are moderately expressed", Zaichykova T. (2003, p. 115-121). Special conditions include the conditions of activity in which situations may suddenly arise that are dangerous to the life of the subject of activity or people around him, Smirnov B. (2007). Moreover, the factors leading to the emergence of extreme situations, by their nature, can be both physical or chemical, and social, but their main feature is that they are unplanned (Smirnov, B. 2007 & Tytarenko, T. 2007, et al). The neurophysiological approach proves: the most important condition (component) of work in special conditions are emotions that arise under the influence of the reflection of reality, significantly affect the course of mental processes and, consequently, the effectiveness of human professional activity. The quality of emotions can determine the global forms of interaction of the subject with the environment and some parameters of activity associated with professional activities.

The activities of representatives of extreme professions are associated with permanent stress and expectation of danger. This is due to real or predicted conditions: work with life-threatening, high responsibility for decisions, performing complex functions, increasing the pace of activity, lack of time to perform expected actions, processing large volumes and flows of information; complicated factors of the working environment, the monotony of work in terms of waiting for the signal to extreme activity.

Activities in extreme conditions set high demands on representatives of risk group professions. Such people must be able to constantly monitor their condition, make quick decisions, adequately assess the situation, as well as be willing to give their lives in case of emergency. All this requires significant mental effort and psychological stability, Bondar G. (2007).

Representatives of risky professions are affected by a number of factors, each of which has a specific impact on the activities and behavior of the individual. However, in extreme conditions, we distinguish the following psychological and neurophysiological factors:

- while working in extreme conditions, three types of mental stress are noted - emotional, unemotional and mixed. *Emotional stress* arises under the influence of emotional factors that cause feelings of anxiety, fear, risk to life, etc. *Unemotional stress* appears in conditions with increased

requirements for mental resources and the motor apparatus. *Mixed emotional stress* is characterized by different "specific weight" of the emotional component in the overall stress structure and is most characteristic of different activities in extreme conditions;

- emotional working conditions cause rises and falls in a person's performance or decline, especially in strong emotional stress. In some cases, there is a loss of work skills;
- rises and falls in performance depend on individual characteristics, especially on the properties of the nervous system. People with a strong nervous system are more resistant to extreme stress. "Weak types" are more susceptible to super-powerful influences. Confusion is often observed in them and the reliability of work performance decreases;
- emotional stability and reliability of work increases if a person is familiarized in advance with the peculiarities of the activity that waits for him. On the other hand, you can get used to the extreme conditions of activity and this is known to representatives of risky professions;
- moral, volitional and other personality characteristics, especially the development of a sense of responsibility, play an important role when working in extreme conditions. To assess this quality in recent times in psychology use the term "personality reliability".

As you can see, the professional activity of representatives of extreme professions differs from other areas by long-term mental and emotional stress due to both the content and working conditions. These professions involve an increased risk factor, lack of information and time for reflection, the need to make an adequate decision, high responsibility for the tasks, the presence of unexpected obstacles. In such extreme working conditions, important factors are stress resistance and adaptability of the individual, in the absence of which the professional health of the individual may be impaired, Bondar G. (2007).

Wide socio-hygienic and psychological studies carried out in various directions show that the number of professions and types of work is increasing, during which workers experience psychological overload, V. Medvedev (2003). In our opinion, the bright representatives who operate in extreme conditions are emergency workers. The World Health Organization considers the professions of emergency services (fire service, police, ambulance, gas emergency service, etc.) to be the most complex professions, the activities of which are carried out in extreme or special conditions. These

conditions, from a psychological point of view, are characterized by strong psycho-traumatic factors.

Special working conditions set increased demands on the professional, are the cause of errors and disruptions in work, adversely affect a person's ability to work and health. Special conditions of activity are always associated with the impact of extreme factors or the occurrence of extreme situations. Depending on the degree of periodicity, the frequency of their occurrence and duration, they are distinguished:

1) the actual special conditions of activity, which are essential for those situations when the activity is associated with episodic actions of extreme factors;

2) extreme conditions of activity (as an extreme form of special conditions) associated with the constant action of extreme factors.

The essence of special and extreme conditions is such that they often exist objectively and are fundamentally impossible to change, which excludes the possibility of actively influencing them. The term "extreme factors" means such factors that are not indifferent to the body and cause maximum permissible changes in it. The external environment helps to identify the adequacy or inadequacy of the functional, mental capabilities of a person in the process of performing an activity.

Scientists argue that the negative factors of hazardous professions are, first of all, the physicochemical characteristics of the conditions of activity, mechanical actions (vibrations, overloads), acoustic influences, danger, often the occurrence of unforeseen, including emergency, situations; specificity, activity; a high degree of responsibility, fear of making a mistake or failing (Kosarev, 1998; Nikiforov, 2003). However, we are closer to the opinion of scientists who primarily influence the professional activities of "stressors" and "stress factors" (Leonova, 2000; Polyakova, 2008, et al.). Therefore, a person's work in special conditions is associated with neuropsychic stress, which is caused by the influence of various negative factors, while the physical possibility of a dangerous situation arising is potential and is determined statistically.

Some scientists suggest examining a person through the opposition statement: "a person's ability to adapt to a complicated reality - a person's desire to change themselves based on the development of their abilities as self-worth". The individual is constantly between the desire to change in order to adapt (that is, to adapt to the value set to it from the outside), to remain unchanged, and the desire to change in order to improve his values, to develop abilities, Symanyuk E. (2005). This idea reflects one of the most important principles of the systemic historical-evolutionary approach to

understanding a person, according to which a necessary condition for the development of various systems is the presence of contradictions (conflict or disharmonious interaction) between adaptive forms of activity aimed at implementing the generic program, and manifestations of the activity of elements that carry individual variability (A. Leontiev 2004, S. Rubinstein 2005).

Sensualistic views of safety are closer to neurophysiological mechanisms of self-manifestation and the search for personal existence. For example, N. Grishina emphasizes that for people who work in special conditions, the meaning of life is professional self-improvement and the desire and ability to help people. For them, this is not limited to a range of narrow personal interests, but is expressed, in particular, in the desire to "prolong themselves" in the family and children. This understanding of the profession allows the specialist to mitigate the effects of stressful situations. At the same time, the influence of special working conditions on the understanding of life values by professionals is not so clear. It is noted that high tension often leads to deterioration of health, depression, N. Grishina (1997). Many experts who work in special conditions speak about the meaning of life as something unreal, Znakov V. (2005). That is, there is an alienation from meaning, meaning is not included in the world of a particular person. In N. Grishina's research (1997, pp. 76-81) groups of employees are distinguished by the nature of the influence of special conditions of activity on the formation of personality: the group of professional and personal maladaptation: special conditions of the profession are for the representatives of this group an unbearable test, they leave the profession; passive "adaptation group": characterized by "unstable balance" between the requirements of the profession and the level of their implementation; these people, to a certain extent, get used to the difficulties of the profession as a vital necessity and do not feel satisfaction with professional activity; group of active self-improvement: special conditions contribute to professional and personal growth. Self-improvement becomes the only process for them, there is an increase in the importance of professional activity to the level of the meaning of life.

We find the beginnings of the subject-centric approach in the adaptation theories of Ukrainian scientists. There is a significant amount of work on the problems of human life in special conditions that depend on changes in the environment under the influence of various extreme factors. Most of them concern the main provisions of the theory of adaptation, which is considered as a process by which the optimization of human functioning and balance in the system "man - environment" are achieved. There are several forms of manifestations of the phenomenon of adaptation,

which make it possible to consider adaptation as a dynamic formation, a direct process of adaptation to environmental conditions, on the one hand, and as a property of a certain living self-regulating system, determines its resistance to environmental conditions and presupposes the presence of a certain level of development of adaptive abilities - on another. In general, the wider the adaptive capabilities of the individual, the more likely the normal functioning of the body and the effective performance of professional activities for the actions of various psychogenic factors.

### **Human activity in special conditions, which is associated with neuropsychic stress**

One of the most unfavorable factors in professional activity is mental tension, which can turn into a long-term destructive neurophysiological state. It is noted that a person's mental tension arises as a result of difficult conditions of activity, conflicts, anticipation of adverse developments and is accompanied by feelings of discomfort, anxiety, frustration. As already noted, special conditions are created by various factors due to specific features of the external environment, the nature of the activity performed, the properties of information flow to a person. Each of these factors has its own specific impact on human activity and behavior. However, there are general patterns inherent in the activities that take place in special conditions. One of these patterns is mental stress as a consequence of working in special conditions is to anticipate an unfavorable development of events and is accompanied by a feeling of discomfort, anxiety, frustration.

In Ukraine, there are three types of mental stress in the process of professional activity in special conditions: emotional (affective), unemotional (operational, business) and mixed, Smirnov (2007). *Emotional tension* arises under the influence of emotional factors that cause feelings of uncertainty, anxiety, fear and other negative emotions. It can appear before the start of the activity, as well as directly in its process. The emergence of emotional tension is associated with a dynamic mismatch between the objective significance of the situation and its subjective assessment and the emergence of related negative changes in physical and mental functions. This is the type of tension that is least aimed at performing activities where the body's defense reactions are of great importance. *Operational tensions* arise in conditions that place increased demands on a person's mental resources and musculoskeletal system and not associated with danger or other serious consequences, the thoughts of which would make a person worry in advance. This tension increases gradually as a result of complex work. It should be noted that this distribution of types of mental tension is quite

conditional, because any activity is always associated with emotions and under certain conditions, operational tension can develop into emotional. Therefore, the most characteristic *mixed mental tension*, characterized by different significance of the emotional component in the general structure of tension and is the most characteristic of different activities in special conditions.

Traditionally, activity in special conditions is studied by analyzing the relationships of three parameters: external factors of activity (characterized by the presence of extreme factors); internal factors of activity (interdependence of psychological states and personality traits); indicators (results) of activity, Smirnov B. (2007). In our opinion, in this triad, the question of the subordination of external (objective) and internal (subjective) factors or, in other words, the conditions of activity is quite important. External factors of activity are determined by objective factors of existence (noises, vibrations, radiation of different origin, temperature conditions, the presence of radiation, etc.) and professional factors proper (monotony of work, continuous activity, the presence of extreme factors, deficit or overload of information, etc.). It should be noted that the separation of these factors is rather arbitrary, usually it is rather difficult to separate them from each other.

Human activity in special conditions is often accompanied by *stress*, which is a neurophysiological state of man that occurs in response to various extreme influences. These actions are called *stressors* or *psychogenic factors*. Since stress is most often associated with activity, with the emergence of certain emotions, these factors are often also called emotiogenic, Smirnov B. (2007).

In our opinion, depending on the type of stressor and the nature of its impact on humans, physiological and psychological stress can be separated. *Physiological* is the direct reaction of the body to the effect of a uniquely defined stimulus, usually of physicochemical origin. *Psychological stress* is characterized by the inclusion of a complex system of mental processes that mediate the effects of stressors on the human body. Analysis of such states often occurs using different variants of the term "tension". Physiological manifestations of this type of stress are similar to those described above, but the range of psychological and behavioral changes is wider. The most typical of them are changes in emotional reactions, in the motivational structure of activity and the course of various mental processes. *Psychological stress* is divided into three types - informational, emotional, communicative. *Information* occurs in conditions of information overload and sensory hunger. In the first case, a person does not cope with the task, does not have time to make the right decisions at the required pace, in the second,

she is definitely overloaded with information, and also causes a number of negative phenomena in her (boredom, loss of interest in work, apathy, etc.). *Emotional stress* manifests itself in situations of threat, insult, threat, anxiety, etc. *Communicative stress* is caused by real communication problems and interpersonal interaction in a team. At the same time, such a distribution of types of stress is rather arbitrary. The differences are in the nature of the stimulus (stressor), the conditions of its occurrence and the level of the corresponding reaction of the organism. According to the impact on humans, stressors are divided into physiological and psychological. *Physiological stressors* are caused by excessive physical activity, painful stimuli, influence of low and high temperature, etc. *Psychological stressors* are factors that act on their semantic meaning: threat, insult, danger, information overload, lack of time, peculiarities of communication, etc.

According to its neurophysiological essence, stress is manifested in the general adaptation syndrome as a necessary and useful autonomic and somatic reaction aimed at adapting the body to new living conditions. That is, stress, from a physiological point of view, is an adaptation syndrome and is a non-specific reaction of the body to influences of various origins that go beyond the normal range. At the same time, the norm is strictly individual for each person and is limited by the upper and lower frames. G. Selye (1982) proposed to distinguish between two *types of adaptive resources of the human body under stress* - level and deep adaptive energy. Surface resources of the body are activated in a stressful situation "on demand", they are quite easily restored, for example after rest. If there is a recovery of psycho-energy (adaptive) resources, the body is not in a state of disease. Surface adaptive energy is restored due to the deep restructuring of the homeostatic mechanisms of the body, which is mobilized through adaptation. Activation of deep adaptive energy begins when a person is in a stressful situation for a long time and when it spends "surface energy resources". Depletion of deep resources irreversibly leads to depletion of the body and emotional burnout, G. Selye (1982).

The process of overcoming an emotionally tense situation depends on a person's mental state: he is in a vigorous state and is confident that he will overcome the situation; a person has some doubts about his own ability to cope with difficulties, but he does; the person is not self-confident and tries to compensate for it by other means or forces (outside help, reduction of mental stress due to change of own attitude to the situation, etc.); a person with sufficient functional readiness is mentally depressed and unable to overcome difficulties. The effectiveness of overcoming an emotionally tense situation depends on the level of depletion of emotional-volitional

efforts: minimal depletion of efforts, which allows you to overcome the situation and does not require significant time for recovery (not strengthening of efforts, namely recovery), moderate depletion of forces, which leads to stress, and in further - to depression; excessive exertion that causes to psychic trauma.

The main characteristics of the personality in emotionally tense situations are the difficulty in overcoming obstacles; the problem of choosing the right solution; awareness that being in a socially difficult situation is a chance to express yourself, and this causes excitement; a state of constant reflection; feeling of a certain need and impossibility of finding one's place in the situation; feelings of fear and insecurity, but in further analysis of the situation the ability to find a positive solution that gives a sense of satisfaction feeling uncomfortable and worried about what will happen; a sense of self-confidence in overcoming the situation; trying to gain the support of others; under conditions of urgency of the decision of a situation at first there is a confusion, and then - concentration.

Qualitative performance of professional activity in such conditions depends not only on the general and special training of experts, but also on degree of development in them of a number of nonspecific psychological and psychophysiological qualities. The professional activity of representatives of emergency assistance is the most stressful (in psychological terms) among the types of social activity and belongs to the group of professions with a large number and intensity of stress factors, which, in turn, sets increased demands on *personal characteristics* as *internal conditions of activity*. There are many classifications, but most researchers distinguish among them such as the level of general intelligence (intellectual and cognitive flexibility, general awareness, practical thinking, coordination, planning); level of personal stability (reliability, resistance to stress, self-confidence, responsibility, communication skills); lack of tension, anxiety and psychopathological symptoms; psychodynamic properties (neuroticism, extroversion-introversion, type of autonomic self-regulation).

Psychological and psychophysiological qualities are based on the fundamental patterns of human adaptation to activities in extreme conditions. Mental adaptation is of direct importance for the analysis of the features of the functional state of persons who perform activities in emergencies, as well as those who experience their effects. Persons who are well adapted to "everyday" life, but have little adaptive capacity, are primarily prone to breakdowns that affect professional health. Factors of human individuality, which determine the reliability and efficiency of work are especially evident in the conduct of psychophysiological research among

professionals who work in conditions of increased threat to life and health from adverse environmental factors and activities.

Under the influence of external factors and depending on personal characteristics, a person develops certain mental states. They are quite diverse and their integral characteristic under certain conditions of activity is called the functional state. The functional state is a characteristic of a person's states according to the effectiveness of the functions performed by it, the body systems involved in this according to the criterion of reliability and internal value of activity. The main *types of functional states* are 1) a state of operational calm, which is characterized by a person's readiness to perform activities, but does not reflect its specifics; 2) the state of adequate mobilization, which characterizes a person who has already joined the activity; while the changes occurring in the human body are adequate to its activities; 3) a state of dynamic inconsistency, which occurs when the body's response is inadequate to the load or the necessary psychophysiological responses that exceed adequate human capabilities.

Regarding the result of activities in special conditions, it is evaluated by quantitative and qualitative indicators that determine its quality, productivity and reliability. *The quality of a person's professional activity* is characterized not only by the system of its various indicators (infallibility, accuracy, timeliness of work, etc.), but also by its various types, which are determined by the leading goals and evaluation criteria. The study of the quality of professional activity as its infallibility, accuracy and timeliness of work and psychological reliability as the stability of mental activity under the influence of extreme factors is fundamental, especially when studying various forms of human activity in terms of adaptation to complex environmental conditions (Oboznov, A. 2003 & Chebykin, A. 1989 et al.). *Professional productivity* provides an opportunity for activity, choice, responsibility, gaining positive experience during professional activities, as well as the formation of value orientations that determine the level of personal activity and focus (Korolchuk, M. 2002 & Malkova, T. 2014, et al.). These theories directly correlate with the views of foreign scientists regarding *professional reliability* and are responsible for adequate methods and techniques of self-regulation, the level of formation of regulatory systems of different levels and the degree of adequacy of ideas about their state and psychophysical capabilities (Lager, 1974 & Park, 1987, etc.).

In these characteristics of activity in special conditions, the main attention is paid to manifestations of professional reliability, which is mainly considered in the framework of the activity of a person-operator and is determined by the degree of erroneous actions or their absence, the

probability and sequence of their occurrence, Chebykin A. (1989) or through the category of person-operator performance, in which it is defined as the property to maintain stable performance in certain modes and conditions of work, Venda V. (1983). Such definitions are focused on the internal, potential and ability of a person to provide it, but they do not fully disclose the specificity of this concept from the point of view of procedural (stability of functioning) and *effective* (reliability, faultlessness) characteristics. The most complete definition of reliability is found in the work of E. Mileryan: "... a state of operability in which the operator ensures accurate, efficient, error-free, optimal, timely and successful performance of all functions assigned to him, both in optimal and in extreme working conditions", E. Mileryan (1974, p. 14). Therefore, reliability of activity is provided by mental reliability which criterion is stability of mental activity in various degree of mentally strained professional situations. The basis of mental reliability - the development and stability of the system of self-regulation of arbitrary human activity, which is manifested in the ability of the subject to maintain the quality and effectiveness of individual self-regulation in psychologically stressful conditions.

Characterizing the content of the professional norm, it is necessary to dwell on the psychological interpretation of the norm in the study of psychological phenomena, which is presented in detail in the works of G. Ball (1990). Based on a wide range of interpretations of the norm, the scientist characterizes it as a socially defined basis within which a certain activity is built (or should be built), i.e. the norm of activity is a socially determined model of a component (result, means, method, etc.) or system such components. Based on the fact that each rule has a modality and range of action, it should be emphasized that it is a professional rule that defines a clearly regulated course of action. But the main figure in their observance is a person who, according to M. Rozov, is at the same time "an actual or potential participant in a large number of regulatory systems", Rozov M. (1984, p. 181). The point is that a specialist, in the course of professional development, modifies the norm with his own knowledge, skills, and especially attitudes and motives. Therefore, such refined norms, manifested in the professional activity of a specialist, become personal norms, in which the manifestation of the interaction of the early "internal moral instances" of a person with his acceptance of real social requirements is clearly traced.

With the help of these indicators there is a comparison of the result and the purpose of the activity. There is a complex dialectical connection between the efficiency of activity and the functional state: arising and developing in activity, the functional state has a significant, and in extreme

situations - a decisive influence on the characteristics of activity. Thus, the performance of professional functions of representatives of the most disgusting professions is often combined with a danger to health and life. The emergence of unforeseen situations, and often the need to overcome difficulties is usually the norm of professional activity.

## Conclusions

Thus, the analysis of the problem of studying occupational safety in special conditions of activity actualizes the issues of studying neurophysiological and psychological personal and subjective determinants, which ensure the activation of productive processes of activity, mobilization of operational functions, the implementation of plans and strategies of behavior, etc., actually fits into the psychological construct of the psychological health of a specialist's personality.

Knowledge of the specific requirements of a particular subject to the subject in the process of work, as well as individual resources to overcome the stressful situation, helps to identify the necessary activity to reduce the adverse effects of stress in the workplace. The work situation of representatives of stressful professions is associated with the entire spectrum of personal, cognitive, social and instrumental resources to overcome stress.

It is also expedient to single out the criteria for the specialist's perception of an emotionally tense situation: its features (according to the degree of subjective significance); instructions contained in the peculiarities of perception of the situation; opportunities external (situational) and internal (personal; temptation; the presence of danger; everything that determines actions (motivation, guidance, purpose, task, strategy, tactics, term, place, space); the impression caused by the situation; reasoning that generated by the situation, willpower, notes (development) of action plans, etc.

The logical conclusion of the consideration of the phenomenon of emotionally tense situation can be a certain algorithm for analyzing the presence of a person in emotionally tense situations, which can be analyzed according to the following scheme: definition of the purpose, tasks of action and the relation of the person to it; as well as the conditions in which the action takes place (which contribute to or hinder the implementation of the tasks); determination of the program (sequence) of action, given formally and the degree of its awareness and perception by the individual; finding out the degree of coincidence (compliance) of this action program with the one provided in advance; identification of strengths and weaknesses of the individual that contribute to or hinder the realization of the goal; detection

of characteristic errors and erroneous actions of the individual during the performance of certain tasks; creation of a multifactorial model of personality actions in socially complex situations (taking into account the dynamic features of the situation and personality); correction and regulation of personality actions (choice of the necessary form of psychological assistance) etc.

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