

Neuropsychological Technologies for Maintaining Occupational Health of an Individual

Larysa BUTUZOVA¹,
Dina SHULZHENKO²,
Volodymyr KOLYKHAN³,
Mykola NESPRAVA⁴,
Svitlana PODOFIEI⁵,
Olena MAMICHEVA⁶

¹ Zhytomyr Ivan Franko State University, Zhytomyr, Ukraine, lorabutuzova@gmail.com, <https://orcid.org/0000-0002-2112-5211>

² National Pedagogical Drahomanov University, Kyiv, Ukraine, dinashulzhenko@gmail.com

³ Lesya Ukrainka Volyn National University, Lutsk, Ukraine, kolyk@i.ua, <https://orcid.org/0000-0002-3881-8778>

⁴ Dnipropetrovsk State University of Internal Affairs, Dnipropetrovsk, Ukraine, n.nesprava@gmail.com, <http://orcid.org/0000-0003-0415-1837>

⁵ National University of Ukraine on Physical Education and Sport, Kiev, Ukraine, cvpodofey@gmail.com, <https://orcid.org/0000-0003-0038-1846>

⁶ State Higher Educational Institution «Donbas State Pedagogical University», Sloviansk, Ukraine, lena_sk_74@ukr.net, <https://orcid.org/0000-0001-5299-7939>

Abstract: The article is devoted to the problem of theoretical consideration of the best neuropsychological technologies for maintaining, strengthening and developing the occupational health of a specialist, particularly from the risk group of occupational diseases, nervous exhaustion, stress, neurosis and emotional burnout. Important criteria of occupational (psychological) health are considered. The concept of occupational health in the neuropsychological context is clarified. The criteria of occupational health and scientific approaches to consideration of neuropsychological technologies of occupational health development by foreign and domestic researchers are generalized. Occupational well-being is identified as the main criterion of occupational health. The role of neuropsychological prevention of burnout is indicated. Neuropsychological recommendations have been developed to ensure and maintain occupational health of specialists in the process of their professional development, in particular in the professional system “human – human”. Neuropsychological factors of occupational health are specified. It is noted that the state of occupational health may be associated with functional asymmetry of the brain, which requires development and implementation of neuropsychological programs to restore occupational health of professionals from a risk group.

Keywords: *Emotional and physical exhaustion; neuropsychological techniques; occupational burnout; stress resistance; occupational stress; neuropsychological recommendations; neuropsychological correction; occupational deformations; occupational diseases.*

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Introduction

The neuropsychological program of occupational health maintenance is currently being developed by many specialists – neuropsychologists, physicians, educators, valeologists in view of the urgent demand of a new generation of people able to adapt to changing living conditions in an era of pandemics and unpredictable social transformations on a world-wide basis. Development of the scientific neuropsychological field as a health-maintaining technology is connected with a significant need of the self-sufficient personality of the specialist in a healthy way of life and productive professional activity. Environmental and neuropsychological factors of maintaining and strengthening health as the highest human value, have become a priority for study.

Positive thinking, good mood, sense of humour are a strong personal resource both to withstand significant mental and emotional stress of employees, to overcome the state of mental exitation, to use neuropsychological competence in overcoming stressful situations in the workplace, to maintain the effectiveness of productive functioning in professional activities against the background of stressful situations. On the contrary, low stress resistance, asthenic emotions, prolonged mental stress, and depletion of the nervous system as the body adapts to adverse operating conditions are often associated with emotional burnout. Chronic stress, frustration in the profession, crises of professional development can cause the syndrome of occupational burnout, disorganize behaviour, cause professional incapacity and loss of identity as a professional, and therefore it is very important to carry out neuropsychological prevention to maintain occupational health, and consequently increasing productivity of professional activity, which is undoubtedly an urgent applied problem in neuropsychological science.

Theoretical and methodological analysis of the study of the problem of neuropsychological technologies of maintaining occupational health

Occupational health can be considered as a criterion of professional suitability; occupational well-being; a process that ensures and at the same time increases the efficiency and result of professional activity, quality of professional life with the ability to optimally perform professional duties, withstanding stress at the workplace as a functional criterion and is a prerequisite for achieving professional goals and achieving professional success; a state of complete socio-biological and mental comfort, when the

functions of the organism are balanced with the conditions and requirements of the natural social (professional) environment against the background of excellent physical well-being; purposeful and complex care of the individual about one's body, mind, physical development with confidence in oneself, the neurobiological system of one's body. Due to the further development of the criteria of productive professional life in science, the neuropsychological problem of maintaining, strengthening and developing occupational health requires new approaches to a comprehensive, systematic and competent study of neuropsychological health management in the workplace (Bezliudnyi, 2019; Palamarchuk et al., 2020; Maksymchuk et al., 2020a; Maksymchuk et al., 2020b; Nerubasska & Maksymchuk, 2020; Nerubasska et al., 2020).

According to the World Health Organization (WHO), human health is not just absence of disease, but complete physical, spiritual and social well-being. In the light of this formula, a Human appears as the author of one's own health, and in terms of its maintenance – plays a leading role, which is determined by a mature self-awareness of an individual and respect for one's essence. The latter is expressed by a harmonious strategy of behaviour, which is called a “healthy lifestyle”. The definition of health formulated by the WHO is most consistent with the value-social model, which emphasizes that the fullness of human life as the greatest value is due to health. Enjoying life implies enjoying good health. The value of human life is absolute, because it is the only condition and criterion for the existence of any other value. Some of the modern technologies for improving and maintaining health of the individual are: harmonization of living space, formation of the internal image and potential of health; use of protective mechanisms as emotionally-oriented overcoming of negative emotions; formation of a healthy psyche and maintaining its optimal functioning through compliance with psycho-hygienic norms, gaining confidence, developing self-control skills, etc. (Tolkunova et al., 2018).

An important component of the neuropsychological program of health maintenance, certainly, is the prevention of occupational burnout associated with the syndrome of nervous exhaustion - physical, mental, emotional on the background of chronic stress, depression, depersonalization, low efficiency, inability to see the positive aspects of one's work, constant feelings of devastation and fatigue, negative attitude to one's work and life in general, psychosomatic diseases. Occupational burnout is an indicator of personal and professional regression, loss of occupational health, “nervous” crisis in professional adaptation, long-term “work” stress, which may be accompanied by increased anxiety, intrapersonal conflicts, as

well as loss of motivation for professional development in those prone to perfectionism and workaholism. Quite often, attempts to perform professional duties perfectly, with increased motivation are inherent in the employee in the early stages of occupational burnout, which is later replaced by indifference, decreased energy, enthusiasm, and even loss of mental health.

Occupational burnout is a dynamic process, with gradual and consistent development of nervous tension and is associated with physical, cognitive and emotional exhaustion, complete or partial exclusion of emotions in psycho-traumatic situations, reduced efficiency, dehumanization and depersonalization of interpersonal and personal activities, maladaptation and disintegration of various areas of mental activity, experiencing professional distress, loss of interest in the professional environment (Chemali et al, 2019; Kokun, 2013; Schaufeli et al., 2008; Vodopyanova & Starchenkova, 2008).

The criteria of occupational (psychological) health, according to the scientists include: optimism, harmony of mental organization, adaptive capacity, ability to live in inner harmony, concentration (lack of fuss), the maximum approximation of subjective images to reflection of the objective reality (adequacy of mental reflection), creativity (ability to create, ability to use intelligence), focus on self-development, adequate professional self-esteem, balance, morality (honesty, conscientiousness, etc.), adequate level of demands, sense of duty, self-confidence, invulnerability (ability to get rid of hidden offences), lack of laziness, independence, immediacy (naturalness), responsibility, sense of humour, friendliness, tolerance, self-esteem, self-control. Among mental states, the following mental health criteria are best known: emotional resilience (self-control); maturity of feelings according to age; ability to control negative emotions (fear, anger, greed, envy, etc.); free, natural expression of feelings and emotions; ability to rejoice. The criterion of mental balance deserves special attention, the degree of its expressiveness determines a person's adaptation to conditions, the nature of functioning of the mental sphere of an individual from different angles (cognitive, emotional, volitional). Moreover, the balance itself does not act as if frozen in its manifestation, but unfolds in the translational motion of vital biological and psychological processes and manifestations as reactions to external influences, which are of great importance in terms of distinguishing between norm and pathology. The level and ability to mobilize the body's adaptive reserves - structural, manifested in the development of interneuron connections and functional (biochemical, physiological and mental, which are integrated into the body's reserves of adaptation), adapting to physical,

psycho-emotional stress and impact of environmental factors on the body (Kotsan et al., 2011).

Occupational well-being is an important criterion for occupational health. The problem of psychological support of occupational well-being is complex and insufficiently studied. The need for and effectiveness of preventive measures to maintain occupational well-being (health) is generally recognized, but few studies have addressed development, implementation and evaluation of organizational intervention programs to subjectively improve occupational well-being of a specialist in the workplace. Occupational well-being is considered in terms of mental state (emotional well-being - situational) or at the level of personal traits (well-being as a personal disposition - dominant). In assessing occupational well-being, it is important to take into account ambivalence (comparing the level of occupational well-being in different time periods) and scientific approaches (hedonistic - assessment of well-being as an affective phenomenon and eudemonistic - as affective-cognitive syndrome) (Berezovskaya, 2016).

Foreign researchers have linked subjective well-being to the effectiveness of professional activities. Thus, Bakker & Oerlemans, (2011), use a comprehensive emotional model to explain subjective well-being, the main structural components of which are job satisfaction and enthusiasm and a sense of happiness towards it as a manifestation of employee productivity. Instead, workaholism and occupational burnout are negative types of subjective well-being. Warr, (2012) considers relationship of occupational well-being with competence, autonomy, desire for development as a general integrated functioning of the employee's personality. Theoretical and practical foundations of the model of professional emotional well-being are used in the practice of successful involvement of employees in work as multidimensional dispositions and experiences, including affects, cognition and professional behaviour (Di Stefano & Gaudiino, 2018; Mazzetti et al., 2018; Sonnentag et al., 2010; Spreitzer et al., 2010; Van Wijhe et al., 2011).

The scientific literature reflects a systematic view of occupational health: considers the issue of introduction of health-maintaining technologies in the educational environment (Averina, 2018) the most significant problems of the study of occupational well-being in the psychology of occupational health (Berezovskaya, 2016); principles and facts of improving human psychological health (Kotsan et al., 2011; Tolkunova et al., 2018); practical recommendations for optimizing the psychophysiological support of professional development of a specialist for occupational well-being (Kokun, 2013); systematic approaches to maintaining and

strengthening the health of teachers, measures to prevent and eliminate occupational stress and occupational burnout (Meshko, 2017).

We believe that manifestations of occupational ill-being, occupational health disorders, pathopsychological changes in the body, psychosomatic diseases are often the result of depletion of the nervous system, which affects the employee's experience of adverse mental states (emotional stress, fatigue, occupational stress and depression). Determinants of occupational well-being and important neuropsychological factors of professional health are: productive mental tonus, harmonious relationship between the capabilities of the specialist and working conditions, adequate emotional response to professional stress, maintaining a healthy lifestyle, a stable optimistic mood, combining professional satisfaction with professional activity with high professional efficiency, neuropsychological features of energy and regulatory components of mental processes, harmonious relationship of individual psychological with cognitive and emotional features of the personality of the specialist, etc.

Domestic and foreign scientists – Hugdahl, (2005), Chuprikov, Hnatiuk, Chuprikova, (2018), Luria (2003) - studied the relationship between hemispheric asymmetry of the brain with individual-psychological, cognitive and emotional features of personality. In this regard, it can be assumed that the state of occupational ill health is often associated with psycho-emotional stress, the emergence of which neuropsychologists explain by interaction of the mechanisms of interaction of the cerebral hemispheres, lower brain structures, especially the hypothalamus. It is known that psycho-emotional stress is accompanied mainly by activation of the right hemisphere of the brain, regulatory dysfunction of emotions, stress in the body's adaptive systems, which is certainly associated with a tendency to neurotic experience of occupational stress and conflicts, therefore, left-handed people are often physically and emotionally exhausted. Thus, individuals with dominance of the right hemisphere are characterized by high anxiety of emotional-vegetative type, which is often associated with a predominance of negative emotions, high susceptibility to depression, unconstructive tactics of behaviour (avoidance, competition, adaptation). The dominance of the left hemisphere in right-handed people is associated with the predominance of positive emotions, ability to cope with stress, tolerance in professional communication and constructive tactics in difficult professional situations (cooperation, compromise, collaborative partnership). Thus, the symptom complex of occupational burnout and professional adaptation of individuals is associated with functional asymmetry of the brain, which requires

development and implementation of neuropsychological programs to restore occupational health of professionals from the risk groups.

Neuropsychological guidelines for maintaining occupational health

Neuropsychological prevention of occupational health maintenance is a set of measures aimed at preventing physical exhaustion, improving psychological and social well-being, maintaining and strengthening mental health, formation of neuropsychological competence in overcoming excessive information and psycho-emotional stress. The main tasks of occupational health neuropsychology are neuropsychological support of occupational health, its maintenance and strengthening; increasing effectiveness of neuropsychological factors of a healthy lifestyle, systematization of its criteria, diagnosis and monitoring at the stages of occupational burnout and in special working conditions; prevention of mental and psychosomatic diseases; study of the edge-state conditions preceding the disease and their prevention; development of individual-oriented neuropsychological programs taking into account the state of health of employees, their age, gender and personal characteristics; neuropsychological aid in times of crisis on a professional basis; formation of creative attitude of the employee to development of his/her occupational health.

In neuropsychological prevention of maintaining and strengthening occupational health, it is appropriate to use the following technologies: selection of physical activity and respiratory, self-regulatory and self-relaxation anti-stress techniques depending on health and age, simultaneous development of individual nutrition programs, cold training and psycho-hygienic exercises and methods of cognitive and behavioural therapy (to work with neurotic reactions, high anxiety in stressful conditions), formation of personal responsibility for the state of one's occupational health as an individual resource and potential of the employee in professional development.

Obviously, application of such technologies can be resorted to by people who care primarily about the state of their psychological well-being, while the care of conscious and responsible actors about their health is a guarantee of occupational health. The scientific literature states that psychological and occupational health are closely interrelated, in our understanding - synonymous. Psychological health is a state of balance between personal characteristics that ensure not only successful adaptation, but also a productive development of a person for the benefit of himself and society through self-understanding, self-acceptance and self-improvement.

Mental health is the highest level of mental health (Kotsan et al., 2011). Thus, an employee with motivation to improve their professional activities, professional self-esteem will be sure to take care of their physical well-being and general well-being and will have such personal characteristics that provide professional achievement in a combination of motivational purposes “I want - I can - I will achieve” and is passionate about achieving the goals of professional activity not to the detriment of their health, but in the harmonious combination of health maintaining technologies with the ways to achieve professional success.

Traditionally, scientists include specialists of pedagogical qualification in the group of risk of occupational burnout and occupational diseases. Means of maintaining and strengthening occupational health of teachers are increasing their auto-psychological and health-maintaining competence; formation of sanogenic thinking, emotional flexibility, mental self-regulation skills, individual style of activity, productive style of communication, organizational culture; social support and social integration; creative self-realization in the profession. Preventive measures for occupational deformations, destructions, occupational burnout of teachers should include increasing the level of their occupational stress resistance; creating a favourable psychological climate among the teaching staff; creating a health-maintaining, psychologically safe educational environment at school; purposeful activity of the school psychological service on preservation and strengthening of occupational health of teachers; self-education, self-improvement of teachers; participation in professional growth trainings, anti-burnout trainings, anti-stress trainings; supervision in pedagogical activity; improving the psychological and managerial culture of the school administration; reasonable organization of the teacher’s work; developing ways to improve the neuropsychological culture of occupational health of teachers. Since the system-forming component of all aspects of health is the mental one, the approach to ensuring the health of teachers is based on the provisions of psychosomatics and psycho-energetics: care for one’s own mental health, emotional well-being, physical well-being, maintaining and strengthening occupational health on one’s own, formation of a worldview and health line of behaviour based on the principles of “know yourself, create yourself, make yourself healthy”, “keep healthy through reasonable lifestyle” (Meshko, 2017).

The level of stress resistance, protection of physical and mental health from the effects of stress factors largely depends on the methods of self-regulation (the ability to control one’s own actions and states) as a prevention of occupational burnout and other occupational diseases.

Neuropsychological self-regulatory exercises involve the influence of an individual on oneself through instructions of self-suggestion and include the following technologies: autogenic training (to relieve mental stress, calm, followed by transition of the individual to a special state - hope, trust, faith in the body capabilities, the character, formation of desired mental qualities, in the same time a person does not think rationally, but completely trusts one's body; biological feedback (BF) - conscious control and arbitrary influence on a number of processes that are not felt and perceived in the body (biological activity of the brain, heart rate, body temperature, blood pressure, muscle relaxation, etc.) by electrophysiological equipment that changes and shows (in the visual and auditory version) the results of the impact on the course of any arbitrary physiological process, which provides a constant opportunity for the subject of self-regulation to control the nature of its development; meditation - a series of mental actions, the purpose of which is to achieve a special state of the human body, characterized by immersion in deep physical and mental peace, isolation from the outside world, during which the ability to think - operating images on previously set topics and achieved by concentrating internally attention, possible great muscle relaxation (relaxation) and emotional calm as an effective protection of the body from the destructive effects of stress, with regulation of respiration, normalization of heart rate, relieving anxiety and fear (Kotsan et al., 2011).

Determining effective health-maintaining technologies for educating a healthy lifestyle of young people in the educational environment of an educational institution can be carried out in accordance with the psychological mechanism of self-regulation, unity of consciousness and activity in the process of acquiring certain quality traits by an individual, including professional and pedagogical competence. Fostering a healthy lifestyle is aimed at formation of responsible and safe behaviour, as a rule, has three main objectives: reliable, adequate information about a healthy lifestyle; creating motivation to maintain health and safe behaviour; formation of behavioural skills (Averina, 2018).

The basis of neuropsychological prevention and development of occupational health can be the concept of psychophysiological support for formation of a specialist in professions such as "human-human", important components of which are: determining the general content, components and factors of professional development of a specialist; psychological and psychophysiological features of professional development, features of activity and requirements in professions such as "human-human"; the main difficulties and negative phenomena that can complicate this process;

determination of the content, basic principles and directions of psychophysiological support of becoming a specialist in professions such as “human-human”; quantitative and empirical specification of psychophysiological features and factors of professional development of a specialist in professions of this type; development of measures and practical recommendations aimed at psychophysiological support of becoming a specialist in professions such as “human-human”, optimizing development of professionally important qualities and psychophysiological properties (mental functions, memory, attention, professional motivation and identity, communicative, conflict and psycho-hygienic competence; prevention of the emergence in professionals such as “human-human” of occupational deformities and stress states (Kokun, 2013, pp. 253 - 255).

Vodopyanova, Starchenkova (2008) also note that occupational burnout causes loss of mobility and competitiveness of an organization. The price for burnout is reflected in work, health, and functioning of an individual. Therefore, it is necessary to use a dynamic set of technologies: psychodiagnostics, audit, preventive measures and neuropsychological intervention to overcome the effects of burnout. Effective neuropsychological technologies for prevention and overcoming of emotional burnout are: decreased excitement (relaxation exercise, distraction or switching of attention, breathing exercises); resource mobilization (ideomotor training, means of sensory and mental stimulation, heterosuggestion); mental desensitization; elimination of emotional stress (musical and relaxation psychoregulation); recovery (sleep, meditation); “toning” (representation of the psychophysiological state that excites certain body functions - heart rate, blood pressure, motor, sensory and other functions, ideomotor training); regulation of autonomic processes (autogenic training, heteroregulation, breathing exercises to manage mental stress and mood).

Currently, the primary task of neuropsychologists is to restore occupational health of combatants in eastern Ukraine. It is important to apply preventive measures for the military in order to adapt them to combat stress. In this regard, Tkach, (2016) offers the following technologies of neuropsychological correction: yoga - in the framework of cognitive-behavioural therapy (relaxation techniques: muscle relaxation, deep breathing, visual images), meditation, work with fears (verbalization of fears), role-playing games and arrangements according to Hellinger. It is known that there are positive compensatory changes both in norm in stressful new situations and in case of brain intoxications: transition from intrapsychic to extrapsychic (especially in a combat situation). The task of

the neuropsychologist is to reduce the activity of the pleasure centre by establishing a connection between the prefrontal cortex and the adjacent nucleus. This therapeutic task is achieved through formation of mental culture and critical inner speech. The most important thing is to break the established links between manifestation of aggression and feelings of satisfaction, dominance, self-importance, etc. This is achieved through the use of complex meditation (“Objectless, Awareness, Concentration, Empathy”), when the short-term (situational) feeling of happiness from aggression is replaced by a long feeling of happiness (shift of activity from the right hemisphere to the left one). In psycho-correctional work, due attention was paid to reinforcing factors of the appearance of aggressive actions: extremes of self-esteem (high, low), somatic diseases, injuries (increasing hostility), excitability of the nervous system (increased, decreased). Educational and correctional work in the environment of an individual: family, reference group, society. An effective method of working directly with the brain at the level of its physiology is the biological feedback on the EEG (neuron-loop) in meditative practices. Important are quality and duration of sleep, nutrition, physical activity, mental hygiene, “information diet” (completely avoid television and unconstructive content on the Internet).

Conclusion

Occupational health is a guarantee of harmonious inclusion of employees in professional life, the potential of their adaptive resources in the condition of professional activities as a criterion for optimally effective mental functions of a self-sufficient personality of a specialist in accordance with the requirements of a profession. Neuropsychological technologies of occupational health development contribute to creation of a health-maintaining professional environment in which neuropsychological prevention of occupational burnout, occupational destruction, the consequences of occupational chronic stress, occupational neuroses and fears are carried out systematically and comprehensively.

Occupational deformities, illnesses and burnout are indicators of poor occupational health. Neuropsychological prevention and development of occupational health provides support and management of health-maintaining resources of specialists at all stages of their professional development, which is especially important for a professional group such as “human-human” - with high demands on physical and mental performance of an individual. Neuropsychological technologies for maintaining, strengthening and developing occupational health are developed on the basis

of the principles of consistency and continuity, optimization, systematization, individual approach, neuropsychological competence.

The neuropsychological program for maintaining and strengthening of occupational health should be individual, taking into account the potential of the human nervous system to withstand psycho-emotional stress in the professional environment, especially - with often unpredictable working conditions; results of neuropsychological diagnostics; the age of employees, their individual psychological characteristics and motivation to use health-maintaining technologies. The most important thing is to create a health-maintaining environment in all social institutions at all levels and stages of professional development of specialists, with the introduction of neuropsychological centres for restoration of their occupational health and development of occupational well-being.

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