

THE PSYCHOLOGICAL PRESSURE FACTORS AS A PART OF MEDICAL ERGONOMICS

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Abstract

Ergonomics as a science is related to understanding the interaction between people and other elements of the work system in order to optimize the work of people and the performance of the work system. Hospitals have a complex set of systems that rely on different professionals, many of whom are psychological and physically busy. Medical ergonomics studies the peculiarities of the work processes in medicine and the creation of a safe hospital environment both for the patient and the medical staff. Medical ergonomics are paying the crucial significance to the psychological factors and daily stress that affects medical professionals, as well as the ability to overcome neutralizes their negative impact quickly. In the deficiency of specialized intervention, there are extremely negative psychological conditions that affect the working process and the activities of medical worker.

Key words: medical ergonomics, medical worker, psychological pressure factors, emotional exhaustion.

1. Psycho-physiological organization (structure) of man in a working process

Aspects of human activities can be classified according to different criteria: form, method of implementation, the individual relation of man to activity, temporal and spatial characteristics, etc. Mental side of the total human activity flows within, and because of the goal is set from the outside; the relationship between external and internal forms of activity is bilateral. Human activity is determined by needs and motivation and directed towards a specific result. These results must be able to satisfy a particular personal need. Human psycho-physiological organization is a system of three levels.

- The first level covers the power, speed, endurance, physical properties of a person, as well as the properties of the nervous system associated with the dynamics of nervous processes and reflecting activity.
- The second level covers the functional state that characterizes of the dynamics of physiological and mental functions of a person, which are important for professional activity (the functional state is changes because of the influence of the psycho-physiological and neuro-emotional factors of the working environment).

The work capacity of a person is changes during the process of work as a result of the changed functional state of the professional. There are several stages in the performance: the First stage is an increase in working capacity compared to the initial state. During this stage the person is adjusted to the largest part, economical (optimal) mode for performing a certain task. The second stage is characterized by the optimal mode of working operation of systems of the human body, and this stage is associated with a stabilization of indicators. This is a stage of stable performance. The third stage is a decrease in efficiency as a result of fatigue (the functional status is deteriorates and the labor efficiency is decreases). The fourth stage is characterized by the mobilization of reserve forces of the body and the growth of labor productivity. This is the stage of extreme rises.

- The third level covers the psycho-physiological structure of the person in the field of mental processes, which have the greatest dynamism (sensation, perception, memory, emotions, thinking and will). This various forms of mental reflection of objective reality (images, conceptual models) act as a regulator of working movements.

Analysis of the specific needs of the professionals allows us to formulate the ergonomic requirements to the organization of the medical work [1].

2. Medical ergonomics as part of Ergonomics

Ergonomics, as a science, combines scientific disciplines such as anatomy, physiology, psychology, engineering, and statistics. The aim of this sciences is to grow up and abilities of the worker and to minimizing the effects of his\her natural limitations. "Medical ergonomics studies the peculiarities of work processes in medicine and the creation of a safe hospital environment both for the patient and for the medical staff, the presence of such an environment surrounding the patient and the medical worker, which does not create a risk of new disease. Psychology contribute into ergonomics the theory of human activity, based on the information model of the human operator, the theory of training and the theory of work design" [2]. The ergonomic specialists collaborate with clinicians, managers and experts in the field of health to ensure safe working environment of the 21st century and provide the high-quality medical services. Hospitals has a complex set of systems that rely on different professionals, many of whom are psychological and physically busy. Because of it health-care workers (both medical and non-medical personnel) are at risk of occupational accidents. A safe hospital environment includes both infectious disease safety, ergonomic working conditions for the health worker, and their psychological and emotional support. Adverse risk factors leading to stress should be eliminated as much as possible, and conditions for the emotional balance recovery should be created.

There are four groups of occupational factors that affect health:

- Physical
- Chemical
- Biological
- Psychological.

The psychological security has great importance in the work of medical personnel [2].

3. Psychological factors of medical ergonomics

Psychological risk factors can lead to different types of mental and emotional psychological disturbance. Risk factors can occur in all occupational groups in the health sector: nurses, doctors, health personnel and medical and technical services. Medical personnel have a deal with human suffering, death, responsibility for the life and well-being of others. These factors lead to emotional stress.

3.1. Work in different shifts and violations of the daily biorhythm associated with it also lead to the **psycho-emotional stress**. The exacerbating factors are following: dissatisfaction labor results, lack of time, hierarchical structures, lack of recognition, insufficient support of managerial personnel, insufficient communication, work-related burden, social conflicts, aggressive behavior, discrimination, insufficient organization of work, etc. Psychosocial risks associated with work stain are needed to be analyzed, identified and reduced thru the experts' interventions.

3.2. **Stress**. The health professionals` responsibility and care for the patients are significant and associated with stressful situations. Constant emotional stress leads to nervous exhaustion, which can lead to apathy, loss of interest and inattention to people of the doctors and nurses works in the hospital. Stress can be seen as a balance between the demands of our environment (stressors) and the individual's ability to cope with those demands. This intense state of tension is perceived for a

very long time. Stressors in the hospital: excessive quality and quantity requirements, time-pressing tasks and shorter deadlines, information overload, professional inexperience, high professional responsibility, conflicting managerial instructions, lack of acknowledgment. Non harmonious daily events are the "faster" causes of stress. Recent European researches in this issue indicates the growth of cardiovascular problems and disability of workers, which has stress-responsible work and has a deal with large number of non - specific diseases. The reduced health, efficiency, social behavior and personal development are the consequences of these stress. Corrective organizational measures that can be used to reduce stress are following.

- Higher tasks perform freedom, to increase personal motivation.
- Identification of the structural composition of the work tasks for greater clarity and simplification.
- Providing social support in the stressful situations and inability to cope with them.
- Flexible organizational field for effective time management.

3.3. Nervous and emotional exhaustion. Emotional fatigue occurs in a high stress work environment full of problem situations. This imbalance leads to disruption of volitional emotional resistance and emotional tension. Emotional exhaustion is a state of prolonged decline in performance, which occurs as a result of insufficient recovery of somatic mobilization from fatigue. Reducing the body's resistance to external harmful effects leads to increase of morbidity and injury. The impossibility of creative tasks' solving has appeared (the block of the nervous system).

The negative change in feelings, attitudes and expectations has appeared and it has negative consequences for employees who care about others. There are differences with the experience of stress, in terms of depersonalization, personal involvement and implementation. The typical warning signals are following.

- Rapid exhaustion-even the simplest actions become tedious; the tendency to offend colleagues, managers and patients has appeared.
- Low productivity- to empathize with patients is become increasingly difficult for health workers.
- Tendency to indifference to patients.

The number of the characteristics related to the organization of work has become necessary at the level of medical institutions.

- Increase in the number of staff.
- Convenient working time and shifts organization.
- Opportunities for specialization or promotion.
- Management training.
- Additional social benefit for the medical workers.

3.4. Professional burnout syndrome. (Job Burnout Syndrome). Professional burnout is a syndrome of physical and emotional exhaustion that occurs because of chronic stress caused by interpersonal communication. Health care specialists whose deals with psychological support to patients are often feel burnout. The emotional stress of the medical staff lies primarily in their encounter with the negative emotions of the patients [2]. The term "Burnout" has appeared for the first time in the article "Overheating: the high cost of perfection" by American psychiatrist and psychoanalyst Herbert Freudenberger in 1974, in which he describes the "overheating" of therapists work in a drug addiction clinics in the United States. H. Freudenberger defines as "burnout" the state of fatigue, which occurs due long and intensive work with the patient. This article establishes the beginning of a burnout syndrome scientific discussion. Deal with people health care workers are most often feels burnout [3]. Depending on the cause of burnout syndrome, the manifestations of symptoms vary significantly. The unlocking factor for the physicians is nervous exhaustion, emotional failure and decreased performance. It usually starts with extremely strong motivation and high dedication to work. If this behavior is not rewarded for recognition, or financial reward, the condition of those who have

suffered in medical practice often comes to a state of "to burn out". The main manifestations of the syndrome of "burnout" are characterized by the following features.

- Depersonalization – the feeling of disengagement from others and yourself. The apathetic and negative attitude towards colleagues and clients has become typical. Interpersonal distance has appeared, and by the end he defines himself as empty personality.
- Limited emotions, emotional exhaustion-mental reactions are suppressed, the worker (he is a injured now) feels relaxed and tired, even when thinking about his work. He feels more and more frustrated because he can't cope with the tasks and he gets more and more exhausted. The sympathy falls by worker to the people he helps has decrease.
- Performance is reduced, the injured worker can be very active professionally, but his strength and concentration are depleted in the process very quickly. This is the one of the reason why workers has ignore burnout syndrome and work with it for a long time. The burnout has become very high when the problem is realized.
- Helplessness and hopelessness.
- Loss of motivation, ideals and hope.
- Leads to isolation and depression.
- Damage is emotional.
- Makes life aimless and meaningless [4].

The long - term impact of impair professional environment factors on health workers increases the risk of psychological disease and it is necessarily to determine and overcome stress and nervous tension timely. Prevention of these environment factors can be achieved through muscle training, rest, meditation. An important work should be made by psychologists who has diagnosed psychological syndrome in equipped places.

Conclusion

The physical and mental health of medical staff which affects the quality of their work has received the growing social importance. The study in safe working conditions brings huge returns. Each health department needs healthy and productive workers, and this can only be achieved if they are provided with suitable working conditions. Therefore, medical ergonomics also helps to solve the problem of physical and mental stress and injuries of medical workers. This should be the part of the general training of medical personnel. It should be present in the practical work of specialists, as it contributes to the early measuring of fatigue and the development of occupational diseases. Because the main goal is to preserve the health of medical workers.

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