

# Occupational Health of Mid-Level Medical Staff as Indicator of Labor Efficiency

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**Abstract**—This article analyzes the adverse factors in the professional activities of nurses and the possibility of their negative impact on the health status. The results of a study of the occupational health of nurses, including the level of adaptive capacity of the circulatory system with an analysis of adaptation mechanisms, are presented; groups of nurses are identified, depending on the state of the adaptation mechanisms of the circulatory system. Various manifestations of “occupational burnout” among medical workers are considered on the basis of the three-component model of Maslach, Jackson; the subjective assessment of satisfaction with professional activity is given, the relationship of occupational health with an assessment of the effectiveness of labor activity is studied. The most significant criteria for the provision of nursing care are analyzed and their score is made. Along with the average level of “occupational burnout” of the paramedical personnel, the presence of tension of adaptive mechanisms was revealed. A low level of satisfaction with working conditions and relationships with management was noted while assessing one’s own achievements and professional responsibility high. In spite of the insufficient degree of readiness to provide emergency medical care, the quality of the professional assistance of nurses corresponded to the average level.

**Keywords**—*occupational health, job satisfaction, adaptive potential, occupational burnout.*

## I. INTRODUCTION

The ability to fulfill any function in humans is largely determined by the health status. That is why among the key objectives is the analysis of paramedical staff health, the factors, influencing it, the creation of conditions for the preservation of health in the process of the professional activity [1-3].

The occupational health of medical staff should be understood as the integral characteristic, including functional and mental state, resistance to the adverse factors, accompanying labor, and psychological readiness to solve difficult problems of the professional activity.

## II. LITERATURE REVIEW

The state program of health development of the RF considers the solution of personnel matters to be one of the priorities, including the provision of the health system with highly-qualified and motivated staff; the improvement of the quality of professional training; the creation of the system of motivation; the formation of professional standards, ensuring coordinated requirements towards the labor quality; bringing

of the ratio of doctors and nurses to the value of 1:3 by 2020 [4].

The solution of these tasks is impossible without systematic measures in the sphere of the improvement of the staff level with highly-qualified paramedical personnel. Nowadays, there is no doubt that the effectiveness of the medical service, provided to a patient, depends on the work of the middle-level medical staff greatly, as they carry out numerous treatment-preventive and diagnostic functions and as well as they play a great role in the organization of the aid process itself. The ultimate goal of the nursing care is in the satisfaction of a patient’s vital needs for the achievement of his recovery, the improvement of the health status and his becoming independent [2, 5].

While creating safe hospital environment, one of the most important tasks is the determination, detection and elimination of risk factors for the paramedical staff. The labor activity of medical workers is connected with the impact of very different adverse and (or) hazardous workplace factors. The modern development of the medicine, the improvement of the technological infrastructure of health facilities, the introduction of more sophisticated technological processes, modern equipment, devices, tools, the use of new medicines and the application of new diagnostic and treatment methods have posed new challenges on the health preservation of the medical staff and the prevention of their possible illnesses.

The workers of health facilities are influenced by different adverse factors of the workplace environment. Ionizing radiation takes one of the first places among physical factors. Equipment and instruments, using non-ionizing radiation, have become widespread in medicine as well as the ultrasound, used in physiotherapy, surgery, ophthalmology.

These and other reasons, influencing a medical worker more or less constantly and intensively during his professional activity, call for a special tension of his mental and physical costs, causing physical and emotional overexertion and if it is impossible to compensate for it with the help of adaptive practices, it will invariably lead to the adaption disorder, the development of burnout indications [6].

The data of the modern researches have clearly shown that burnout is different from other forms of stress both conceptually and empirically. Numerous researches have led to a deeper understanding of burnout mechanisms both at the levels of individuals and of whole organization. The syndrome development leads to the activation of protection mechanisms,

psychological distraction from the work fulfillment: apathy, cynicism, behavior inflexibility, decrease of the significance of the results of the professional activity [1,7].

The goal of this research is the study of the peculiarities of the status of occupational health of paramedical staff as the value of the efficiency of the professional activity.

In the research female employees (n=28) took part, working in the polyclinics and hospitals of Kurgan, whose average length of service comprised 13±5 years.

### III. RESEARCH METHODOLOGY

To solve the set goal, the bank of psycho-diagnostic methods was used: the method of the assessment of job satisfaction of A.V. Batrashev; the method of the assessment of “burnout” syndrome of N.E. Vodopyanova; the method of expert estimates was used for the assessment of the efficiency of professional activity. It consisted of the examination of each subject by experts in the number of 7 people (2 doctors, 2 nurses-colleagues and 3 patients). They were asked to evaluate the quality of professional activity on a 10-point scale. To assess the state of the circulatory system, the method “Adaptive potential of R.M. Baevskiy” was used [8].

### IV. RESULTS

The satisfaction with labor is an integrative index, reflecting well-being (ill-being) state in the work collective. For ease of the analysis of the results of job satisfaction of paramedical staff the received values were transformed into the percentage and ranked (fig. 1).

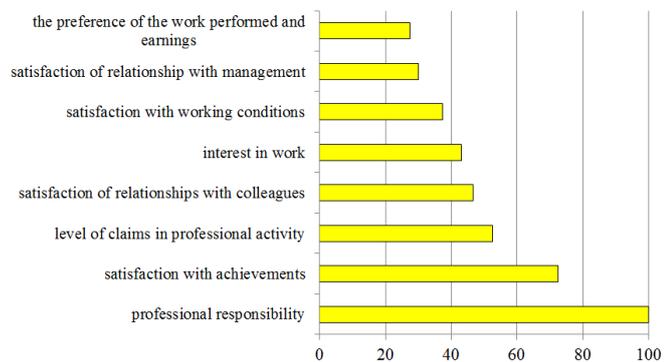


Fig. 1. Satisfaction with labor by paramedical staff (n=28).

So, the least satisfaction was noted on the indices “Preference of the performed work to the earnings” and “Satisfaction with the relationships with management”. The medical workers were satisfied with their own achievements and professional responsibility most of all. The attention should also be paid at the value “interest in work”, which may be considered as the resource for intrinsic motivation. The value of this index of the nurses, taking part in the research, comprised 43% and corresponded to a low level of development.

The formation of intrinsic job motivation helps to attract the nursing personnel to scientific-research and educational-methodic activities. The study of new experience convinces us that the participation of nurses in atypical types of activities for them has a positive effect on the development of their professional and personal traits: it forms scientific style of thought, improves the skills of public speech and emotion regulation, reduces anxiety, increases psychic activity, stress tolerance and self-confidence. All these lead to the

preservation of motivation to work of nurses at a high level and, consequently, to increasing interest in work [9].

Nowadays the syndrome of emotional burnout has a diagnostic status in the International classification of diseases (ICD-10: Z73 – Problems, connected with difficulties of controlling one’s life).

Kozlova T.V. and co-authors singled out factors that could lead to the development of the occupational burnout in the group of the paramedical staff: high intensity of the working day, connected with the communication with a great number of sick people, negative emotions, pain, suffering and death; a great number of emotionally charged personal contacts with patients and their relatives; high responsibility for people’s life and health; the necessity to answer to the sick person’s relatives, to the state and to one’s own conscience; the workplace with high factors of social risk; the constant readiness for the provision of health care in off hours; low chances of proper rest both after work and during the vacation leave, connected with low salary and high coefficient of a secondary job [6].

According to the three-component model of “burnout” syndrome of Maslach and Jackson, the component “emotional exhaustion” of nurses has appeared to be the most evident, the manifestation of which may be in a low emotional dynamic, apathy, indifference to what is happening (fig. 2).

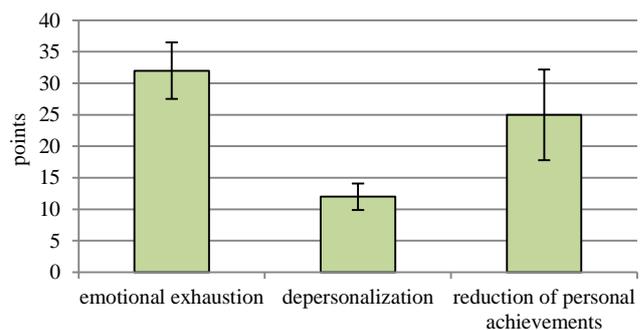


Fig. 2. Components of “burnout” syndrome of paramedical personnel (n=28).

The index of depersonalization, manifesting itself in the deformation of the relations of a nurse with patients, was at the upper limit of mid-level, which proves the necessity of taking measures of rehabilitation-prevention focus to preserve occupational health of paramedical staff.

The received data correspond to the average indices on the subscales, got for the Russian set of samples. There are complicated links between the burnout degree, age, term of service and the degree of satisfaction with the professional growth. According to some data, the professional growth decreases the burnout degree. In these cases negative correlation between the term of service and the burnout may appear at a certain point. In case of dissatisfaction with the career development the professional term of service contributes to burnout of workers [10].

The calculation of the adaptation potential of the circulatory system on R.M. Baevskiy’s formula allows covering a wide circle of patients without decreasing the quality of the assessment of adaptation level and it is often used in labor medicine, being one of the algorithms of

prenosological diagnostics. The indices of adaptation potential of the studied women had different values (fig. 3).

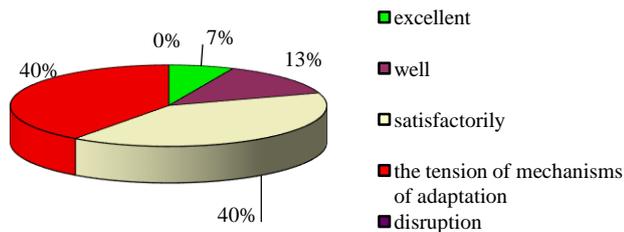


Fig. 3. Indices of adaptation potential of paramedical staff (n=28) by R.M. Baevskiy.

So, 7% of the examined is the group of nurses with an excellent level of adaptive mechanisms and 13% is a group with a good level of adaptive mechanisms. The medical staff of these groups are resistant to different adverse factors, accompanying their working activity and, while leading a healthy lifestyle, they may preserve a sufficient level of health. 40% of nurses have formed the group with a satisfactory level of adaptive mechanisms, which is characterized by sufficient functional capacities of the organism. Also, 40% of women made up the group of nurses, having the tension of adaptive mechanisms. The nurses of this group are stress-susceptible, including occupational stress. Hard labor conditions quite often lead to occupational burnout and depression. The sufficient functional capacities are ensured by functional reserves [11].

There were no people, detected with the breakdown of adaptive mechanisms. This group usually consists of people with latent forms of diseases, pre-existing diseases, chronic and undetected illnesses as well as pathological conditions, requiring a more detailed medical examination.

According to the results of of the assessment of the professional activity quality by the method of expert estimates, it has been revealed that the average point of the whole group comprised  $5.4 \pm 1.5$  points, which shows the necessity to promote the management system of the provision of nurse health care and to develop the monitoring of the quality improvement of the provision of nurse health care (table 1).

TABLE I. INDICES OF QUALITY OF NURSE HEALTH CARE, PROVIDED BY PARAMEDICAL STAFF, IN POINTS

1. Indices of professional level	$6.1 \pm 1.1$
2. Degree of satisfaction with nurse health care	$5.4 \pm 1.2$
3. Compliance with standard of provision of health care	$5.6 \pm 1.4$
4. Degree of readiness for provision of health care	$4.8 \pm 1.1$
5. Observance of infectious safety	$5.4 \pm 1.6$
Average point	$5.4 \pm 1.5$

The indices of the professional level have been most highly valued, which imply a specialist certificate and a qualification category.

## V. CONCLUSIONS

The conducted research allows making conclusion:

1. Along with an average level of “occupational burnout” of paramedical staff, the tension of adaptive mechanisms was revealed in 40 % of the examined.

2. The low level of satisfaction with working conditions and relationships with management was noted while assessing one’s own achievements and professional responsibility high.

3. The quality of professional aid of nurses corresponded to the average level, but the degree of readiness for provision of emergency care was low.

## REFERENCES

- [1] V. I. Akopov, “The problem of substantiated risk in medical practice,” *Problemy ehkspertizy v meditsine (Problems of expert examination in medicine)*, Vol. 1, No. 1, pp. 8-11, 2017. (in russ.)
- [2] I. M. Burykin, G. N. Aleeva, and R. K. Khfizyanova, “Risk management system as a basis of health care safety,” *Sovremennye problemy nauki i obrazovaniya (Modern problems of science and education)*, No. 1, pp. 10-14, 2013. (in russ.)
- [3] V. V. Kosarev and S. A. Babanov, “The occupational morbidity of medical workers,” *Meditinskij al'manakh (Medical almanac)*, No. 3 (12), pp. 18 – 21, 2017. (in russ.)
- [4] The state program of the Russian Federation “Health system development” adopted by the order of the government of the Russian Federation dated 26 December 2017 No.1640. <https://base.garant.ru/71848440/>
- [5] N. K. Smagulov, G. R. Khanturina, and N. G. Kozhevnikova, “Relevance of the problem of occupational health of medical workers,” *Mezhdunarodnyj zhurnal ehksperimental'nogo obrazovaniya (International journal of experimental education)*, No. 11-1, pp. 52-56, 2013. (in russ.)
- [6] T. V. Kozlova and T. A. Sablina, “Occupational burnout of nurses of different specialization,” *Molodoj uchenyj (Young scientist)*, No. 10, pp. 323-327, 2010. (in russ.)
- [7] Z. Kh. Makhmatova, G.A. Tadzhibaeva, and M.Kh. Teshabaeva “The analysis of ways to improve the quality of labor activity of paramedical staff,” *Molodoj uchenyj (Young scientist)*, No. 5, pp. 148-150, 2014. (in russ.)
- [8] Health diagnostics. Psychological workshop, G.S. Nikiforova, Eds. Saint Petersburg: Rech, 2007. (in russ.)
- [9] I. M. Spivak and E. G. Biryukova, “The role of scientific research activity in the development of the nurse personality,” *Vestnik Assotsiatsii meditsinskikh sester Rossii*, No. 2/21, pp. 7-9, 2015. (in russ.)
- [10] N. E. Vodopyanova and E.S. Starchenkova, *Syndrome of burnout: diagnostics and prevention*. Moscow: RGB, 2008. (in russ.)
- [11] R. M. Baevskiy and A. P. Berseneva, “The assessment of adaptive mechanisms of the organism and the risk of disease development,” Moscow, 1997. (in russ.)