OCCUPATIONAL AND GENERAL SOMATIC PATHOLOGY IN HEALTHCARE WORKERS

Stepanov EG[1,3], Masyagutova LM[1,2], Shaikhlislamova ER[1,2], Sadrtdinova GR[1]✉, Vlasova NV[1], Rafikova LA[1], Muzafarova AR[1], Valeeva LR[2]

[1] Ufa Scientific Research Institute of Occupational Medicine and Human Ecology, Ufa, Russia

[2] Bashkir State Medical University, Ufa, Russia

[3] Ufa State Petroleum Technological University, Ufa, Russia

Today, the world medical community and the World Health Organization share an understanding of health as the most important right of every person and nation. Unfortunately, the level of occupational morbidity in healthcare significantly exceeds that in other sectors of the economy. In 2012-2017, about 30% of all the professional diseases diagnosed were registered in healthcare workers. We have searched for foreign and Russian papers covering this subject in various databases, including Scopus, Web of Science, MedLine, eLIBRARY.RU, CyberLeninka, and RSCI. During the search, we paid special attention to the PubMed database. Summarizing the current data on working conditions and health indicators of healthcare professionals published in the papers, it is necessary to identify several key areas that are particularly relevant: harmful aspects associated with professional activities as factors raising occupational morbidity; lifestyle of healthcare workers and the prevalence of non-communicable diseases; and professional burnout, with the consequences thereof for the health and mental state of the medical professionals. The topic of their health and the conditions they work in is considered urgent and relevant in the scientific circles. The conducted studies confirm that healthcare workers face unique factors that can negatively affect their health and well-being.

Keywords: working conditions, health workers' health, review, professional burnout syndrome

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✉ **Correspondence should be addressed:** Guzyal R. Sadrtdinova
M. Gubaidullina 25/3, Ufa, 450022, Russia; Guzi24@mail.ru

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ПРОФЕССИОНАЛЬНАЯ И ОБЩЕСОМАТИЧЕСКАЯ ПАТОЛОГИЯ У РАБОТНИКОВ ЗДРАВООХРАНЕНИЯ

Е. Г. Степанов[1,3], Л. М. Масягутова[1,2], Э. Р. Шайхлисламова[1,2], Г. Р. Садртдинова[1]✉, Н. В. Власова[1], Л. А. Рафикова[1], А. Р. Музафарова[1], Л. Р. Валеева[2]

[1] Уфимский научно-исследовательский институт медицины труда и экологии человека, Уфа, Россия

[2] Башкирский государственный медицинский университет, Уфа, Россия

[3] Уфимский государственный нефтяной технический университет, Уфа, Россия

Сегодня мировая медицинская общественность и Всемирная организация здравоохранения подтверждают понимание здоровья как важнейшего права каждого человека и народа. К сожалению, профессиональная заболеваемость в здравоохранении значительно превышает уровень в других отраслях экономики. Согласно данным за 2012–2017 гг., около 30% всех заболеваний зарегистрированы у медицинских работников. Нами выполнен поиск зарубежной и отечественной литературы по данной тематике в различных базах данных, таких как Scopus, Web of Science, MedLine, eLIBRARY.RU., CyberLeninka и РИНЦ. В ходе поиска особое внимание уделяли базе данных PubMed. Обобщая приведенные в литературных источниках современные научные данные об условиях труда и показателях здоровья медицинских работников, следует выделить несколько ключевых направлений, которые являются особенно актуальными. В первую очередь, стоит обратить внимание на вредные производственные факторы, которые приводят к высокой профессиональной заболеваемости. Второе направление, которое следует рассмотреть, — это образ жизни медицинских работников и распространенность неинфекционных заболеваний. Третье направление, которое стоит упомянуть, — это синдром профессионального выгорания и его последствия для здоровья и личности медицинских работников. Тема условий труда и здоровья работников здравоохранения является насущной и актуальной в научном мире. Проведенные исследования подтверждают, что работники здравоохранения сталкиваются с уникальными факторами, которые могут отрицательно сказываться на их здоровье и благополучии.

Ключевые слова: условия труда, здоровье работников здравоохранения, обзор, синдром профессионального выгорания

Вклад авторов: Е. Г. Степанов, Л. М. Масягутова — концепция и дизайн исследования, сбор и обработка данных, написание текста статьи; Э. Р. Шайхлисламова, Г. Р. Садртдинова — сбор и обработка данных, написание текста статьи, редактирование; Н. В. Власова, Л. А. Рафикова, А. Р. Музафарова, В. Р. Валеева — написание текста статьи, подбор и перевод литературы; все соавторы — утверждение окончательного варианта статьи, ответственность за целостность всех частей статьи.

✉ **Для корреспонденции:** Гузяль Разитовна Садртдинова
ул. М. Губайдуллина, д. 25/3, г. Уфа, 450022, Россия; Guzi24@mail.ru

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One of the most important achievements of the 20th century, which marked the transition from the era of medicine to the era of healthcare, is recognition and identification of the main patterns of development of healthcare systems both in a broad public and professional and administrative contexts at all levels, from local to global. Today, the world medical community and the World Health Organization (WHO) share an understanding of health as the most important right of every person and nation. A medical doctor, or, more broadly, a healthcare professional, was and is the main guardian of health [1].

Unfortunately, the level of occupational morbidity in healthcare significantly exceeds that in other sectors of the economy.

According to the data collected from 2012 to 2017, about 30% of all the professional diseases diagnosed were registered in healthcare workers [2].

Papers on occupational medicine show that the situation in healthcare is the direst. According to the researchers, this is the activity where the labor is very or extremely stressful due to the high psychological burden, lack of social support, workplace violence and intimidation, general dissatisfaction with work, and low appreciation thereof by society [3–6].

Currently, because of the COVID-19 pandemic, the issue of safety and health of those involved in healthcare is particularly relevant. Healthcare workers face an even greater risk of contracting and transmitting an infection. The conditions of their labor are highly stressful, the resources are limited, and the protocols and recommendations change constantly. These factors create additional challenges for their physical and psychological well-being [7].

According to the 2022 Russian Federation Sanitary and Epidemiological Status Report, occupational morbidity in various sectors of the economy is generally decreasing. However, in healthcare and social services, this indicator is 2.7 times higher than it used to be, which is a significant increase [8].

Experts from the WHO and the International Labor Organization (ILO) consider psychosocial factors, stress, and mental exhaustion as the new forces peculiar to the working environment and process; some of the most serious problems posed before occupational medicine today stem from these forces, and this is equally relevant for both industrial and non-industrial settings. According to the WHO, depression caused by stress at work is currently becoming the main health problem and the leading cause of disability [9].

This study aimed to explore foreign and Russian scientific papers, and analyze studies investigating the problems of labor conditions and their impact on the health of healthcare professionals.

For this purpose, we searched the Scopus, Web of Science, MedLine, CyberLeninka, RSCI databases for Russian and foreign literature on the subject. Special attention was paid to data from the PubMed database, the largest repository of scientific publications on medicine and healthcare, and eLIBRARY.RU, a Russian information and analytical portal giving access to a scientific library with a wide range of publications. We have also analyzed the websites of scientific journals specializing in the topic of this work.

First, the keywords reflecting the essence of the study's subject were identified. For this purpose, we analyzed the existing literature on the topic, and used dictionaries of medical terms. The keywords were selected with the aim to cover all aspects of the topic. We entered them into the search fields of Scopus, Web of Science, MedLine, CyberLeninka, RSCI, and eLIBRARY.RU. In PubMed, the search relied on MeSH (Medical Subject Headers), a standardized system of medical terminology. The resulting lists of articles were carefully studied. First of all, we selected articles published in peer-reviewed scientific journals. The articles on the subjects other than that of this work were taken off the list. In addition, relevance of the research, methodological rigor, and data quality were considered. We analyzed the citation rate peculiar to the selected articles, and, in some cases, verified the accuracy of the information provided.

Problems of mental and physical health of healthcare professionals

One of the most difficult problems was the emotional (professional) burnout syndrome, the term for which was introduced into psychology by Herbert Friedenberg, an American psychiatrist, in 1974 [10].

Burnout syndrome is usually understood as a professional deformation of those who, in the context of their work, have to communicate closely with people (the so-called "helping" or "communicative" professions). The worker grows indifferent, emotionally exhausted, shows signs of dehumanization (negative attitude towards colleagues and clients), and ultimately develops a negative self-perception [11–16].

Currently, in many countries, alcoholism and substance abuse, deterioration of mental health are major problems among doctors. Interestingly, the situation is similar for veterinarians [17–20]. According to foreign experts, doctors should ensure that their colleagues who misconduct can be suspended from their professional activities. In addition, medical professionals are required to lead a healthy lifestyle or make efforts in this direction, and to report colleagues who continue abusing alcohol and drugs and violate discipline [21, 22].

Early retirement of doctors is a worldwide problem, and every effort is being made to prolong their active professional life [23, 24].

According to the experts, the best approach to the psychosocial problems of doctors should stem from the "better too early than too late" principle. Mandatory neuropsychiatric and neuropsychological assessment should help plan optimal treatment and start social and professional rehabilitation in a timely fashion. It is also important to improve the organization of work in medical institutions, and access to legal aid [25].

Dentists of all specializations suffer from similar physiological and ergonomic stresses. They are associated with work-induced prolonged static tension of the spine muscles, and the rotated shoulder joint. Such loads, resulting from the working posture, can lead to tonic tension of the occipital and trapezius muscles. However, there are also other factors that affect the physical condition of dentists. For example, frequent use of vibrating instruments can put additional strain on the hands and wrists, which can lead to the development of carpal tunnel syndrome. In addition, a static pose maintained for a long time can translate into back and neck pains as well as limited mobility thereof. All of these factors can ultimately trigger development of chronic diseases of spine and joints [26–29].

Among dentists, the highly prevalent conditions are hand neurodermatitis and disorders of the musculoskeletal system; researchers attribute them to overweight and lack of awareness of the occupational risks [30].

The COVID-19 outbreak had a huge impact on healthcare workers. Numerous studies confirm that the COVID-19 pandemic undermined their mental health. For example, a Chinese study that involved nearly 1,300 medical professionals found that 70% of them exhibited symptoms of anxiety and depression. Another study, conducted among healthcare workers in the United States, demonstrated that 40% of them suffered from the post-traumatic stress disorder (PTSD) [31].

In the Czech Republic, a study enrolled 500 medical professionals who provided care to COVID-19 patients; this work showed that they were more likely to be diagnosed with the burnout syndrome, and the severity of this syndrome was associated with the symptoms of post-traumatic stress [7].

In a study conducted at the University Hospital of Verona (Italy), 63.2% of the participants reported a traumatic experience related to COVID-19 that they had experienced at work. In 53.8% of them, symptoms of post-traumatic distress were registered. Moreover, over half of the participants (50.1%) also

exhibited symptoms of clinically significant anxiety, and 26.6% experienced at least moderate depression [32].

The professional duties of nurses are mainly associated with moderate physical activity. Compared to doctors and junior medical staff, there are significantly more nurses who do morning exercises, sports, and walk. In addition, they regularly (during the warmer months) do physical work at home, in the countryside. Work-related back pain is the most common and "expensive" musculoskeletal system disorder reported in nurses worldwide. For example, in 1990, 57% of Chinese nurses complained thereof. Bending, turning the body around the spine, lifting something heavy, movements performed with force and strain, such as when supporting and moving patients, are risk factors for lower back pain. Approximately 70% of back pain cases in nurses originated from moving patients in orthopaedics and intensive care units. Nurses who lift patients often are 7.5 times more likely to experience lower back pain than their colleagues who do it relatively infrequently [33, 34].

The risks faced by nurses are associated with respiratory disorders caused by exposure to chemicals and intensive smoking; disorders of the nervous system caused by the intensity of the work process, nutritional disorders, alcohol consumption and job satisfaction indicators; disorders of the cardiovascular system caused by the severity of the work process and indicators of medical activity [35].

According to a study, 89.60% of neonatology nurses experienced mild burnout, while for 10.40% the burnout was moderate. However, no neonatal nurses have been reported to have severe burnout. In addition, it was found that this condition is more often diagnosed in young nurses and those with poor technical skills. Poor interpersonal relationships, irregular meals, and insufficient rest were established to significantly affect the likelihood of burnout among nurses [36].

In China, most nurses face various forms of violence from patients and their relatives. About 75.4% of the study participants confirmed that they had such an experience. The most common forms were verbal abuse (65.2%), intentionally created obstacles (54.5%), defamatory rumors (37.5%), crowd behavior (34.9%), intimidation (18.8%), physical violence (14.6%) and sexual harassment (5.9%). This study also showed that 92.4% of the participants saw compassion from their colleagues (84.9%), supervisors (67.3%), and even patients (65.3%) [37].

A survey of dentists in New Zealand produced similar results: every fifth respondent admitted cases of violence, intimidation or insults at work [38–40].

In addition to emotional burnout, healthcare professionals of many specializations can be exposed to harmful factors of the working environment and process, including biological hazards, ionizing and non-ionizing radiation, hard labor, etc.; in some cases, these factors are difficult to identify and even more difficult to quantify [41, 42].

In Russia, this fact triggered development of special requirements (conduct specifics) for the assessment of working conditions of certain categories of medical workers, which is regulated by Federal Law No. 426-FZ of December 28, 2013 "On Special Assessment of Working Conditions" [43].

In particular, this applies to healthcare professionals who directly provide emergency medical care outside a medical institution, including during medical evacuation; medical workers stationed in spaces subject to the requirements stipulating the need to maintain a special microbiological environment and to ensure stable operation of medical equipment (intensive care units, operating rooms); medical workers using medical equipment to diagnose and treat, such medical equipment potentially malfunctioning in the presence of measuring instruments used during the special assessment of working conditions. In addition, there was drawn up a list of medical equipment (devices) the normal operation of which may be affected by measuring instruments used during the special assessment of working conditions [44].

The following harmful and (or) dangerous production factors are mandatorily studied and measured at the workplaces of medical workers who directly provide emergency medical care: chemical hazards, noise, vibration, microclimate parameters in the vehicle interior, biological hazards, severity and intensity of the labor process, and workplace injury potential.

Based on the assessment, the class (subclass) of working conditions previously considered potentially hazardous is moved up a step.

In addition, the work intensity class is moved a step up based on the assessment of the said intensity in case healthcare professionals render emergency medical assistance facing time constraints, lacking information about the patient's health status, and needing to make decisions on which the life and health of this patient depend in the future.

Chemical hazards, non-ionizing and ionizing radiation, biological hazards, and the severity and intensity of the labor process are subject to mandatory assessment and measurement at stations of medical workers located in rooms that are subject to special requirements [45–50].

The class of working conditions by intensity of the labor process also increases by one degree in case of performing operations in operating rooms using surgical (microsurgical) treatment methods, including during childbirth and the postpartum period, with manipulations aimed at saving the life of a patient in a life-threatening condition, and with management of vital functions of the patient's body in intensive care units [43].

Thus, currently in Russia, federal agencies have formulated and started solving the practical issues related to quantifying the impact of dangerous and harmful factors of the working environments and labor processes peculiar to certain healthcare specializations, and in many cases the priority is given to the assessment of intensity of the labor process, which, to a certain extent, is the root cause of the burnout syndrome.

Health of medical workers: key issues

Thus, summarizing the current research of working conditions and health indicators of healthcare professionals, it is necessary to identify several key areas that are particularly relevant. First, harmful aspects associated with professional activities as factors raising occupational morbidity. These may stem from contact with infectious agents or exposure to chemicals that are present in the medical environment. Tuberculosis and allergic reactions are among the most common diseases associated with such factors. Second, lifestyle of healthcare workers and the prevalence of non-communicable diseases. As in any other profession, medical workers may have problems related to poor nutrition, lack of physical activity, and stress. Irregular work schedules and high workload can negatively affect their overall health. Therefore, it is important to pay attention to the prevention of noncommunicable diseases such as cardiovascular diseases, diabetes, and obesity, and to promote a healthy lifestyle among healthcare professionals. Third, professional burnout, with the consequences thereof for the health and mental state of the medical professionals. Constant stress, demands for high productivity, and the need to make difficult decisions can lead to burnout and poor health.

CONCLUSION

The conducted studies of the peculiarities of working conditions and health of healthcare professionals confirm the relevance of this topic for the scientific community. The data obtained can be used in the development of effective strategies and programs in this area. In addition, there is undoubtedly a need for further research and new developments aimed at improving diagnostic capabilities, treatment and prevention of the related diseases. A deeper understanding of the factors affecting the health and well-being of healthcare workers will help create more favorable working conditions and improve the overall quality of medical care.

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