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Research article

WORKING CONDITIONS, HEALTH AND OCCUPATIONAL RISK FACTORS OF TEACHERS EMPLOYED AT HIGHER EDUCATION AND VOCATIONAL EDUCATION INSTITUTIONS (LITERATURE REVIEW)

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Working conditions have a direct effect on health of employable population. This fact is evidenced by both Russian and foreign studies. At present, the educational process is being intensified and digital technologies are being implemented in education quite actively. All this creates high workloads on all educational workers, teachers included. Success and efficiency of teaching are determined by teachers' health, which largely depends on working conditions.

The aim of this study was to generalize and analyze Russian and foreign publications that focus on occupational risks, working conditions and their effects on health, life quality and psychoemotional state of teachers employed at higher education and vocational education institutions.

Publications on the subject were searched in the largest electronic resources eLIBRARY, PubMed and on official websites of peer-reviewed scientific journals with subject items covering the issues selected for analysis. The search depth was 15 years (2009–2024).

As a result, we established that most publications on assessing teachers' working conditions and health covered professors and lecturers of medical higher education institutions. High work intensity was the main adverse occupational factor (hazard category of working conditions 3.1–3.3), which, according to some authors, tended to be higher for higher positions and lecturers with senior academic degrees. Other adverse occupational factors for teachers include physical (electromagnetic fields, workplace illuminance, and microclimate), chemical, and biological ones.

Analysis of the obtained results has revealed that a new approach is required for preserving high levels of work ability, preventing diseases and neural-emotional burnout. Such an approach should be based on providing working conditions that conform to established safe standards and timely psychological support, organizing and conducting qualitative preliminary and periodical medical examinations. It is necessary to accomplish timely assessment of working conditions and health of teachers employed at modern educational establishments.

Keywords: *working conditions, health, occupational risks, incidence, work intensity, occupational and work-related factors, teachers employed at educational establishments.*

At present, multiple studies published by both Russian and foreign experts investigate working conditions and their effects on workers from various occupational groups [1–7].

Studies with their focus on teachers' working conditions and their health are especially interesting in contemporary education. A.S. Abdullina with colleagues [8] point out that teaching is a human – human activity and is an emotionally and intellectually straining profession. As the educational process is intensifying and digital technologies are being

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implemented in education quite actively, all educational workers, teachers included, have to face higher workloads. Volumes and peculiarities of job responsibilities are a significant factor affecting teachers' work ability and performance [9]. Teacher's work is diverse and includes a great variety of activities depending on a position, having an academic degree or rank; this includes educational, methodical, scientific research, organizational activity and others. Foreign researchers note that teachers are exposed to risks of multiple negative health outcomes. High levels of emotional burnout typical for teachers are a likely reason for this. Their findings showed that teacher burnout was consistently associated with somatic complaints (e.g., headaches), illnesses (e.g., gastroenteritis), voice disorders, and biomarkers of hypothalamic-pituitary-adrenal-axis dysregulation (cortisol) and inflammation (cytokines)[1] [10–12].

Nowadays, great attention is paid to not only teachers' personal traits but also their professional competences and their ability to keep up with up-to-date trends in education. And to fulfill their job responsibilities effectively and successfully, teachers should be healthy and health is known to greatly depend on working conditions.

The aim of this study was to generalize and analyze Russian and foreign publications that focus on occupational risks, working conditions and their effects on health, life quality and psychoemotional state of teachers employed at higher education and vocational education institutions.

Materials and methods. Publications on the subject were searched in the largest electronic resources eLIBRARY, PubMed and on official web-sites of peer-reviewed scientific journals with subject items covering the issues selected for analysis. The search depth was 15 years (2009–2024).

Results and discussion. The literature review has revealed that great attention is paid to investigating effects produced by working conditions on health of employable population. Multiple studies have established that the character and specificity of working conditions influence the structure of morbidity [1–3, 13–15].

As regards assessment of working conditions and health of teachers employed at higher and vocational educational establishments, prevailing studies on the subject concentrate on examining working conditions of teachers employed at medical higher educational institutions (medical HEIs). Thus, E.S. Tregubova and A.S. Nekhoroshev [16] analyzed the results obtained by workplace assessment and data obtained by testing aimed at revealing occupational stress and burnout among HEI teachers in their study. After that, they performed a comprehensive sanitary-hygienic and sociological assessment of work-related factors in a medical HEI and established that teachers' working conditions belonged to the hazard category II and psychosocial risks were the main adverse occupational factor. I.A. Mishkich and others [17] conducted a survey among teachers employed at a medical HEI to assess working conditions at their workplaces. To do that, they employed an original questionnaire and analyzed the workplace cards that assessed working conditions at 22 departments for 4 years (2007 to 2011). The survey revealed that teachers were the most concerned about sensory loads, namely high voice burdens and long periods of concentrated observation; the next place per significance in raising anxiety belonged to emotional burdens (high responsibility for decisions they made); intellectual loads caused by the necessity to switch attention and make decisions rapidly held the third place. About half of the respondents mentioned emotional overstrain. Some other mentioned negative factors included drawbacks of the work regime (educational loads being too high), elevated air speed, poor natural illuminance, contacts with bacterial pathogens and specific smells at workplace. The analysis of the workplace

[1] Belcastro P.A. Burnout and its relationship to teachers' somatic complaints and illnesses. *Psychol. Rep.*, 1982, vol. 50, no. 3, pt 2, pp. 1045–1046. DOI: 10.2466/pr0.1982.50.3c.1045

cards allowed the authors to conclude that teachers' work had the hazard category I-II per work intensity relying on such indicators as intellectual, sensory and emotional loads. Working conditions at four departments were assigned into the hazard category 3.3 per the biological factor; the hazard category 3.2 was determined for working conditions at one department and the hazard category 3.1 at two departments due to levels of adverse chemicals being higher than MPL in workplace air; in addition, the hazard category 3.1 was established for working conditions at 8 departments per 'ionizing electromagnetic fields' and at 10 departments per 'workplace illuminance'. Microclimate and noise levels conformed to safe ranges at all analyzed departments. Using a specifically designed questionnaire, D.A. Tolmachev [18] interviewed 209 teachers working full-time at clinical departments of the Izhevsk Medical Academy (31.6 % males and 68.4 % females). This allowed the author to create a social-hygienic profile of lifestyle and working conditions of teachers employed at this medical HEI. He found teachers' health to be poor; their lifestyle did not promote health protection; their attitude towards health was rather destructive. The questionnaire was drawn up following the recommendations by A.V. Reshetnikov and I.S. Sluchanko. The questions were grouped per specific blocks according to identified health-affecting factors such as social-hygienic, behavioral, socioeconomic and socio-demographic ones. Approximately half of the teachers (41.3 %) reported they had to work for more than 8 hours a day; 79.7 ± 6.9 % felt tired after work; each second teacher had to take some paperwork home. When answering questions about harmful hygienic occupational factors, some respondents mentioned poor workplace illuminance, temperature at workplace not conforming to safe standards, poorly operating supply-and-exhaust ventilation (18.2 ± 3.3 %; 35.3 ± 3.1 %; 39.6 ± 2.8 % respectively). It was also noted that most teachers did not have health-protection behavior patterns: only 8.1 ± 2.5 % of the respondents did morning exercises; only 6.6 ± 1.9 % did sports regularly; 22.9 ± 3.4 % of the respondents had one or two meals a day; 59.9 ± 3.8 % always had 3 meals a day; 17.2 ± 3.3 % of the respondents had four or more meals a day. HEI teachers mentioned absence of free time and poor financial state as the basic reason for failing to pursue a healthy lifestyle (22.9 ± 3.4 % and 33.0 ± 3.1 % respectively). As for behavioral risk factors, the author found that non-smokers prevailed among the respondents (69.0 ± 4.7 %); 62.3 ± 2.0 % of the teachers admitted alcohol use and mentioned several reasons for that including a desire to ease off nervous and mental strain (48.5 %), to get pleasure (38.3 %), influence of family / friends (20.5 %), unwillingness to stop drinking (7.4 %). Fifteen point five ± 3.5 % of the respondents complained about frequent acute diseases; 52.7 ± 2.4 % mentioned having chronic diseases. N. Barkhuizen et al. (2014) reported the relationship between psychoemotional climate, dispositional optimism, requirements and resources at workplace, work engagement, organizational commitment and poor health and burnout among teachers employed at higher educational institutions in South Africa [19].

In 2021, I.A. Mishkich with colleagues performed an occupational-specific assessment of work intensity for surgeons and teachers employed at higher and secondary medical educational institutions [20]; conducted a hygienic assessment of workplace factors; had a survey; analyzed data obtained by periodical medical examinations provided for teachers; conducted some physiological tests (blood pressure measurement, ECG and Holter monitor tests as methods to assess the cardiovascular system state). In addition, they calculated the total risk of fatal cardiovascular events per the SCORE scale and risks of health impairments in teachers caused by unhealthy behaviors. Comprehensive physiological and hygienic studies established neuro-emotional work intensity to be the leading adverse occupational factor for teachers; it was assigned into the hazard category 2.0 for teacher assistants and to the hazard category 3.1 for professors and associate professors. Higher work stress was established for teachers exposed to work

intensity corresponding to hazard categories 3.1–3.2 of working conditions (associate professors, professors and surgeons) against assistants exposed to the hazard category 2.0 per work intensity. The authors reported negative changes in the cardiovascular system in surgeons (elevated heart rate, changes in some ECG indicators). They also found chronic diseases in 85.7 % of the examined teachers; cardiovascular diseases prevailed in the structure of morbidity. Teachers aged 40–65 years were exposed to a high and very high absolute risk of fatal cardiovascular events; teachers older than 60 years (25.8 %) all had very high risks of such events; teachers younger than 40 years, predominantly assistants, did not have a high relative cardiovascular risk provided that work intensity was within its optimal levels at their workplaces. Priority behavioral risk factors identified among teachers of medical HEI and colleges included low physical activity, not getting enough sleep, irregular meals and smoking — bearing in mind considerable awareness of health-protecting behaviors in this occupational group (91.1 %). Data obtained by a survey reported in the study by O.G. Khurtsilava and others [21] gave evidence that most teachers at medical HEI and colleges did not consider themselves healthy (73.3 %). Health complaints tended to be common; in the authors' opinion, they were likely caused by teachers' critical attitudes towards their health and professional knowledge and mostly described the emotional burnout syndrome. L.A. Sokolova and A.M. Turysheva [22] assessed working conditions for teachers employed at the I.M. Mechnikov's Medical University; examined their effects on health; substantiated a system of preventive activities aimed at health protection. Hygienic assessment of working conditions was conducted using the results obtained by using Special Assessment of Working Conditions (SAWC) for basic occupational groups at 53 HEI departments; a specific study focused on examining work intensity at teachers' workplaces. Teachers' health (n = 30) was assessed using medical records. Changes in teachers' health state were predicted according to the Guide R 2.2.2006-05[2] and Guide R 2.2.1766-03[3]. The study established the examined teachers to be exposed to chemical, biological, and physical factors (the hazard category 3.1–3.2) as well as work-related factors associated with high work intensity (the hazard category 3.1–3.3), which was higher for teachers with higher positions and academic degrees. The greatest work intensity at teachers' workplaces is typical for management activities, research, delivering lectures to big audiences and practical sessions in groups. According to the Guide R 2.2.2006-05, these activities belong to the hazard category 3.2–3.3. Working conditions of such hazard categories can apparently crate risks of work-related diseases of the central nervous and cardiovascular systems, eyes and musculoskeletal system. A.G. Setko and S.P. Trishina [23] examined working conditions for teachers employed at clinical departments of a medical HEI and involved in both teaching and medical practice. To do that, the authors examined work-related factors at specific workplaces with subsequent assessment in conformity with the Guide R 2.2.2006-05; they also assessed risks of injury and provision with PPE. As a result, they found that working conditions were permissible for most teachers (82.5 %). Adverse working conditions were established for 17.5 % of the examined teachers (72 workplaces); of them, the hazard category 3.1 was established for 28 workplaces, the hazard category 3.2 for 32 workplaces, and

[2] R 2.2.2006-05. Guide on Hygienic Assessment of Factors of Working Environment and Work Load. Criteria and Classification of Working Conditions; approved by G.G. Onishchenko, the RF Chief Sanitary Inspector, on July 29, 2005, came into force on November 1, 2005. *KODEKS: electronic fund for legal and reference documentation*. Available at: https://docs.cntd.ru/document/1200040973 (November 27, 2024) (in Russian).

[3] R 2.2.1766-03. Guidelines on occupational risk assessment for workers' health. Organizational and methodological aspects, principles and criteria; approved by G.G. Onishchenko, the RF Chief Sanitary Inspector, the First Deputy to the Minister of Health, on June 24, 2003, came into force on November 1, 2003. *KonturNormativ*. Available at: https://normativ.kontur.ru/document?moduleId=1&documentId=364401 (November 27, 2024) (in Russian).

the hazard category 3.3 for 12 workplaces. Formaldehyde levels were found to be 1.4 to 3.8 times higher than MPL in workplace air at those departments where wet embalming chemicals were used; the ripple ratio was higher than MPL at 100 % of the assessed workplaces but working conditions were still estimated as permissible due to shortness of this exposure; adverse biological exposures were present at 17 % of workplaces at the phthisiology and pulmonology department (working conditions assigned in the hazard category 3.3); the authors also detected violations as regards purchasing and distributing protective clothing, protective footwear and other PPE. E.B. Anishchenko with colleagues [24] estimated work intensity and occupational risks for 40 medical HEI teachers aged between 29 and 74 years, who held the positions of teacher assistant, teacher, associate professor and professor. To perform hygienic assessment of work intensity per the Guide R 2.2.2006-05, the authors conducted a time-study of three work shifts, assessed occupational risk categories in conformity with the Guide R 2.2.1766-03 and employed a method called Matrix of Outcomes and Probabilities according to the State Standard GOST R 58771-2019[4] to estimate rates of health risk escalation for workers. The findings gave evidence of teachers' working conditions corresponding to the hazard category 3.2 per work intensity; the occupational health risk was medium (considerable); the risk category per severity of identified hazardous health events was medium (T3); likelihood of manifested outcomes of a hazardous health event was high (B4); the risk rate was medium (C12). M.D. Zaltsman and B.B. Kurmashev [25] performed a hygienic assessment of work intensity for teachers employed at the Department for Life Activity Safety and Ecology of the M. Tynyshpaev's Kazakh Academy of Transport and Communications using the Guide R 2.2.755-99[5]. As a result, they found that working conditions corresponded to the hazard category I per this factor due to intellectual and sensory loads. M.V. Boguslavsky with colleagues [26] proposed teachers of the Udmurtia State University to estimate their working conditions by taking part in a survey. The highest scores were given to working conditions associated with personal engagement into the educational process such as moral and psychological climate in a team and adherence to work ethics; the lowest scores were given to a possibility to get some fringe benefits, going to conferences at other establishments and performance of the valid contract. Basic complaints made by teachers as regards work of administrative staff were associated with excessive bureaucracy of the management and educational processes.

Psychoemotional loads make a considerable contribution to work intensity. E.B. Anishchenko with colleagues [24] examined the functional emotional state (health, activity, and mood) and level of occupational (emotional) burnout among teachers of a medical higher educational institution using the SAN method developed by V.A. Doskin and others and the Maslach Burnout Inventory (MBI) adapted by N.E. Vodopyanova. As a result, they established a medium level of burnout against high psychoemotional exhaustion, favorable health and mood self-scores and unfavorable activity levels, which is caused, in the authors' opinion, by growing fatigue. Just as in the previous study, A.A. Agibalova and others [27] employed the Maslach Burnout Inventory modified by N.E. Vodopyanova and E.S. Starchenkova to diagnose occupa-

[4] GOST R 58771-2019. Risk Management. Risk Assessment Technologies: The National Standard of the Russian Federation, approved and validated by the Order of the Federal Agency on Technical Regulation and Metrology issued on December 17, 2019 No. 1405-st. *KODEKS: electronic fund for legal and reference documentation*. Available at: https://docs.cntd.ru/document/1200170253 (December 11, 2024) (in Russian).

[5] Guide R 2.2.755-99. Hygienic Criteria for Evaluation and Classification of Labour Conditions by Indexes of Harmfulness and Danger of Industrial Environment and Working Process Difficulty and Intensity; approved and validated by G.G. Onishchenko, the RF Chief Sanitary Inspector, on April 23, 1999. *KODEKS: electronic fund for legal and reference documentation*. Available at: https://docs.cntd.ru/document/1200004531 (December 16, 2024) (in Russian).

tional burnout in teachers of a medical HEI. Prior to taking part in a survey, teachers employed at the Pacific State Medical University were divided into two groups: the first group was made of teachers who did not have any medical practice; the second, teachers who combined these two activates. Levels of 'emotional exhaustion' were found to be higher in female teachers; 'depersonalization' was higher in male teachers who also had some medical practice and in female teachers who worked only at the University; 'occupational efficiency' was low only in male teachers from the second group and medium in the remaining respondents. The highest burnout level was identified in teachers with their work records shorter than 5 years and longer than 25 years. The proportion of teachers with high and extremely high burnout levels was slightly greater among those who combined teaching and medical practice than among their peers who worked only as teachers (68.42 and 62.5 % respectively).

Another research team from the Kazakh National Medical University [28] used the Maslach Burnout Inventory by K. Maslach and S. Jackson adapted by N.E. Vodopyanova and E.S. Starchenkova, Samootsenka (self-esteem) inventory by G.V. Rezapkina and Z.V. Rezapkina and verbal questioning (to check whether the respondents had any somatic diseases) to estimate effects produced by burnout and self-esteem on development of somatic diseases in medical HEI teachers and secondary school teachers. The highest burnout levels were identified in primary school teachers (86.6 %) and 46.6 % of them had either high or too high burnout levels; the lowest burnout levels were identified in medical HEI teachers since only 33.3 % of them had emotional burnout, which was only low or medium. Similar results were obtained by using the self-esteem inventory: 7 out of 15 primary school teachers had high scores of negative self-esteem and 3 people from this group had the lowest score of positive self-esteem; on the contrary, positive self-esteem prevailed among HEI teachers (60 %) and another 40 % had unstable medium self-esteem whereas negative self-esteem was not identified at all. Morbidity rates turned out to be the highest among primary school teachers; the lowest, among HEI teachers. Essential hypertension, coronary heart disease and cholelithiasis were the most common somatic pathologies identified in both HEI and school teachers. In conclusion, the authors reported a direct relationship between high levels of negative self-esteem, high emotional burnout levels and high morbidity rates on the example of primary school teachers; for their early detection, the authors thought it was necessary to implement a screening program. E. Wischlitzki with colleagues (2020) conducted a systemic review with its focus on managing psychosocial risks in teaching [29]. The main conclusion drawn by them is that scientific literature has very few works about how to best manage psychosocial risks in teaching. The authors believe that relevant causes of occupational strain in the teaching profession must be identified and assessed reliably. Low-threshold interventions should be implemented, and the outcome must be evaluated afterward.

N.I. Latyshevskaya with colleagues [30] investigated sex-specific peculiarities of physical health in medical HEI teachers close to the retirement age and beyond it (55–70 years). To do that, they accomplished relevant anthropometric measurements, checked the patients' blood pressure, estimated their physical health and adaptation potential, calculated the ageing coefficient and biological age using formulas developed by A.G. Gorelkin and B.B. Pinkhasov. The authors established authentic differences per most indicators of the morphofunctional state associated with cardiovascular risk: they were higher among men against women. Still, more obesity cases were authentically established among female teachers and this explains identified differences per the ageing coefficient, which turned out to be higher among women. N.K. Smagulov and others [31] examined the work-related effects on body resistance in teachers of a medical HEI in three age groups: younger than 30 years, 30–49 years, and 50 years and older. To achieve the research goals, the authors analyzed morbidity with

temporary disability over 2016–2018, estimated the analyzed morbidity per nosologic forms and levels of work ability, and performed a survey using an inventory for assessing preventive and medical activity and for identifying respondents' health self-esteem as well as a questionnaire to estimate actual health. As a result, the authors revealed morbidity with temporary disability to be latent among medical HEI teachers. According to the survey results, most respondents had some health issues. Diseases of the circulatory system, musculoskeletal system and digestive system were prevalent among teachers aged 30–49 years and 50 years and older. Low physical activity, imbalanced nutrition, being negligent of one's health and self-treatment were the main reasons for poor health and high morbidity levels. In 2021, N.K. Smagulov with colleagues investigated what influence physical activity had on health of teachers and physical trainers employed at the Surgut State University using physiological, sociological, and statistical methods [32]. The study results allowed concluding that teachers had much lower physical activity and the functional strain of the cardiovascular system tended to be higher in them. The trophotropic system was established to prevail in the examined physical trainers; the ergotropic system was revealed to be activated in teachers. M.A. Lisnyak and others [33] examined health of teachers employed at the Siberian Law Institute of the Ministry of Internal Affairs of the Russian Federation using analytical, sociological (questioning), and statistical methods and data taken from medical histories. The basic conclusion was that somatic health of the examined teachers required close attention of healthcare workers. The authors emphasized the necessity to consider the fact that morbidity among teachers tended to be latent since a relatively big proportion of people refused to visit a doctor in case of disease due to various reasons. This should be taken into account when conducting periodical medical examinations of teachers employed by HEI of the Ministry of Internal Affairs. The authors also mentioned the necessity to differentiate the system for mandatory periodical preventive medical examinations and regular medical check-ups.

Active implementation of distance learning, which relies on using IT, has changed teachers' work and lifestyle. O.Yu. Milushkina and others [34] performed a hygienic assessment of use of information and communication technologies and lifestyles of 1452 teachers employed at secondary schools, vocational institutions and higher education institutions in distance (online) learning. Use of specifically designed inventories allowed establishing that HEI teachers were more responsible when organizing their work with gadgets. The authors also found that twice as many HEI teachers deemed physical activity to be important for health and were aware of risks associated with its low levels; most HEI teachers paid special attention to their diets and tried to have balanced nutrition. During a period when distance learning was prevalent, teachers had to face several times longer duration of working with digital devices, greater loads on the visual and motor analyzer, greater psychoemotional strain and considerable changes in customary lifestyles. T.V. Ryabova and R.G. Petrova [35] investigated risk factors of mental disorders and ways to eliminate them in HEI teachers during the COVID-19 pandemic. To achieve the study aim, the authors conducted a survey, which relied on a Goggle-from and included authors' sociological questions and those identifying the level of neuro-psychic strain. As a result, they established that risk factors able to cause mental disorders included elevated workloads and, consequently, overstrain as well as strict supervisor control. In distance learning, 86.1 % of the respondents had strain accompanied with various body aches, insomnia and irritability; 65 % of the teachers suffered from moderate neuro-psychic strain; 25.2 % had full-blown strain. Stress and strain had a positive effect on work activity of 20.6 % of the teachers. More than a half of the respondents (70 %) were satisfied with their work ability.

A.M. Magometova with colleagues [36] examined health of teachers employed at medical higher and post-graduate education

institutions using medical statistical analysis methods. As a result, they established that prevalence of diseases of the central nervous system, cardiovascular system and musculoskeletal system grew as work records became longer and was also associated with work tasks performed by heads of departments and teachers. The study showed that the heads of the departments and teachers did not adhere to responsible behavior as regards regular medical check-ups and it resulted in deterioration of their health. The authors also mentioned poor preventive activities provided for teachers and consequent high levels of morbidity among them and emotional burnout identified in the head of the departments.

N.V. Polunina with colleagues [37] investigated the burnout syndrome in HEI teachers using the analytical methods, data taken from medical histories and information and statistical documents and the social-hygienic method (to conduct a survey); more than 2500 teachers from technical and humanitarian HEIs in Moscow took part in the study. The study found that one teacher on average had 4 to 5 burnout symptoms and morbidity tended to be higher among female teachers (two thirds of the participants). Health of teachers from humanitarian HEIs was worse against health of teachers employed at technical HEIs. Diseases of the respiratory, digestive, cardiovascular, musculoskeletal and genitourinary systems as well as injury and poisoning prevailed in the structure of morbidity. High work intensity, long time spent in a forced posture, unsatisfactory salary and work were the major reasons for developing mental burnout as established by the authors.

Experts believe comfortable and favorable working conditions to be a basic criterion of good life quality. Life quality of HEI teachers has been examined by both Russian and foreign researchers. Experts pay special attention to examining life quality of teachers employed at medical HEIs[6] [38–40]; some studies focus on examining life quality of teachers employed at military higher education institutions [41] or on physical and mental components of life quality of teachers from classical HEIs [42–44]; some studies develop an author's approach to improving quality of life for teachers [44]. Basic methods employed by researchers for life quality estimation include surveys using such inventories as SF–36, WHO QOL-100, GSRS (Gastrointestinal Symptom Rating Scale) and additional questions to perform more comprehensive assessment of influence exerted by external factors on quality of life (financial position, housing, diet, bad habits, constitution peculiarities etc.).

Basic research results reported by A.K. Uristemova and others [45] indicated that borderline mental disorders tended to be more prevalent among teachers employed at medical HEI against other occupations. The authors deemed their findings to be rather alerting since anxiety-depressive disorders more and more often became the cause for high suicide rate among healthcare workers. M.A. Shapovalova and others [46], researchers from the Astrakhan State Medical University, estimated the psychoemotional state of 48 teachers employed at various departments of the University, who combined teaching and various administrative positions. To do that, the authors employed the State-Trait Anxiety Inventory (STAI) (created by Spielberger and adapted by Khanin) and the Beck Depression Inventory (BDI) adapted by N.V. Tarabrina. The results established high personal anxiety in the respondents; situational anxiety also tended to grow among them. By personal interviewing, the authors established that the teachers were nervous and anxious due to excessive workloads and absence of proper rest; depressive disorders were not identified; the authors pointed out that it was necessary to develop mental support programs for the teachers employed at the University. A.S. Abdullaeva with

[6] Tolmachev D.A. Kompleksnaya otsenka zdorov'ya i kachestva zhizni prepodavatelei meditsinskogo vuza [Complex assessment of health and life quality of teachers employed at a medical HEI]: the abstract of the thesis … for Candidate of Medical Sciences degree. Moscow, 2012, 24 p. (in Russian).

colleagues [8] developed a psychological and pedagogical support program for teachers; it was aimed at preventing stress, creating internal resources and self-regulation in teachers and was implemented in the Astrakhan State Medical University. Twenty teachers from various departments took part in it. The program consisted of three stages: diagnostics, psychological correction, and repeated diagnostics to assess mental health indicators. These efforts helped achieve positive dynamics in individual psychological characteristics of teachers' personality. Mastered techniques for emotional state management had a positive effect on teachers' psychoemotional state and helped improve their mental health.

Conclusion. The literature analysis has shown emotional overstrain and improper work regime (excessive educational loads) to be the major health risk factors for teachers employed at vocational and higher education institutions. The higher is a position and academic degree, the more intense is teachers' work. The greatest work intensity is established in cases when teachers also have some management responsibilities, conduct some research or deliver lectures to big audiences. Chemical and biological contamination inside lecture rooms is a significant risk factor for teachers from medical educational institutions.

Some studies report low adherence to health-promoting behaviors among teachers who tend to have low physical activity, irregular meals and unhealthy diets, smoke and do not have enough sleep. Still, this occupational group is found to be well-informed about how to achieve health promotion.

Health risks are realized through more frequent insomnia and irritability, neuropsychic strain, elevated prevalence of diseases of the central nervous and cardiovascular systems as well as the musculoskeletal system.

Analysis of the obtained results has revealed that a new approach is required for preserving high levels of work ability, preventing diseases and neural-emotional burnout. Such an approach should be based on providing working conditions that conform to established safe standards and timely psychological support, organizing and conducting qualitative preliminary and periodical medical examinations. It is necessary to accomplish timely assessment of working conditions and health of teachers employed at modern educational establishments.

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