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RISK FACTORS AND HEALTH STATUS OF TEACHERS IN GENERAL EDUCATION INSTITUTIONS

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CONTENT

INTRODUCTION

The actuality and importance of the addressed topic. Teaching staff represent a fundamental component of the educational system, fulfilling a dual role: professional, through the instruction of students, and social, through shaping behaviors and attitudes toward health. In the Republic of Moldova, teachers' responsibilities extend beyond teaching, encompassing student counseling, development of didactic materials, participation in evaluations, and administrative duties [1, 2].

This complex professional workload has a direct impact on both physical and mental health. International data indicate that approximately 70% of teachers experience health disorders, the most common being ocular diseases (68%) [3, 4], cardiovascular conditions (48%) [5, 6], and osteo-articular disorders (44%) [7, 8]. The main causal factors include sedentary behavior, chronic stress, and non-ergonomic working conditions, which can lead to chronic pain, musculoskeletal disorders, and minor occupational injuries [9].

Physical inactivity, prolonged exposure to stress, and unfavorable social conditions further exacerbate these issues [10, 11]. In European countries, arterial hypertension affects 25.2% of male and 43% of female teaching staff, frequently associated with diabetes and cardiovascular diseases. Static work performed in uncomfortable positions and on inappropriate furniture contributes to chronic pain and disorders of the osteo-articular system [12, 13]. Approximately 15% of teachers have sustained injuries due to inadequate working conditions, while more than 4% have been involved in accidents such as falls during lessons [5, 6].

Painful symptoms in the cervical spine (68.9%), shoulder joints (73.4%), and back (59.2%) [14–16] are frequently reported, indicating a high prevalence of chronic osteo-articular pathologies. These are correlated with elevated occupational stress levels, recognized by the European Union as one of the main challenges in occupational safety and health [17].

The education sector ranks among the most stressful professions. On average, 42% of teachers experience significant occupational stress, and 36% report being permanently affected [18]. Young teachers (25–34 years) represent the most vulnerable group, exhibiting high levels of physical (47.4%), emotional (42.1%), professional (63.2%), and family-related stress (38.6%) [18–20]. In contrast, teachers aged over 55 report lower stress levels, suggesting gradual adaptation to professional demands, with experience serving as a protective factor.

Occupational burnout is another emerging concern: about 7% of teachers report being unable to continue their professional activity, while nearly half (45.5%) feel deeply psychologically exhausted [21]. The main contributing factors include physical overexertion (20.9%), overtime work (18.1%), and a tense organizational climate (6.9%). Only two-thirds of respondents report being able to maintain a balance between work and rest [22–24].

In this context, the assessment of teachers' health status in the Republic of Moldova is particularly relevant. According to data from the Ministry of Education, during 2018–2023, the primary and secondary education system comprised 1,231 institutions, 336,713 students, and approximately 26,500 teaching staff, of whom 57.9% had over 20 years of experience, 89.8% held higher education degrees, and 85.8% were women—an important aspect for interpreting the specific health characteristics of the teaching workforce [24].

The aim of the study: The assessment of health status and occupational risk factors among teachers in general education institutions, with the aim of developing preventive measures against disease.

Objectives of the study:

1. To assess the health status of teachers in primary and general secondary education institutions, including morbidity, functional status indicators, and psycho-emotional parameters.

2. To conduct a hygienic evaluation of occupational and non-occupational risk factors specific to this professional activity.
3. To determine and analyze the interrelationships between health indicators of teaching staff and identified risk factors.
4. To develop preventive measures aimed at reducing disease burden and strengthening the health status of teachers in the Republic of Moldova.

Scientific research methodology. The research, descriptive and longitudinal in design, aimed to identify the professional, environmental, and psychosocial factors influencing teachers' health. The methodology integrated four stages: a systematic literature review, an observational study involving 563 respondents, a functional assessment conducted on 50 subjects, and an analysis of the impact of the COVID-19 pandemic. This comprehensive approach provided an integrated perspective on health determinants and practical directions for occupational prevention.

Scientific Problem. The analysis aimed to identify the main professional and extraprofessional determinants of teachers' health in general education by correlating chronic morbidity, functional disorders, and occupational burnout with reproductive health and lifestyle characteristics, in order to substantiate preventive measures and promote occupational health.

The novelty and scientific originality of the obtained results. The originality of this study lies in the first hygienic assessment of teachers' working conditions and health status, with a specific focus on occupational stress and burnout syndrome. It identifies their underlying causes and proposes modern preventive measures, highlighting the factors associated with the increase in morbidity, particularly among younger teachers.

The theoretical significance of the research lies in the substantiation of a scientific model describing the influence of working conditions on teachers' health, achieved through the integration of hygienic analysis with objective physiological assessments. This provides a theoretical foundation for the development of policies and interventions tailored to the educational system of the Republic of Moldova.

The applicative value of this research resides in the substantiation of health protection measures for teaching staff, aimed at optimizing work processes, reducing stress, and improving ergonomics, with potential applicability in occupational health policies and programs.

Implementation of research results. The results of the thesis were validated through national and international scientific events and applied within the COST and KEP/CEI projects. They have been implemented in the activities of the Discipline of Hygiene, Department of Preventive Medicine, and the National Agency for Public Health, as well as in the training of specialists and the development of occupational health protection policies in the education sector.

Approval of the scientific results. The materials of the thesis were presented and approved at several national and international scientific events, including the annual conferences of Nicolae Testemițanu State University of Medicine and Pharmacy (Chișinău, 2019–2024); the 7th Congress of Hygienists, Epidemiologists, and Microbiologists of the Republic of Moldova (2019); the International Conference Health Risk Factors and Prevention of Injuries and Diseases (2019); meetings of the COST Action CA16216 OMEGA-NET project (2020); the International Congress MedEspera (2020); the National Conferences A Safe Environment – Protected Health (2020, 2021, 2022) and Health Protection for a Safe Future (2022); as well as international conferences held in Tbilisi (2021), Bucharest (2021), Yerevan (2022), Miskolc (2022), and Chișinău (2024). The research findings were also presented at the Young Researchers' Conference Modern Research Approaches in Hygiene (Chișinău, 2025).

The research was validated within several international projects, including: COST Action CA16216 – OMEGA-NET (2017–2021); Improving Occupational Health and Safety System in the Republic of

Moldova (CEI KEP, 2021–2023); Collaborative Research and Capacity Building in Occupational Health and Safety (Moldovan–Turkish bilateral project, 2022–2023); and CEI Support for Increasing Capacity of Research and Action in Occupational and Environmental Health in the Republic of Moldova (CEI KEP, 2024–2025).

The research results were discussed and approved at the meeting of the Discipline of Hygiene, Department of Preventive Medicine, Nicolae Testemițanu State University of Medicine and Pharmacy (Minutes No. 12 of May 22, 2025), as well as within the Profile Scientific Seminar of Nicolae Testemițanu State University of Medicine and Pharmacy, profile 331 – Public Health; 333 – Occupational Health and Biomedicine / Specialties: 331.03 – Social Medicine and Management; 331.04 – Healthy Lifestyle; 331.01 – Epidemiology; 331.02 – Hygiene; 333.01 – Occupational Hygiene (Minutes of June 24, 2025).

Publications on the thesis topic. Based on the materials of the thesis, 25 publications have been produced, including: 2 chapters in monographs; 3 SCOPUS-indexed articles, of which 2 have impact factors of 4.614 and 0.176; 1 article published in the proceedings of international conferences; 9 articles in nationally accredited category B journals; 10 theses presented at national and international scientific forums; as well as 2 innovator certificates, 2 institutional implementation acts, 7 oral presentations at international scientific conferences, 9 oral presentations at national scientific conferences, and 1 poster presentation at an international scientific conference.

PhD thesis structure. The thesis comprises 159 pages of main text and includes an introduction, four chapters, general conclusions, and practical recommendations. The work cites 221 bibliographic sources and is illustrated with 23 figures, 9 tables, and 7 appendices. The doctoral research received the positive approval of the Research Ethics Committee of Nicolae Testemițanu State University of Medicine and Pharmacy (Minutes No. 17 of April 12, 2019).

THESIS CONTENT

1. IMPACT OF OCCUPATIONAL AND ENVIRONMENTAL RISK FACTORS ON TEACHERS' HEALTH

A comprehensive analysis was carried out to assess the impact of occupational and living environment risk factors on the health of teachers, highlighting the specific features of intensive intellectual work performed under conditions of heightened psycho-emotional and physical demands. The review of the scientific literature addressed neuro-emotional overload, burnout syndrome, and the most frequently encountered pathologies among teachers, with a particular focus on cardiovascular diseases, psychosomatic disorders, musculoskeletal conditions, and endocrine dysfunctions. In addition, occupational environmental factors such as inadequate lighting, prolonged standing posture, excessive voice use, and extensive reliance on digital equipment were examined, alongside the broader social and organizational context shaped by continuous educational reforms, all of which contribute to a decline in overall health status. The study identified significant gaps in ensuring minimum hygienic conditions within educational institutions, underscoring the need for strategic intervention measures. This analysis outlined the key directions for optimizing the professional environment of teaching staff and offered scientific evidence to support the development of educational and health policies tailored to the specific context of the Republic of Moldova.

2. RESEARCH MATERIALS AND METHODS

To achieve the research objectives, a set of complex investigations of a hygienic, psychophysiological, sociological, and statistical nature were conducted, focusing on the assessment of occupational and habitual environmental conditions, lifestyle, nutrition, as well as the functional and general health status of teaching staff.

The research was structured in several stages, following a well-defined design (figure 1).

The first stage focused on the theoretical documentation of the topic and the identification of gaps in the scientific literature, forming the basis for the scientific substantiation of the study objectives. A systematic literature review was conducted in accordance with the PRISMA and SWiM methodologies, using a PROSPERO-registered protocol for data selection and coding. The sources were identified through searches in international databases (PubMed, Medline, PsycINFO, Embase, Research4Life) and Google Scholar, using Boolean operators to refine and optimize the search strategy. A total of 85 relevant articles were analyzed and selected based on rigorous inclusion and exclusion criteria (population, study design, European context, language). The review allowed for the identification of the main predictors of occupational burnout and the key professional and environmental risk factors, thereby defining the methodological directions for subsequent empirical studies. This stage also included the selection of research methods, the establishment of the study sample, and the development of the research plan.

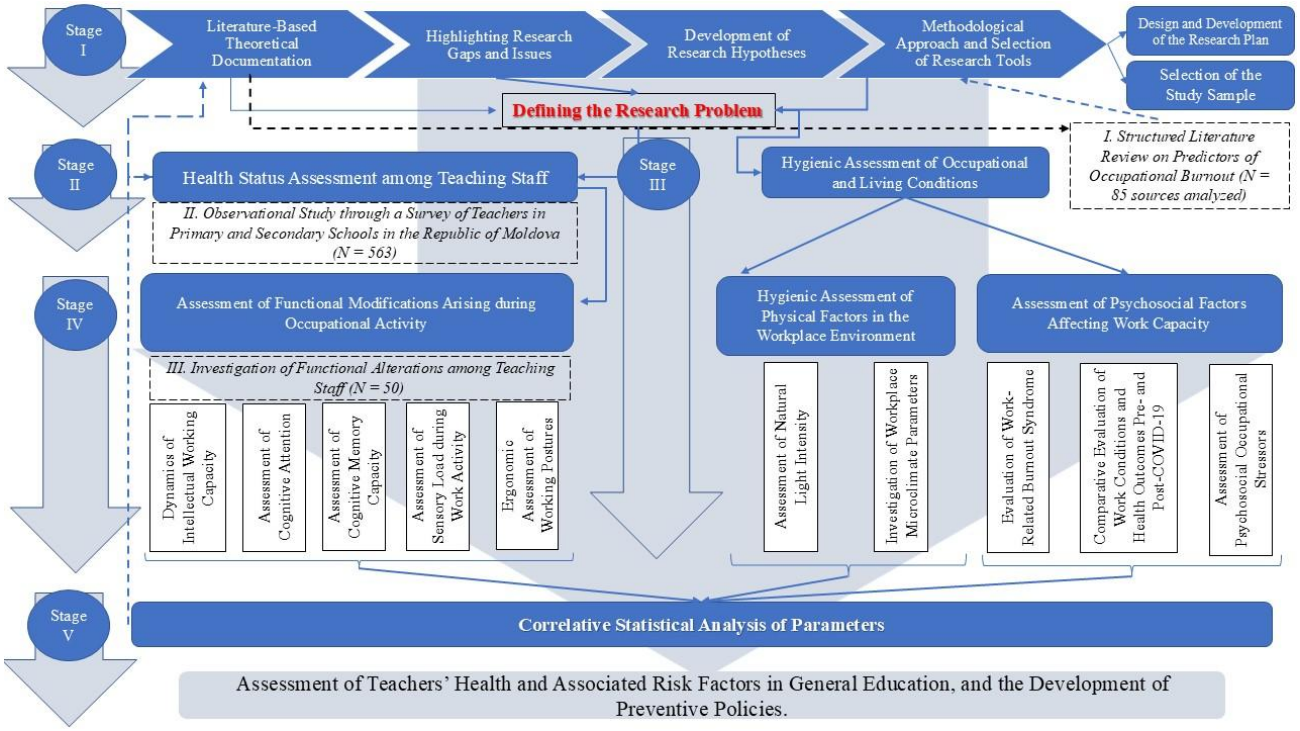

Figure 1. Study design

The second stage consisted of a descriptive longitudinal study (2019–2023) focused on analyzing teachers' perceptions regarding health status, living conditions, eating behavior, and the influence of risk factors according to age, sex, subject taught, and years of professional experience. The sample size was calculated using EpiInfo v.7.2.2.6, based on a target population of 28 880 teachers. Assuming an estimated prevalence of 70%, a 5% margin of error, and a design effect of 1,5, a minimum sample size of 479 respondents was obtained and subsequently increased to 527 to account for nonresponses, with a final effective sample of 563 participants. The inclusion criteria targeted active teachers from primary and secondary general education, under 63 years of age, who provided informed consent. Exclusion criteria referred to refusal to participate or lack of teaching status. Data were collected through a structured questionnaire developed based on the scientific literature, comprising 11 sections and 159 questions: 96 addressing health and occupational environment, 37 related to nutrition, and 24 concerning psycho-emotional factors. Responses were designed as closed-ended, multiple-choice, and scaled items (0–5), ensuring a comprehensive assessment of health status and occupational determinants.

The third stage consisted of two complementary phases. The first stage involved a descriptive cross-sectional study focused on the hygienic assessment of the occupational environment, including the analysis of microclimatic parameters, lighting conditions, and the work–rest regimen. In the second phase (2019–2022), the influence of psychosocial factors on teachers' health was investigated, with an emphasis on occupational stress, burnout syndrome, and the impact of the COVID-19 pandemic**.** To quantify professional burnout, the Maslach Burnout Inventory – General Survey (MBI-GS), validated Romanian version, was applied. This instrument includes 16 items grouped into three dimensions: emotional exhaustion, cynicism/depersonalization, and professional inefficacy, each rated on a 0–6 Likert scale. Occupational stress was measured using the Impact of Event Scale – Revised (IES-R), which explores three main dimensions: intrusion, avoidance, and physiological hyperarousal. The combined use of these two instruments enabled a standardized evaluation of psycho-emotional risks, correlating levels of stress and professional burnout with working conditions and the effects of the COVID-19 pandemic on teachers' health.

The fourth stage comprised a descriptive study conducted on a sub-sample of 50 participants (teaching staff and support personnel), aimed at a detailed physiological evaluation of the effects of occupational conditions on the human body. The investigation methodology was based on the model proposed by V. Vangheli and D. Rusnac (2000), validated for the analysis of functional reactivity and adaptability to intellectual and professional workload. Although the sample size was limited, the comprehensiveness of the individual measurement set ensured statistical robustness and relevance of the results, consistent with similar studies (Russu, 2003; Meșină, 2009; Cebanu, 2008, 2022; Pânzaru, 2023). In addition, body composition analysis was performed using the bioelectrical impedance method to characterize the participants' metabolic and functional parameters**.**

The final stage of the research (Stage V) consisted of an integrative analysis of all results, evaluating the correlations between the quality of the living and occupational environments, dietary behaviors, and the health status of teaching staff. The study enabled the estimation of the relative risk associated with exposure to occupational factors and generated a set of preventive recommendations aimed at optimizing working conditions and reducing their impact on health.

3. CHARACTERIZATION AND ASSESSMENT OF THE HEALTH STATUS OF TEACHERS

3.1 Self-perceived health status among teachers

The health status of teaching staff represents a key determinant of both professional quality of life and educational performance. Self-assessment of health status revealed that 63,4% of respondents considered themselves to be in satisfactory health, 27,0% in good health, and 7.1% reported serious health problems, while 2,5% were unable to assess their condition. Regarding chronic morbidity (figure 2), 37,3% reported having chronic diseases, 45,6% denied their presence, and 17.1% were unaware of their status, reflecting the absence of regular medical check-ups and the risk of underdiagnosis.

Arterial hypertension (AH) is the most frequently reported chronic disease among teachers, being correlated with mental overload, sedentary behavior, and age. Other common conditions include pyelonephritis and chronic bronchitis, gastritis, diabetes mellitus, endocrine dysfunctions, joint diseases, migraines, and intervertebral disc hernias- all of which affect work capacity and quality of life. Isolated cases of hepatitis B, glaucoma, ulcerative colitis, autoimmune, or oncological diseases require continuous medical monitoring.

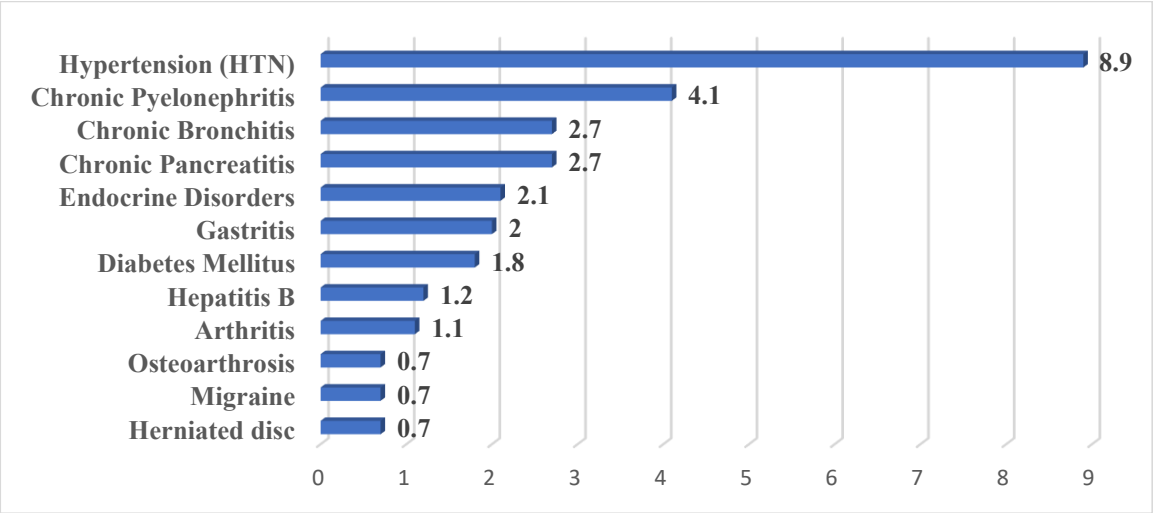

Figure 2. Prevalence of self-reported chronic conditions among teachers (%)

The diversity of pathologies reflects the cumulative influence of lifestyle factors and the lack of preventive measures. In this context, 28.2% of respondents are under dispensary observation, emphasizing the need for continuous health monitoring. Regarding acute morbidity, 52.6% reported 1–2 episodes of illness in the past year, 10.8% reported 3–4 episodes, and 4.4% reported more than four, indicating immune vulnerability, while 32.1% did not report any illness—possibly due to good health status or underreporting of minor symptoms.

3.2 Professional and extraprofessional determinants of reproductive health among female teaching staff in general education

The assessment of reproductive health among female teaching staff in primary and lower secondary education highlights key aspects related to sexual behavior, fertility, obstetric complications, and their potential influence on professional functioning. Approximately one-third of respondents reported dyspareunia, a symptom that may arise from physiological, psychological, or relational factors.

Regarding maternal and gynecological health, 23,9% (95% CI: 20,02–27,77) of participants experienced acute obstetric complications, while 67% reported no such issues, indicating generally adequate prenatal care. The most frequently reported complications included threatened miscarriage (13,3%), edema (4,1%), and gestosis (<1%). Among pregnancy-related conditions, influenza was noted in 7,6% of cases, acute respiratory infections in 5,0%, and viral hepatitis in 0,9%, with other conditions such as anemia, hypertension, or hemorrhage showing low prevalence.

Correlation analyses between professional experience and self-reported obstetric events (table 1) revealed significant associations between long-term occupational exposure and the incidence of spontaneous and medically induced miscarriages during the first trimester. This finding suggests that cumulative occupational stress may adversely affect reproductive health. Additionally, an upward trend in the total number of pregnancies and natural births was observed with increasing length of service.

Overall, the data indicate a generally favorable reproductive health profile among female teachers, while underscoring the need for continued clinical monitoring to prevent high-risk cases. These findings highlight the importance of institutional policies aimed at reducing occupational stress, preventing complications, and safeguarding the health of women with extended professional tenure. Moreover, the results emphasize the need for targeted health education programs that address both reproductive health and occupational well-being. Strengthening intersectoral collaboration between educational and public health institutions may further enhance early detection and support mechanisms for at-risk groups.

Table 1 Relationship between years of employment and teachers' reproductive health indicators (N = 497

Item No.	Reproductive Outcome/Indicator	Degrees of Freedom (df)	χ^2 (Chi-Square)	Pearson R (p)	Spearman ρ (p)
1.	Pregnancies	301	333,2 (p=0,098)	0,234 (p<0,001)	0,267 (p<0.001)
2.	Natural delivery	258	310,9 (p=0,013)	0,244 (p<0,001)	0,289 (p<0,001)
3.	Cesarean sections	129	91,3 (p=0,995)	-0,035 (p=0,439)	-0,023 (p=0,613)
4.	Preterm births	172	124,9 (p=0,997)	-0,031 (p=0,489	-0,014 (p=0,753)
5.	Post-term births	172	139,9 (p=0,965)	-0,082 (p=0,067)	-0,083 (p=0,066)
6.	Stillbirths	172	215,5 (p=0,014)	-0,073 (p=0,104)	-0,031 (p=0,489)
7.	Total spontaneous abortions	258	254,8 (p=0,545)	0,131 (p=0,003)	0,175 (p=0,014)
8.	Spontaneous abortions ≤ 12 weeks.	258	263,9 (p=0,386)	0,100 (p=0,026)	0,123 (p=0,006)
9.	Spontaneous abortions > 12 weeks	172	118,6 (p=0,999)	-0,028 (p=0,537)	0,009 (p=0,839)
10.	Total induced abortions	215	273,5 (p=0,004)	-0,208 (p<0,001)	0,009 (p=0,839)
11.	Induced abortions ≤ 12 weeks	215	227,7 (p=0,118)	0,123 (p=0,006)	0,175 (p<0,001)
12.	Induced abortions > 12 weeks	172	194,2 (p=0,118)	0,030 (p=0,499)	0,086 (p=0,055)

3.3 Characteristics of functional changes in the organism of teaching staff during professional activity

Teaching activity involves continuous physical, mental, and emotional demands, which over time may lead to significant functional changes. Occupational stress particularly affects the cardiovascular, nervous, and autonomic systems, underscoring the need for regular physiological monitoring to prevent exhaustion.

Throughout the working week, progressive deviations of physiological indicators from baseline values were observed: heart rate increased from 72.7 ± 7.35 bpm to 75.9 ± 8.31 bpm ($p = 0.006$), and blood pressure from 123/85 mmHg to 129/92 mmHg ($p < 0.005$), indicating cumulative overload. Auditory and visual reaction times increased by 25–39%, memory performance decreased to 56.6%, and the attention index to 44.0%, reflecting marked cognitive fatigue.

Work capacity declined substantially—from –17.9% on Monday to –41.7% on Friday—confirming the cumulative impact of occupational stress and the need for prophylactic and psychophysiological interventions to support teachers' health.

In summary, the comparative analysis of central nervous system functions between teaching and non-teaching staff (figure 3) revealed marked differences in physiological and cognitive parameters throughout the week. Among teachers, auditory and visual response latencies were consistently higher, memory performance was significantly reduced, and the attention index showed a pronounced decline, indicating progressive cognitive overload and underscoring the need for measures to prevent professional burnout.

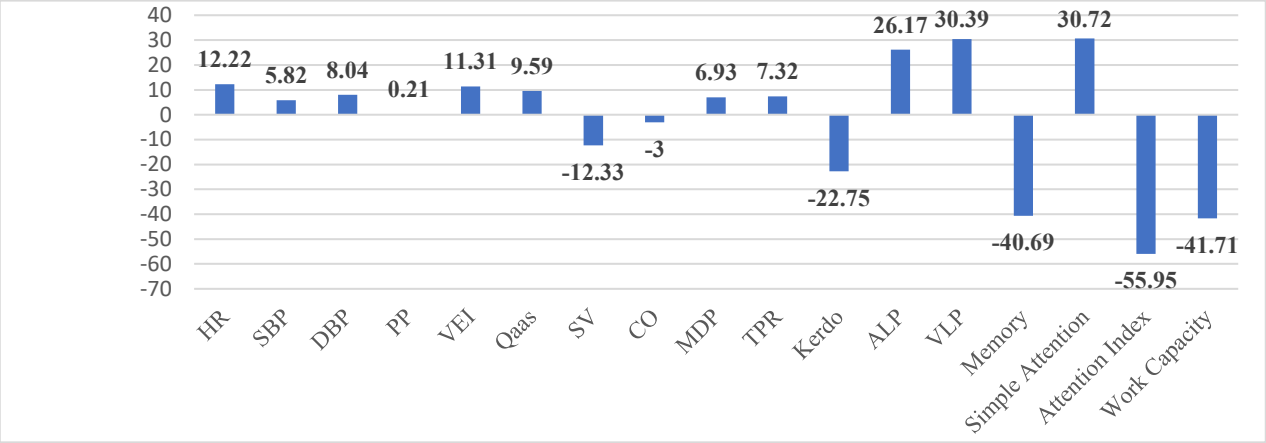

Figure 3. Functional changes in teachers' physiological status during the working week compared to the baseline level (set at 100%).

The comparative analysis of CNS-related changes between teaching and non-teaching staff revealed significant differences in physiological and cognitive parameters throughout the workweek. Among teachers, auditory latency (ALP) increased markedly (127,4% on Monday; 126,17% on Friday) compared with non-teaching personnel (104,68% and 108,82%), indicating a pronounced slowing of sensory response. Visual latency (VLP) followed the same trend, with substantially higher values among teachers (139,24% and 130,39%) than in the comparison group (105.63% and 107,14%).

Memory performance was notably impaired among teachers (56,63% on Monday; 59,31% on Friday), while non-teaching staff maintained high performance levels (113,04% and 100,88%). Simple attention increased compensatory in teachers (116,83% and 130,72%), contrasting with only minor variations in the comparison group (94,87% and 99,77%). However, the attention index showed a sharp decline among teachers (62,91% → 44,05%), indicating cognitive exhaustion, whereas non-teaching personnel exhibited an abrupt decline only at the end of the week (110,61% → 5,61%).

Work capacity showed a marked deterioration among teachers (17,87% on Monday; –41,71% on Friday), compared with minimal variations among non-teaching employees (2,67% and 5,97%). Overall, these findings point to progressive cognitive overload among teaching staff and highlight the need for preventive measures to mitigate professional burnout.

The ergonomic assessment of posture revealed that 60,5% of teachers worked predominantly in a seated position (7,5–23,7 minutes/hour), despite frequent inadequacies in classroom furniture design. Science teachers and primary school educators showed a preference for standing (78,5%), often adopting asymmetrical postures and repetitive forward-bending movements. The impact of these postures on health was assessed objectively through photographic analysis and goniometric measurements, comparing the recorded values with physiological limits to identify the biomechanical risks associated with teaching activities.

Goniometric analysis of working posture (table 2) demonstrated the significant impact of teaching activity on the osteo-articular system, characterized by static positions, non-ergonomic postures, and repetitive movements. These postural deviations increase biomechanical load on the spine and peripheral joints, contributing to chronic pain and musculoskeletal dysfunctions. Moreover, the persistence of such inadequate postural patterns underscores the need for ergonomic interventions and postural education programs within the school environment.

These postural deviations increase biomechanical load on the spine and peripheral joints, contributing to chronic pain and musculoskeletal dysfunctions. Moreover, the persistence of such

inadequate postural patterns underscores the need for ergonomic interventions and postural education programs within the school environment. Implementing regular workplace assessments and promoting active breaks could further reduce cumulative strain and support long-term musculoskeletal health among teachers. Such measures are essential for maintaining functional capacity and preventing occupationally induced disorders.

Table 2. Goniometric indices of working posture among teachers from general education (degrees)

No	Joint Angles)	Optimal Range (°)		Standing Position			Sitting Position
		Sitting	Standing	Primary School	Gymnasium	High school	IT Teacher (Sitting))
1.	Radiocarpal (wrist)	*170-190^0*		175	180	170	189
2.	Ulnar (elbow)	*80-110^0*	*80-100^0*	117	111	111	98
3.	Coxo-femoral (hip)	*85-100^0*	*165-180^0*	80	163	177	78
4.	Knee	*95-120^0*	*180^0*	215	220	190	115
5.	Tibiotarsal (ankle)	*85-95^0*	*90-100^0*	88	87	90	90
6.	Neck deviation from vertical	*10-25^0*		115	32	29	39
7.	Shoulder deviation from vertical	*15-35^0*	*0-15^0*	18	17	20	37
8.	Trunk deviation from vertical	*15-25^0*	*0-15^0*	13	17	18	37

More than 83,6% of teaching staff reported musculoskeletal pain, predominantly in the cervical region (40,1%), followed by the lumbar area and lower limbs (31,1%) and the upper limbs (17,6%). The main risk factors identified were prolonged standing (76,8%), stair climbing and homework correction (29,5%), as well as repetitive bending and writing on the board (21,4%). To alleviate discomfort, respondents most frequently reported rest (63,7%) and therapeutic massage (43,9%) as effective measures. These findings highlight the need to optimize workstation ergonomics and introduce active breaks to prevent the development of chronic musculoskeletal pain.

4. HYGIENIC ASSESSMENT OF OCCUPATIONAL RISK FACTORS INFLUENCING TEACHERS' HEALTH

4.1 Assessment of occupational environmental factors

Teaching activity involves both curricular and extracurricular tasks that increase workload and expose teachers to physical and mental overstrain. They spend up to 80% of their time standing, use their voice intensively (20–25 hours per week), and work more than 10 hours daily—conditions that classify the profession as Class III, Grade I of harmful work, comparable in intensity to high-responsibility occupations, yet with considerably lower remuneration.

The analysis of microclimatic conditions revealed a generally satisfactory level of thermal comfort (87% perceived the temperature as normal), though variations between classrooms and deviations from

hygienic norms were noted, particularly in winter (14–16°C in some rooms) and summer (above 27°C). Humidity ranged between 46–65%, while insufficient ventilation contributed to respiratory discomfort. The correlation between subjective perceptions and objective data confirmed the influence of microclimate on well-being and professional efficiency.

Most classrooms met the standards for natural lighting (daylight factor > 1,5%); however, luminosity levels occasionally exceeded the recommended limits, causing visual fatigue. A total of 82,6% of teachers considered lighting adequate. Psychosocial conditions remained demanding: 65,4% reported neuropsychic overload, 61,6% emotional tension, while moral (54%) and material (24,9%) satisfaction were moderate or low, reflecting an imbalance between effort and reward.

4.2 Assessment of the impact of living environment and behavioral determinants on teachers' health

The quality of the living environment represents a key determinant of health and was analyzed in relation to housing conditions, available facilities, pollution level, and opportunities for rest. Most respondents (59,1%) live in individual houses, 21,5% in apartments, and 15.1% with their parents, with an average living area of 10–25 m^2 per person. The majority of homes are located in areas with green spaces (85,4%), though often near roadways (28,8%) or railway stations (5%).

Facilities are insufficiently developed in many cases: only 31,1% benefit from full utilities, while 22,4% lack sewage systems. Waste collection is organized for 59,3% of households but occurs less than once per week in over a quarter of cases.

Perception of the environment (figure 4) indicates a moderate level of pollution: 46,4% described their area as clean, while 27,7% reported smoke and 25,9% unpleasant odors, especially during winter. Polluted air affects the health of two-thirds of respondents, manifesting through headache, fatigue, cough, and mucosal irritation, confirming the direct influence of the living environment's quality on overall health.

Traffic noise affects the majority of teachers (81%), being associated with sleep disturbances (33,7%) and irritability (32%). More than half spend over four hours daily on household chores, and 62.5% rest for less than one hour, indicating a chronic lack of recovery and cumulative exposure to environmental stress. Only 2% engage in physical activity during weekends, with passive rest predominating.

The dietary pattern is unbalanced: only 29% follow three main meals per day, and 31% do not monitor their daily nutrition. Breakfast is often skipped or of poor quality, consisting mainly of sweets and coffee (40,7%), while fruit, dairy, and cereal intake remain low. Dietary diversity is limited, with most respondents consuming one or two dishes per meal.

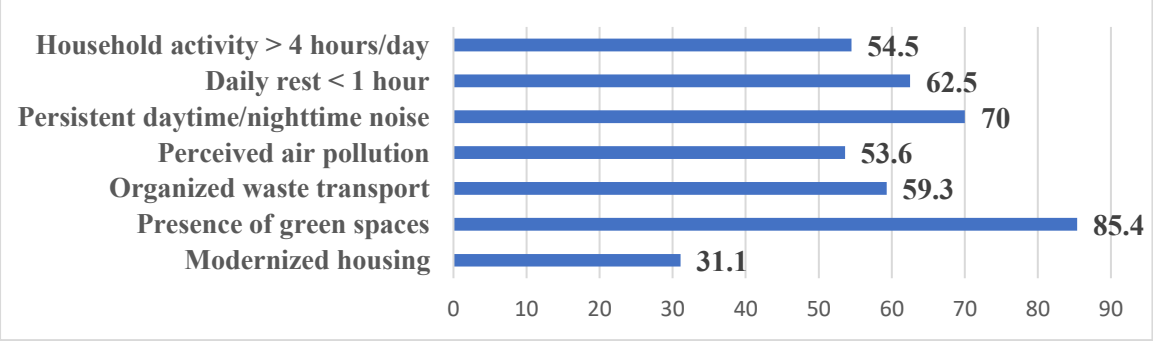

Figure 4. Exposure of teaching staff to environmental factors and living conditions negatively affecting well-being (%)

All respondents include meat in their diet, preferring fresh (27,9%) or mixed (26,8%) varieties, while processed products are consumed occasionally. Over 96% eat fish, predominantly 1–2 times per week, consistent with nutritional recommendations, though omega-3 fatty acid intake may be insufficient

among those who completely avoid fish.Risk behaviors are moderate: 68.7% do not consume alcohol, while the remainder do so occasionally and in small amounts (0,24 L per week). Active smoking is rare (1.6%), but passive exposure is common (46.4%). Statistical analyses revealed significant correlations between alcohol consumption and negative health perception ($\chi^2(3)=8,939$, $p=0,030$), obstetric complications ($\chi^2(2)=7,973$, $p=0,019$), and chronic diseases ($\chi^2(42)=56,812$, $p=0,015$). Passive smoking was also correlated with chronic morbidity ($\chi^2(4)=9,716$, $p=0,045$) and higher frequency of illnesses ($\chi^2(6)=27,091$, $p<0,001$), confirming the adverse effects of domestic pollutant exposure on teachers' health

Analysis of body composition using bioelectrical impedance.

The evaluation of body composition using bioelectrical impedance analysis (table 3) included measurements of waist circumference, body mass, fat mass, muscle and bone mass, body mass index (BMI), and metabolic age. The mean body fat percentage (31.53%) exceeded the recommended limits (15–19% for men, 24–30% for women), indicating a tendency toward overweight and obesity. The results also revealed a slowed metabolism and reduced bone mass among male participants, suggesting potential risk factors for metabolic and osteo-articular health.

Table 3. Results of anthropometric measurements and bioelectrical impedance analysis in the sample of teaching staff.

No	Variable	M±m	25th Percentile	50th Percentile (Median)	75th Percentile%
1.	Height (cm)	171,64±2,10	162,5	168	181.5
2.	Body weight (kg)	73,26±3,08	60,2	72,7	87,65
3.	Body fat percentage for standard constitutional type	31,53±1,66	24,45	32,3	39,45
4.	Muscle mass (kg)	48,4±1,64	41,25	45,9	54,95
5.	Bone mass (kg	2,64±0,09	2,25	2,6	3,05
6.	Body Mass Index (BMI)	24,85±0,93	21,9	23,9	26,55
7.	Energy requirement (kcal)	2520,08±90,99	2139,5	2378	2833,5
8.	Metabolic age	43,36±2,76	33,5	38	56
9.	Body water percentage (%)	51,34±1,12	47,35	49,2	55,1
10.	Visceral fat level	5,60±0,45	4	5	7,50

The analysis of body composition among teaching staff showed an average bone mass of 2,64 kg, which is within the expected range for women but below the optimal threshold for men, suggesting a potential risk of osteopenia. The mean BMI (24,85) places most participants at the boundary between normal weight and overweight. Metabolic age (43,36 years) was generally comparable to chronological age; however, the 75th percentile (56 years) indicates a slowed metabolic rate in one quarter of the respondents. The average hydration level (51,34%) fell within physiological limits, although 25% exhibited reduced values. Visceral fat levels were below the risk threshold on average (5.6), yet showed an upward tendency among a quarter of participants, a pattern that may increase long-term metabolic risk.

4.3 Burnout syndrome and occupational stress as key psychosocial determinants influencing health among teaching staff

The process of professional formation, although fundamental to the identity and behavior of the specialist, may also contribute to the development of burnout syndrome—a psychological reaction to occupational stress characterized by emotional exhaustion, cynicism, and reduced professional efficacy. The assessment conducted using the Maslach Burnout Inventory – General Survey (MBI-GS) indicated an average emotional exhaustion score of 19.99 ± 8.30 points (median = 19; mode = 18). According to the

interpretation grid (low: 9–18; medium: 19–27; high: 28–45), the results show a balanced distribution between low and medium levels, reflecting a considerable degree of emotional strain among teachers.

The evaluation of burnout dimensions among teaching staff (figure 5) revealed that 48% displayed low levels of emotional exhaustion, 40% medium levels, and 12% high levels, indicating substantial psychological fatigue. Regarding depersonalization, 75% of respondents fell within the low level, while 25% exhibited tendencies toward affective detachment. The dimension of personal accomplishment proved to be the most vulnerable: 28% reported low scores, associated with diminished self-efficacy and an increased risk of burnout. These findings outline a fragile professional profile, characterized by emotional exhaustion and reduced job satisfaction, highlighting the need for institutional psychological and motivational support measures.

In the assessment of burnout syndrome among teachers, statistically significant and moderately positive correlations were identified between the dimensions of emotional exhaustion and reduced personal accomplishment (Table 4). The Spearman correlation coefficient ($r = 0.463$, $p < 0.001$) and Kendall's tau ($\tau = 0.340$, $p < 0.001$) indicate that higher emotional fatigue is associated with lower perceived professional efficiency and job satisfaction, suggesting that these dimensions are interrelated and may jointly contribute to the worsening of professional exhaustion.

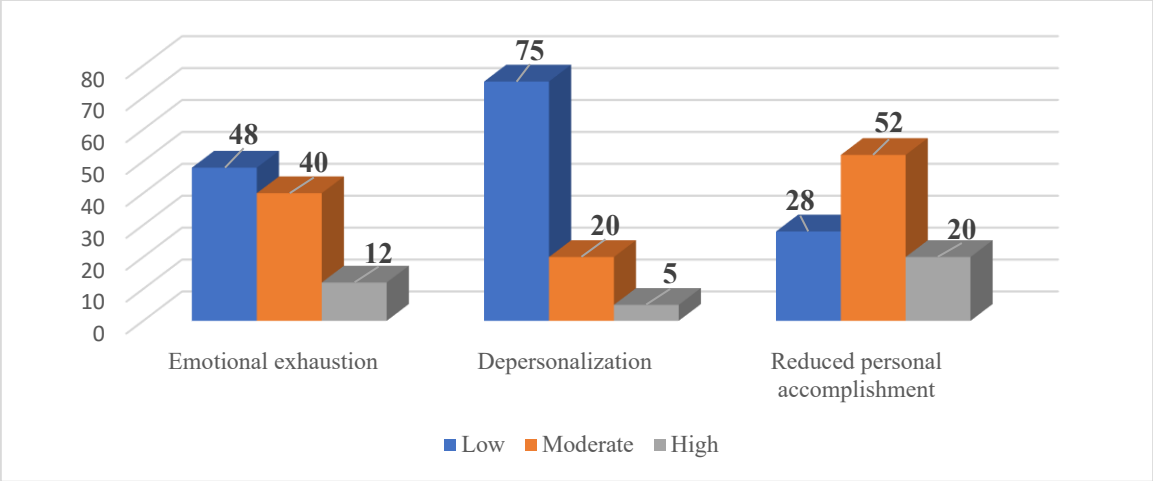

Figure 5. Percentage distribution of teaching staff according to the level of each burnout dimension

The correlation analysis between the dimensions of burnout revealed significant relationships between emotional exhaustion and depersonalization ($r = 0.517$, $\tau = 0.377$, $p < 0.001$), as well as between depersonalization and reduced personal accomplishment ($r = 0.477$, $\tau = 0.352$, $p < 0.001$). These results confirm the interdependence of these dimensions, indicating that increased psychological exhaustion leads to emotional detachment and a decline in perceived professional efficiency.

No significant correlations were found between burnout and the variables of age or length of service ($p > 0.2$), suggesting that the syndrome affects teaching staff uniformly, regardless of experience. The only strong association identified was between age and years of professional activity ($r = 0.882$, $p < 0.001$), confirming the consistency of the data.

Furthermore, the Chi-square test revealed no significant gender differences in emotional exhaustion ($\chi^2(43) = 46.850$, $p = 0.212$), indicating a similar vulnerability to occupational stress among male and female teachers. These findings emphasize the systemic nature of burnout and the need for organizational interventions addressing the teaching workforce as a whole.

Table 4. Correlation analysis of burnout in relation to determinants and demographic data (Spearman's r, Kendall's τ)

No.	Corelația analizată	Spearman (r)	p (Spearman)	Kendall (τ)	p (Kendall)
1.	Emotional exhaustion ↔ Reduced personal accomplishment	0,463	<0,001	0,34	<0,001
2.	Emotional exhaustion ↔ Depersonalization	0,517	<0,001	0,377	<0,001
3.	Depersonalization ↔ Reduced personal accomplishment	0,477	<0,001	0,352	<0,001
4.	Emotional exhaustion ↔ Work experience (tenure)	-0,062	0,219	-0,043	0,213
5.	Reduced personal accomplishment ↔ Work experience (tenure)	-0,009	0,854	-0,007	0,847
6.	Depersonalization ↔ Work experience (tenure)	0,033	0,517	0,023	0,520
7.	Emotional exhaustion ↔ Age	-0,061	0,228	-0,042	0,228
8.	Reduced personal accomplishment ↔ Age	-0,023	0,655	-0,018	0,610
9.	Depersonalization ↔ Age	0,031	0,543	0,022	0,540

Hygienic evaluation of occupational stress

The assessment of occupational stress using the Impact of Event Scale – Revised (IES-R) revealed variable levels of psychological distress across the dimensions of intrusion, avoidance, and hyperarousal (table 5). The mean intrusion score was 9.33 ± 8.60, with 31.1% of teachers reporting no symptoms, while 4–5% presented clinical levels consistent with flashbacks or nightmares. The mean scores for avoidance (5.68 ± 5.37) and hyperarousal (7.10 ± 6.50) showed that roughly one-third were symptom-free, whereas 8–10% experienced coping dysfunctions, sleep disorders, irritability, or poor concentration. Overall, findings indicate a moderate level of psychological stress, with a vulnerable subgroup displaying post-traumatic symptoms.

Table 5. Descriptive statistics of IES-R scores in the study population

IES-R Component	Mean ± SD	Median	Mode	75th Percentile	Key observations
Intrusion	9,33 ± 8,60	8	0	17	31.1% asymptomatic; ~20% scored >16
Avoidance	5,68 ± 5,38	5	0	10	32.1% asymptomatic; balanced distribution
Hyperarousal	7,10 ± 6,50	6	0	12	~30% asymptomatic; modest scores with peaks above 14

About one-third of respondents showed no signs of post-traumatic stress, yet a significant share reported moderate to severe distress—particularly in intrusion and hyperarousal—highlighting the need for continuous psychological monitoring and support. No significant correlations were found between stress scores, age, or years of service ($p > 0.2$), suggesting uniform occupational strain across the education system. Positive associations were observed between IES-R scores and burnout dimensions: emotional exhaustion ($r \approx 0.29–0.30$), depersonalization ($r \approx 0.26–0.28$), and reduced personal accomplishment ($r \approx 0.22–0.24$), confirming the interdependence between traumatic stress and professional fatigue. Gender differences were not significant ($\chi^2(33) = 32.587$, $p = 0.341$), though teachers of mathematics, Romanian language, history, and informatics had higher stress levels ($p = 0.006$).

Educational level influenced intrusion ($\chi^2(98) = 113.5$, $p = 0.048$), with postgraduate teachers scoring higher, likely due to greater professional involvement. Although school type was not significantly associated ($p = 0.752$), teachers in gymnasiums and high schools showed slightly higher mean scores. Health status correlated marginally with intrusion ($\tau = 0.073$, $p = 0.028$); teachers with more than three illness episodes per year had higher stress levels, confirming the link between chronic stress and somatic burden.

4.4 Assessment of the impact of the COVID-19 Pandemic on teachers' health

"Following the COVID-19 pandemic, teachers in the Republic of Moldova experienced substantial changes in their professional activity, particularly due to the abrupt transition to online teaching. This shift led to an increased workload, challenges in maintaining work–life balance, and significant psychological effects. Although the level of confidence in distance teaching varied considerably among educators, the analyzed data reveal an uneven adaptation to new technological requirements, highlighting the vulnerability of the educational sector when confronted with unexpected systemic crises. This context underscored the need for institutional support and continuous training in the use of digital tools.

Figure 6 illustrates the major changes perceived by teaching staff during the COVID-19 pandemic, expressed as percentages. With regard to confidence in online instruction, only 5.3% of respondents reported the highest level (score 10), while 40.7% assigned a moderate score of 6, indicating a cautious and uncertain adaptation to the new digital demands.

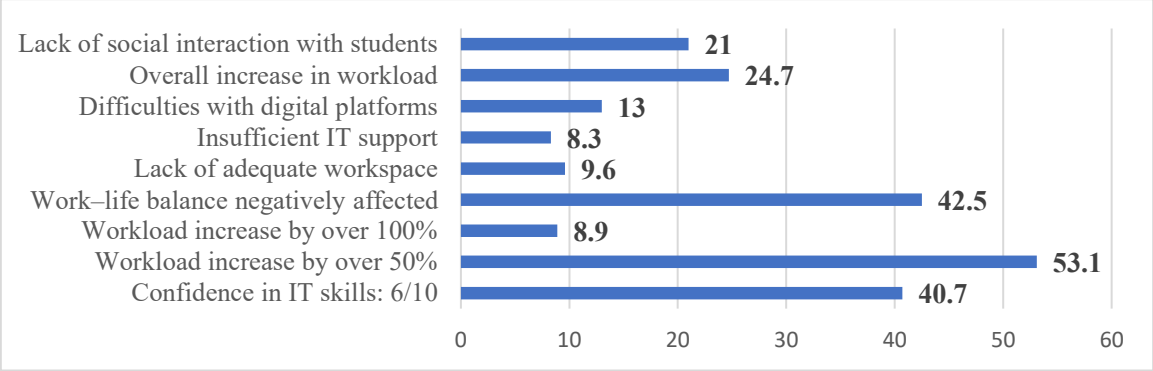

Figure 6. Aspects affected by the COVID-19 pandemic in teachers' perception: workload, IT support, and social interaction (%).

According to Figure 6, only 5.3% of respondents reported a maximum level of confidence in online teaching (score 10), while 40.7% assigned a moderate score (6), indicating a cautious and uncertain adaptation to the new instructional conditions.

The workload increased substantially, with 53.1% reporting a 50% rise and 8.9% indicating a doubling of work demands. The daily time allocated to lesson preparation increased by 43.4% (from 2.03 to 2.91 hours), and time spent checking assignments rose by 9% (from 2.12 to 2.31 hours). Meanwhile, rest time decreased by 39% (from 4.8 to 2.9 hours per day), reflecting a severe disruption of work–life balance, as acknowledged by 42.5% of participants.

Among the main disturbing factors were the lack of an adequate workspace (9.6%), limited access to IT resources (8.3%), a high number of daily emails (24.7%), reduced direct interaction with students (21%), and the absence of recreational activities (≈20%).

Statistical analyses did not confirm significant associations between the time spent on additional work and perceived health, chronic disease status, or dispensary records. However, the frequency of illness was significantly correlated with extracurricular workload ($\chi^2(35)=68.275$, $p=0.006$), and among women,

the relationship between increased work volume and obstetric complications reached marginal significance ($\chi^2(35)=37.934$, $p=0.100$).

Overall, the findings indicate that the pandemic intensified occupational risks, adversely affecting the physical and emotional health of teaching staff, and underscore the need for protective measures, institutional support, and preventive strategies adapted to current educational realities.

GENERAL CONCLUSIONS

1. The scientific literature highlights multiple occupational risks among teachers—physical (prolonged standing, vocal strain, inadequate lighting), psycho-emotional (chronic stress, burnout), and social (conflicts, lack of institutional support). The increasing incidence of psychosomatic disorders and chronic diseases, exacerbated by the absence of effective preventive policies—especially in the pandemic context—confirms the relevance and timeliness of this research.

2. Exposure to occupational factors significantly affects teachers' health. A total of 65.4% of teachers reported constant neuropsychic strain, and 78.5% worked predominantly in a standing position, associated with lumbar and cervical pain. Intensive voice use (>10 hours/day) and the absence of adequate breaks or ergonomic conditions increase fatigue and professional wear, underscoring the need for preventive measures.

3. More than 70% of teachers suffer from chronic diseases, the most frequent being arterial hypertension, endocrine disorders, and rheumatologic conditions. Teachers with more than 30 years of professional experience are at higher risk of developing hypertension, and the strong correlation between years of service and disease frequency ($r = 0.76$; $p < 0.001$) confirms the cumulative effect of professional overload on health.

4. Unfavorable working conditions and unhealthy lifestyle habits intensify teachers' health risks. Insufficient lighting (27%), thermal discomfort (25%), and environmental noise (30%) negatively affect occupational comfort, while unhealthy eating habits (34.3%) and sedentary behavior (only 2% engage in regular physical activity) increase vulnerability to disease, compounded by chronic fatigue and lack of leisure time.

5. Burnout syndrome and chronic occupational stress profoundly affect the mental and physical health of teachers. Approximately 45.5% experience emotional exhaustion, 27.1% show signs of depersonalization, and 6.95% suffer from severe burnout, with higher prevalence among teachers of mathematics and foreign languages. Intense stress is significantly associated with physical conditions such as hypertension (43% of women and 25.2% of men) and sleep disturbances (39.7%). The strong statistical correlation ($r = 0.83$; $p < 0.001$) between stress and psychosomatic symptoms confirms the harmful impact of professional overload on teachers' overall health.

6. The COVID-19 pandemic radically transformed teaching activity, leading to a workload increase of up to 95% and a 39% reduction in rest time. Difficulties in adapting to online teaching (reported by over 30% of teachers) and the absence of direct interaction with students intensified anxiety and demotivation. In the absence of adequate institutional support, the pressure to maintain educational performance amplified stress and psycho-emotional imbalances.

PRACTICAL RECOMMENDATIONS

- **Recommendations for policymakers and central authorities**

1. Development of a national strategy on the occupational health of teaching staff, including measures to prevent professional stress, optimize ergonomic conditions, and promote a healthy balance between professional and personal life.

2. Integration of a national prevention program for professional burnout among teachers, with periodic psychological counseling sessions and training in stress management techniques.

3. Revision of labor legislation to ensure this occupational group access to both pre-employment and periodic medical examinations, as well as hygienic standards regulating working conditions. The legislation should also establish clear limits on the maximum number of teaching hours and administrative tasks to reduce the risk of overwork.

4. Provision of ergonomic furniture in educational institutions to prevent musculoskeletal disorders, considering that 40.1% of teachers report cervical pain and 31.1% experience lower-limb problems.

5. Promotion of a healthy school infrastructure by ensuring adequate classroom microclimate conditions, as temperature and relative humidity parameters currently meet hygienic standards only during the cold season.

6. Support for research on teachers' occupational health and implementation of evidence-based measures aimed at improving their quality of life.

- **Recommendations for the educational system and institutions**

1. Reduce the time teachers spend in static positions by adapting teaching methods to include active breaks and interactive instructional techniques.

2. Organize training programs for teachers on stress management and prevention of professional fatigue, given that 45.54% of teaching staff exhibit high levels of emotional exhaustion.

3. Increase flexibility in lesson scheduling to reduce teacher overload, particularly for subjects with high stress levels—such as foreign languages and mathematics—which are associated with severe burnout.

4. Introduce optional courses for teachers on maintaining a healthy lifestyle, emphasizing balanced nutrition, physical activity, and mental health management.

5. Implement preventive measures against occupational diseases, including regular physiotherapy sessions and postural correction exercises, considering that musculoskeletal strain is directly correlated with teaching hours ($r = 0.937$, $p < 0.001$).

- **Recommendations for specialists in public health and occupational medicine**

1. Establish a national health monitoring system for teaching staff through annual medical examinations focused on cardiovascular diseases (48% prevalence) and musculoskeletal disorders (44%).

2. Create psychological counseling and emotional support centers to prevent depression and anxiety among teachers, given that burnout syndrome directly affects both perceived professional efficacy and overall well-being.

3. Equip schools with occupational health offices providing preventive and treatment services for conditions specific to teaching personnel.

4. Implement a recovery program for teachers with severe musculoskeletal disorders, ensuring facilitated access to medical rehabilitation services.

5. Introduce adapted physical exercise sessions for teachers, considering that 30% reported weight gain during the pandemic, increasing the risk of chronic diseases.

6. Optimize the management of voice disorders through phonation training sessions and vocal-cord protection techniques, given that the average daily voice-use duration in teaching exceeds ten hours.

7. Conduct awareness campaigns on the importance of preventing occupational diseases among teachers, 70% of whom suffer from chronic conditions.

8. Monitor the impact of environmental factors on teachers' health by assessing classroom air quality and reducing exposure to harmful agents.

9. Promote healthy-nutrition programs for teaching staff, considering that 34.3% frequently consume high-calorie foods, which increase the risk of metabolic and cardiovascular diseases.

10. Implement programs to reduce sedentary behavior among teachers, as prolonged standing and extended teaching hours are key predictors of muscular fatigue ($r = 0.918$, $p < 0.001$).

11. Develop international partnerships for the exchange of best practices in teachers' occupational health, facilitating the adoption of evidence-based models successfully implemented in other countries.

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INFORMATION ON THE DISSEMINATION OF THE RESEARCH RESULTS
LIST OF PUBLICATIONS AND PARTICIPATIONS IN SCIENTIFIC FORUMS

by Mr. Dumitru Cheptea, carried out within the doctoral thesis in medical sciences,
entitled "Risk Factors and Health Status of Teaching Staff in General Education Institutions",
Doctoral Program 331.02 – Hygiene,
supervised by Serghei Cebanu, MD, PhD (Hab.), Associate Professor.

- **Collective monographies:**

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✓ **international**

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- **Participation with posters at scientific forums:**
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ADNOTARE

Cheptea Dumitru

„Factorii de risc și starea de sănătate a cadrelor didactice din instituțiile de învățământ general. ”
Teză de doctor în științe medicale, Chișinău, 2025

Actualitatea cercetării: Cadrele didactice din Republica Moldova se confruntă cu factori de risc ocupaționali și psihosociali ce favorizează afecțiuni cronice și sindromul de epuizare profesională, ceea ce impune analiza determinanților sănătății și dezvoltarea unor politici de prevenție și promovare a bunăstării profesionale.

Scopul cercetării: Evaluarea stării de sănătate și a factorilor de risc profesionali la cadrele didactice din instituțiile de învățământ general, în vederea elaborării măsurilor de prevenție a maladiilor.

Obiectivele cercetării: Evaluarea stării de sănătate a cadrelor didactice din instituțiile de învățământ primar și secundar general (morbiditatea, indicii stării funcționale, psihoemoționali); Evaluarea igienică a particularităților factorilor de risc (profesionali și extraprofesionali) , specifici acestui tip de activitate profesională; Determinarea și evaluarea interrelațiilor dintre indicii stării de sănătate a cadrelor didactice și factorii de risc; Elaborarea măsurilor de profilaxie a maladiilor și de fortificare a stării de sănătate la cadrele didactice din Republica Moldova.

Noutatea și originalitatea științifică rezidă în abordarea igienică integrată a condițiilor de muncă și a sănătății cadrelor didactice, prin investigarea stresului ocupațional și a burnout-ului, identificarea factorilor determinanți ai morbidității și fundamentarea unor metode moderne de prevenire și gestionare.

Rezultatele noi obținute sunt susținute de analiza detaliată a burnout-ului, care indică niveluri moderate de extenuare emoțională (19,99±8,30), un risc crescut de reducere a realizărilor personale la 28% dintre respondenți și corelații semnificative între dimensiunile sindromului ($r=0,463$; $p<0,001$). Totodată, asocierea dintre extenuarea emoțională și dereglările ciclului menstrual ($\chi^2(96)=109,158$; $p=0,020$) confirmă impactul stresului ocupațional asupra reglării neuroendocrine, iar scorurile IES-R evidențiază prezența unor simptome de intruziune și hiperactivare la un subset al populației, sugerând o vulnerabilitate psihologică cumulativă. În plus, influența factorilor ergonomici (postura ortostatică prelungită, suprasolicitarea vocală), a microclimatului școlar necorespunzător și a obiceiurilor comportamentale contribuie suplimentar la destabilizarea stării funcționale. În ansamblu, aceste date reflectă un profil de risc psihosomatic tot mai pronunțat în rândul cadrelor didactice, accentuând necesitatea intervențiilor preventive timpurii.

Semnificația teoretică constă în elaborarea unui model integrat de evaluare a sănătății ocupaționale a cadrelor didactice, care evidențiază legătura dintre expunerea cronică la factori de risc și modificările funcționale ale organismului, cu accent pe burnout și stresul ocupațional.

Valoarea aplicativă constă în oferirea unui suport științific și metodologic pentru elaborarea politicilor de sănătate ocupațională în educație, prin profiluri de risc, programe de screening și instruire continuă destinate îmbunătățirii condițiilor de muncă și promovării sănătății cadrelor didactice.

Implementarea rezultatelor științifice s-a realizat prin validarea lor la conferințe naționale și internaționale și prin integrarea în proiecte europene și bilaterale, fiind valorificate atât în mediul academic și formarea specialiștilor, cât și în elaborarea politicilor de sănătate ocupațională și publică din Republica Moldova.

Structura tezei: introducere, 4 capitole, sinteza rezultatelor, concluzii generale și recomandări, bibliografie din 221 surse, 10 anexe, 159 pagini de text de bază, 23 figuri și 9 tabele; 25 de lucrări științifice și 2 certificate de inovator.

Cuvinte-cheie: cadre didactice, sănătate ocupațională, factori de risc profesional, burnout (sindromul de epuizare profesională), stres ocupațional, ergonomie, morbiditate, igienă ocupațională, sănătate publică, prevenție.

ANNOTATION

Cheptea Dumitru

„ Risk factors and health status of teachers in general education institutions"
PhD Thesis in Medical Sciences, Chisinau, 2025

The actuality of the research: Teaching staff in the Republic of Moldova are exposed to a range of occupational and psychosocial risk factors that contribute to chronic health conditions and professional burnout. This underscores the need to examine the determinants of health and to develop prevention policies and strategies that promote professional well-being.

The aim of the study: The assessment of health status and occupational risk factors among teachers in general education institutions, with the aim of developing preventive measures.

Objectives of the study: To assess the health status of teachers in primary and general secondary education institutions, including morbidity, functional status indicators, and psycho-emotional parameters; To conduct a hygienic evaluation of occupational and non-occupational risk factors specific to this professional activity.; To determine and analyze the interrelationships between health indicators of teaching staff and identified risk factors; To develop preventive measures aimed at reducing disease burden and strengthening the health status of teachers in the Republic of Moldova.

Scientific novelty and originality consist in the first integrated hygienic approach to teachers' working conditions and health, addressing occupational stress and burnout, identifying key morbidity determinants, and substantiating modern strategies for prevention and management**.**

The obtained results are supported by the detailed analysis of burnout, which reveals moderate levels of emotional exhaustion (19.99±8.30), an increased risk of reduced personal accomplishment in 28% of respondents, and significant correlations between the syndrome's dimensions ($r = 0.463$; $p < 0.001$). Moreover, the association between emotional exhaustion and menstrual cycle disturbances ($\chi^2(96)=109.158$; $p=0.020$) confirms the impact of occupational stress on neuroendocrine regulation, while the IES-R scores highlight the presence of intrusion and hyperarousal symptoms in a subset of participants, indicating a cumulative psychological vulnerability. Additionally, the influence of ergonomic factors (prolonged standing posture, vocal strain), inadequate classroom microclimate conditions, and behavioral patterns further contributes to a decline in functional capacity. Overall, these findings outline an increasingly pronounced psychosomatic risk profile among teaching staff, emphasizing the need for early preventive interventions.

The theoretical significance lies in developing an integrated model for assessing teachers' occupational health, highlighting the link between chronic exposure to risk factors and functional changes in the body, with emphasis on burnout and occupational stress.

The applicative value consists in providing scientific and methodological support for occupational health policies in education, through risk profiling, screening programs and continuous training aimed at improving working conditions and teachers' health.

Implementation of research results was achieved through validation at national and international conferences and integration into European and bilateral projects, being capitalized both in academia and in the development of occupational and public health policies in the Republic of Moldova.

Thesis structure: introduction, 4 chapters, synthesis of results, general conclusions and recommendations, bibliography with 221 references, 10 annexes, 159 pages of main text, 23 figures and 9 tables; with 25 scientific publications and 2 inventor certificates**.**

Keywords: teachers, occupational health, occupational risk factors, burnout, occupational stress, ergonomics, morbidity, occupational hygiene, public health, prevention.

CHEPTEA, Dumitru

RISK FACTORS AND HEALTH STATUS OF TEACHERS IN GENERAL EDUCATION INSTITUTIONS

331.02 – HYGIENE

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