

The Comparison of the Copenhagen Burnout Inventory and the Maslach Burnout Inventory in Evaluation of Professional Stress and Burnout among Medical Specialists in Lithuania

Irmantas Aleksa^{1,2,3*}, Natalija Šertvytienė^{2,4}

¹University of Social Applied Sciences, Vilnius, Lithuania

²Vilnius University, Faculty of Medicine, Vilnius, Lithuania

³Outpatient Clinic Karoliniškės, Vilnius, Lithuania

⁴Outpatient Clinic Šeškinė, Vilnius, Lithuania

*Corresponding author

Abstract

Purpose: The objective of this study was to assess psychosocial work factors in various Lithuanian healthcare centres and compare healthcare professionals in terms of experienced professional stress and their health status. **Methods:** An observational study was conducted using an anonymous online questionnaire. Healthcare specialists from multiple Lithuanian healthcare institutions were included in the study. The study utilized combined scales from the Maslach Burnout Inventory (MBI) and the Copenhagen Burnout Inventory (CBI) to measure burnout levels. These scales provided a standardized assessment of professional stress among medical employees, enabling a comprehensive analysis of subjectively evaluated burnout. **Data:** A total of 310 healthcare professionals from different healthcare centres participated in the study. Data analysis was performed using SPSS 26.0 Version. Normality of the data was confirmed using the Kolmogorov-Smirnov Test, and parametric tests such as Student's t-test and ANOVA F-test were used to evaluate means. Correlations between MBI and CBI scores were analysed using Pearson's r coefficient. The MBI and CBI results were further analysed to identify the more reliable questionnaire for defining burnout among medical workers. **Results:** The study findings indicated a high prevalence of severe burnout among medical workers. More than one-fifth of healthcare professionals

reported experiencing severe burnout. However, employees in their forties tended to experience lower levels of burnout. Older staff members were more likely to experience depersonalization, indicating emotional detachment. Regional hospital workers demonstrated better psychological states compared to other healthcare settings. Significant correlations ($p < 0.05$) were found among all burnout scores, with emotional exhaustion showing the strongest influence on total burnout ($r = 0.867$).

Keywords: occupational stress, medical informatics, health professionals, health status, burnout.

1. Introduction

Stress and its association with changes in body functions have been a prominent issue globally, including in the European Union and Lithuania since the 1920s. For this reason, much more attention is paid to the problems of occupational stress and occupational health (Šiurkaitė, 2008). Occupational stress and occupational health have received increased attention, and the assessment of psychosocial work environment factors began in the 1980s. The first publications in Lithuania were published in 1990, then in 1997-1998 (Jankauskas & Pajarskienė, 1997, A; Jankauskas & Pajarskienė, 1998, B). The Ministry of Social Security and Labour of the Republic of Lithuania has been supporting a clear risk assessment of psychosocial factors since 2006 (The Ministry of Social Security and Labour of the Republic of Lithuania, 2018). The study of burnout and occupational stress gained more momentum in 1986 when the International Labour Organization (ILO) published its first analysis of psychosocial factors and a report on workplace stress (International Labour Organisation, 1986). Subsequent studies have highlighted that occupational stress and its impact on health are significant issues in the healthcare systems of developed countries (EU-OSHA, 2014, A; EU-OSHA, 2014, B; EU-OSHA, 2013). A study performed in 2005 and reiterated in 2014 in the European Union confirmed professional stress experienced by more than a one fifth of health care workers (in Lithuania - 31%) (EU-OSHA, 2014). In the past decade, there has been an increase in studies on the connections or effects of stress at work and burnout in the field of medicine. Over one thousand studies were published in peer-reviewed medical databases, indicating the increasing attention given to this topic (National Library of Medicine, 2022). After studying the influence of all occupational stress and burnout among employees, the findings of said work help to create a plan for improving the psychosocial conditions in medical institutions, considering medical institutions, gender, and age. More attention should focus on the supervision of the employees of the most burned-out medical institutions.

1.1 Psychosocial factors and their connections with work

In 1986 The International Labour Organization at the United Nations (ILO) defined psychosocial factors at work as the relationship between and with the work environment, work content, organizational conditions, and the number of employees, needs, culture, personal needs of other work, which can influence health through belief and experience, work performance and job satisfaction. Psychosocial factors create a set of outcomes and impacts (both positive and negative) (International Labour Organisation, 1986). The very term psychosocial refers to the link between psychological and social aspects or refers to the influence of social factors on mental health and general health (Lithuanian International Word Dictionary, 2020; The Ministry of Social Security and Labour of the Republic of Lithuania, 2018).

According to the documents and methodological recommendations approved in Lithuania, psychosocial factors of the work environment can cause health disorders. The effect depends on the strength of psychosocial factors, duration of action and complex influence together with other factors of the work environment. Remarkably, the psychosocial factors of the work environment in Lithuania began to be assessed only in 1994 (Tarožė et al., 2014).

In 2014 the European Commission released a legislation, obliging to reduce the influence of psychosocial factors in workplaces as much as possible (Eurofound and EU-OSHA, 2014; Wynne, et al., 2014). A particularly important responsibility of the employer is to regulate work stress. Therefore, it is necessary to assess various risks (one of them is the influence of psychosocial factors) and, based on the results, to avoid damage to the employee or impact on his health, because when these disorders appear, work capacity and productivity also tend to worsen (EU-OSHA, 2013). In 2014, a study conducted in the EU-27 countries showed high workload in Lithuania, too few complaints in comparison to the other member countries about inappropriate behaviour at work and difficult working conditions, despite these employees working less than those in the rest European Union (Eurofound and EU-OSHA, 2014).

All psychosocial factors, as already mentioned in the definition, cause occupational stress in the case of inadequate factor management and control. Therefore, it is especially important to define which occupational stress factors and which expressions are the most common. Psychosocial factors of the work environment are causes of stress at work (stressors). There is a need of evaluation and further studies on what disorders they cause and how they affect employees (The Ministry of Social Security and Labour of the Republic of Lithuania, 2018).

1.1.1 The concept and assessment of stress at workplace

The definition of stress at workplace in Lithuania is based on the concept created by the Ministry of Social Security and Labour of the Republic of Lithuania and its interpretation which is defined as the employee's reaction to unfavourable psychosocial factors (Seimas of the Republic of Lithuania, 2019). This definition aligns with the perspective of Bakker and Demerouti, who describe workplace stress as a response to high work demands that exceed an individual's knowledge and abilities (Bakker & Demerouti, 2014; Lithuanian International Word Dictionary, 2020). Later, stress at the workplace can precede mental and/or physical illnesses, which reflects in the socioeconomic indicators of the population - unemployment, the need for social support, and an increase in the costs of the healthcare system (OECD, 2018). In 2005 the EU found that approximately forty million employees suffer from workplace stress, which is significant number as it comes in second for worker complaints, preceded only by back pain (Eurofound and EU-OSHA, 2014). In 2014, according to the Eurobarometer, stress was the most common (53%) of all health-damaging factors affecting residents of the EU-27 countries. Correspondingly, 27 percent of the respondents revealed that their work caused anxiety, depression, burnout, and they also experienced muscle, bone, and joint pain (EU-OSHA, 2014). Psychosocial factors influence people's lives and their quality by causing occupational stress. The latest conclusions of the Occupational Safety and Health Administration at the European Union (EU-OSHA) state that of all environmental factors, psychosocial factors are the most important, because it is psychosocial factors and their reflections that have become the main reasons of health problems among healthcare workers (EU-OSHA, 2014, A; EU-OSHA, 2014, B).

The link between work-related stress and its psychosocial factors is indeed very strong. A change in psychosocial factors may lead to a disadvantageous, uncomfortable, unusual psychological and physiological state that can cause various health problems, such as back pain, muscle pain, even depression. When analysing the causes of work incapacity, it is evident that stress plays a significant role. In Lithuania, there is a noticeable trend where approximately 50-60 percent of all sick leaves are attributed to stress-related issues. (EU-OSHA, 2018; State Labour Agency at the Ministry of Social Security and Labour of the Republic of Lithuania, 2012; Statistics Department of the Republic of Lithuania, 2020).

1.1.2 Stress among medical workers

When assessing all the factors of burnout, professional stress, and their manifestation in the work of healthcare professionals, it is necessary to understand the geopolitical context of the 21st century. Societies of developed countries of the world are aging

(OECD, 2018). For this reason, the number of the working-age population (and, therefore, employees) is decreasing, or the average age of employees is continuously increasing (Brun, 2007; OECD, 2018). Geopolitical contexts are also important: The emigration of young, graduated specialists is rising, which may lead to further disturbances of the medical system in Lithuania (Statistics Department of the Republic of Lithuania, 2020).

Doctors have experienced a particularly elevated level of professional stress starting December 2019, which marked the beginning of the COVID-19 outbreak, and even more so from March 2020, as the disease spread, and a global pandemic was declared. It was a particularly challenging time for medical workers as they faced a new virus without the proper knowledge or tools to treat it. In the studies conducted in Germany, Brazil and the EU-27, a clear trend was found towards an increase in occupational stress (Giménez-Espert, et al., 2020; Rodríguez & Sánchez, 2020; Zerbini, et al., 2020). On average, every second to every third medical worker experienced professional stress, but only every fourth sought help for it (Gardner, et al., 2019; McManus, et al., 2004; Rotenstein, et al., 2018).

In different situations, workload, low work control, and patient dissatisfaction cause professional stress (Antanavičienė, et al., 2020; Ramanauskienė, 2010; Skorobogatova, et al., 2017). These psychosocial factors make doctors much more prone to burnout and other negative symptoms of stress (Al-Dubai & Rampal, 2010; Abdulla, et al., 2011). The most common stress-related conditions were arterial hypertension, insomnia, depression, or headaches (Aalto, et al., 2018; Kemeraitytė, 2016; Makara-Studzińska, et al., 2019).

1.2 Burnout

Burnout and its symptoms were first described in 1974 by Herbert Freudenberger. Two years later, in 1976, Christina Maslach and Susan Jackson defined burnout as a three-dimensional syndrome, the definition of which is still used today (Maslach & Jackson, 1976). In the same year, the Maslach Burnout Inventory (MBI) was created, which was widely used at the organizational level in the 20th century, starting in the eighties and is widely used to this day (Maslach & Jackson, 1981).

In terms of coding and classification, the International Classification of Diseases, Tenth Revision, Australian Modification (ICD 10-AM) uses the code Z73.0 to indicate burnout, but it does not fully describe burnout and its associated morbidities. As a result, the Fifth Edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-5) is used to define the remaining disorders (American Association of Psychiatry, 2016; Lastovkova, et al., 2017). For this reason, many illnesses caused by

burnout are coded as mental illnesses or other illnesses (Lastovkova, et al., 2017; Kwiatkowska-Ciotucha, et al., 2019). However, since more than a third of the European Union member states are already able to define burnout separately and classify it as an occupational disease, the European Parliament expects and expresses hope that the further fight against burnout and psychosocial factors will continue to be effective and in the near future all member states will mark burnout as an occupational disease (EU-OSHA, 2018).

2. Methods

An anonymous questionnaire survey was obtained in July to October of 2022. The study was designed to evaluate the psychosocial work environment among healthcare professionals as well as the distribution of psychosocial work environment factors between genders, age groups, specialties, and different healthcare centres. To determine the appropriate sample size, information from Lithuanian Institute of Hygiene was obtained to supply statistical data on the number of licensed healthcare specialists (38418) in the Republic of Lithuania. Considering the large population size and the impracticality of surveying the entire population, the decision was made to focus on currently working specialists (Institute of Hygiene of the Republic of Lithuania, 2021). Having received data from the Institute of Hygiene of the Republic of Lithuania, ratio of working and currently retired specialists in the Republic of Lithuania is 3:1, thus, the 0.75 population proportion was chosen (Institute of Hygiene of the Republic of Lithuania, 2021). Using the population proportion, calculations estimated that 286 respondents would be needed. The formula used can be seen in Eq. 1.

$$n' = \frac{n}{1 + \frac{z^2 \times \rho(1-\rho)}{\varepsilon^2 N}} = \frac{384.16}{1 + \frac{1.96^2 \times 0.75(1-0.75)}{0.05^2 \times 38418}} \approx 286 \quad (1)$$

n' – estimated study sample

n – sample for uncertain population when $p=0.05$

N – entire population sample

ρ – population proportion

z – standard score

ε – margin of error

The questionnaire used in this study consisted of three parts. The first part included demographic content questions. The second part of the questionnaire utilised the Copenhagen Burnout Inventory (CBI), while third part used the Maslach Burnout Inventory (MBI). (Barton, 2022; Maslach & Jackson, 1976) Cronbach's alpha scores were calculated to assess the internal consistency of each part of the questionnaire. Values of Cronbach's alpha for parts of the questionnaire varied from 0.853 for the

MBI to 0.965 for the CBI, with Cronbach's alpha score for the entire questionnaire of 0.802. Elimination of the questions or even questionnaire parts did not have any significant changes to overall calculations.

Statistical analysis of research data was performed using Microsoft Excel 365 and Statistical Package for Social Sciences (SPSS) version 26.0. The data of the forms used was automatically exported from the Questionnaire server with encryption. To check the normality of the data, the *Kolmogorov-Smirnov* test was performed, it was statistically significant ($p = 0.05$), therefore, parametric tests were used to check the reliability of the relationship between the characteristics: Student's t-test and analysis of variance (ANOVA) with the F-test. The Pearson's r test was used to evaluate the statistical relationship between different criteria. Statistical significance was marked when p value underperformed 0.05. Correlation strength was considered strong when the r-value exceeded 0.8 and very weak when the r-value was below 0.2.

3. Results

The study involved a total of 310 respondents took part in the study, with approximately two-thirds of the being women (64.2 %). The youngest groups (20-29 and 30-39 years old) of respondents were the biggest in the research population – 23.9-24.8 %. There were 15.5-16.8 percent of respondents in their forties (40-49), middle age (50-59) and older (60-69) age groups, respectively. The mean value of age in women's group was 41.7 years, in men 45.4 years, respectively. Respondents mostly wrote down that they work in a medical institution providing level A services (university clinics), the smallest number of respondents worked in regional hospitals. Distributions of demographic characteristics are presented in Table 1.

Table 1: Demographic characteristics

Descriptive	Part of the responders		Descriptive	Part of the responders	
	N	%		N	%
Gender			Specialty		
Female	199	64.2	Midwife	8	2.6
Male	111	35.8	Dentist	11	3.5
Age group (years)			Specialist doctor ¹	85	27.4
20-39	74	23.9	Other personnel	21	6.8
30-39	77	24.8	Medical doctor	49	15.8
40-49	50	16.1	Nurse	28	9.0

¹ E.g., cardiologist, pulmonologist, thoracic surgeon etc.

50-59	52	16.8	Family / Internal Medicine physician	74	23.9
60-69	48	15.5	Paediatrist	34	11.0
70-79	8	2.6	Workplace		
80+	1	0.3	Primary care Centres	102	32.9
			Regional hospital (Level B hospitals)	82	26.5
			University clinics (Level A hospitals)	126	40.6

To assess the burnout syndrome and its impact on medical workers, both the CBI and MBI scales were used to determine which scale shows higher burnout rates and which one is more suitable. The Cronbach's alpha for the CBI part of total burnout (TB) was 0.965 and for MBI – 0.853, respectively. The burnout tendencies were found to be high among medical workers, particularly among family and internal medicine physicians who tend to experience higher levels of overwork and burnout. The Maslach Burnout Inventory calculates the burnout tendencies in terms of emotional exhaustion (EE), depersonalisation (DP) and personal achievement (PA) therefore identifying three types of burnout that people might experience. On the other hand, the Copenhagen Burnout Inventory focuses only on total burnout values. However, the subscales are projected in the same direction – work-related burnout, personal burnout and client-related (patient-related in this study) burnout.

Overall low burnout scores in CBI scale were reached in 60 out of 310 respondents (19.35 %). The MBI scale displayed different results – in all three parts of MBI at the low level of burnout were only four people (1.29 %).

Overall severe burnout scores, according to CBI, reached 68 respondents out of 310 (21.94 %). Respectively, according to MBI – 159 people (51.29 %) were emotionally exhausted, 163 (52.58 %) felt depersonalised and 182 (58.71 %) had a diminished sense of personal achievement. In all three scales of MBI at the remarkably elevated level of burnout were 76 individuals (24.52 %). The paired samples t-test revealed a significant difference between CBI and MBI scales regarding total burnout (t-value – 10.455, p – 0.000), indicating higher total burnout rates when using the MBI questionnaire.

When evaluating the means between genders, neither men nor women showed significant differences in experiencing burnout, emotional exhaustion, depersonalisation, or a diminished sense of personal achievement. The results are summarised in the Table 2.

Table 2: Burnout according to genders

	EE	t	p	DP	t	p	PA	t	p	TB	t	p
Women	32.65	0.936	0.35	12.38	-1.079	0.281	29.53	-1.359	0.654	63.21	0.890	0.374
Men	34.15			11.40			27.95			64.79		

The results indicated significant differences in burnout scales based on age groups. The most emotionally exhausted were medical workers in the age group 70–79 years (EE – 40.63), while the least were employees in their forties (EE – 29.08). The most depersonalized were medical employees in their sixties (DP – 13.19), while the most personalized were workers in the age range of 40 to 49 years. However, there was no significant difference between age groups in terms of personal achievement. According to the CBI scale, the least burnt-out were medical employees in their forties (TB – 60.32). A significant difference was observed among the medical workers in their seventies (TB – 70.38, F-score = 1.543, p = 0.016). The results are presented in the Table 3.

Table 3: Burnout according to age

	EE	F	p	DP	F	p	PA	F	p	TB	F	p
20-39	33.88	1.579	0.012	12.74	1.494	0.024	28.23	0.706	0.932	65.09	1.543	0.016
30-39	34.60			11.48			27.60			65.84		
40-49	29.08			10.98			29.92			60.32		
50-59	32.33			11.58			29.71			60.92		
60-69	33.96			13.19			30.90			64.00		
70-79	40.63			12.38			27.25			70.38		
80+	28.00			18.00			24.00			65.00		

The results showed significant differences in burnout scales based on workplaces. Medical workers at university clinics reported the highest levels of emotional exhaustion (EE – 35.06), while regional hospital specialists reported the lowest levels (EE – 29.89). The most depersonalized employees were in outpatient clinics (DP – 13.72), while the most personalized were medical staff at university clinics (DP – 11.09). However, there were no significant differences between workplaces in terms of personal achievement and total burnout. The results are presented in the Table 4.

Table 4: Burnout according to workplaces

	EE	F	p	DP	F	p	PA	F	p	TB	F	p
Primary care centres	33.54			13.72			30.25			63.27		
Regional hospitals	29.89	3.741	0.025	11.37	3.789	0.024	28.18	1.327	0.267	63.30	0.240	0.787
University clinics	35.06			11.09			28.44			64.49		

When evaluating the means among different specialties of medical staff, no significant differences were found in terms of total burnout, emotional exhaustion, depersonalization, or personal achievement. All specialists reported similar levels across these burnout dimensions. The results are presented in the Table 5.

Table 5: Burnout according to specialties

	EE	F	p	DP	F	p	PA	F	p	TB	F	p
Midwife	31.50			10.25			31.50			61.00		
Dentist	31.91			9.73			31.64			61.00		
Specialist doctor	32.52			11.34			30.01			63.69		
Other personnel	31.50			11.05			25.57			61.62		
Medical doctor	33.59	0.276	0.963	11.20	0.881	0.522	26.53	1.582	0.140	66.14	0.598	0.758
Nurse	34.54			12.96			27.14			65.32		
Family / Internal Medicine physician	34.14			13.19			29.26			64.47		
Paediatricist	30.52			13.38			31.38			60.68		

When evaluating the connections between the burnout scores, significant correlations were observed between all parts of the questionnaire. The notably high positive correlation between emotional exhaustion in MBI and total burnout in CBI was noted. Conversely, a remarkably low but significant correlation was observed between

depersonalisation and personal achievement. The personal achievement showed two negative correlations, one with emotional exhaustion and another with total burnout scores. The results are presented in the Table 6.

Table 6: Correlations between burnout scores

		EE	DP	PA	TB
EE	Pearson's r	1.00			
	p-value				
DP	Pearson's r	0.631	1.00		
	p-value	0.01			
PA	Pearson's r	-0.345	0,120	1.00	
	p-value	0.01	0,035		
TB	Pearson's r	0.867	0.459	-0.490	1.00
	p-value	0.01	0.01	0.01	

4. Discussion

This study aimed to evaluate the burnout of Lithuanian physicians and investigate the differences between two questionnaires: MBI and CBI. The more suitable questionnaire for the Lithuanian population was found to be the CBI ($\alpha = 0.965$) compared to the MBI ($\alpha = 0.853$). The results of the study revealed a concerning situation regarding psychosocial work environment factors in medical institutions. It is noteworthy that burnout rates according to the CBI scale were high in Lithuania (21.94 %). According to MBI evaluation, respondents reported a high level of depersonalisation (58.71 %). Similar statistics exist globally, with up to 72% of doctors experiencing emotional exhaustion, 68% becoming depersonalized, and 63% indicating low personal fulfilment (Rotenstein, et al., 2018). More than half of the respondents were dissatisfied about their personal achievements (58.71 %). Approximately one out of four (24.52 %) medical employees were burnt out across all the aforementioned aspects of the MBI. However, statistics were not as severe as in some other parts of the world, as some studies have shown, that over two-thirds of doctors faced severe overall burnout (Alahmari, 2022). There were no statistically significant differences between men and women in terms of burnout. Previous studies conducted from 2012 to 2018 found that most physicians experienced moderate emotional exhaustion but low rates of personal fulfilment and rare depersonalization (Mikalauskas, et al., 2012; Mikalauskas, et al., 2018). Similarly, in Lithuania more than half (51.29%) of the

medical workers reported frequent emotional exhaustion. Medical employees' perceived emotional exhaustion was strongly associated with measures of total burnout in CBI ($r = 0.867$). Personal achievement showed a negative correlation with emotional exhaustion ($r = -0.345$) and a weak positive correlation with depersonalization ($r = 0.12$). Depersonalisation negatively impacted emotional stability and increased exhaustion ($r = 0.631$). All correlations were significant ($p < 0.05$). Another study of medical students notes that medical students noted a statistically significant negative correlation between health and burnout. It indicated that emotional exhaustion and depersonalisation had a statistically significant negative impact on students' health (Nteveros, et al., 2020). Most previous studies have not included both the CBI and MBI scales, with only 11 publications of this kind found in databases (Alahmari, 2022). All the previous studies were meta-analyses (Shoman, et al., 2021). This study is the first to include the MBI-HSS (MP) scale in comparison to the CBI scale. No studies compared the CBI and MBI questionnaires using both scales in one population.

5. Conclusion

The study concludes that the CBI questionnaire is better suited for evaluating burnout among Lithuanian healthcare professionals, although the Maslach Burnout Inventory corresponds the current situation in Lithuania as well. The use of questionnaires should be determined by the problematic question of whether the interrogating institution wants to assess total burnout or distinct parts of it. The prevalence of professional stress is high, and more than half of the medical staff experience elevated levels of burnout. Nevertheless, the specialists of the university clinics and the older workers are characterized by higher emotional fulfilment. Older healthcare workers tend to be more burnt out. Medical professionals in the primary care centres experience worse depersonalisation than those in other healthcare organisations in Lithuania. More than half of the medical staff have elevated levels of burnout, more than a fifth perform extremely high and meet the definition of burnout according to both compared scales. Emotional exhaustion had the most significant impact on total burnout score. However, it can be reduced through personal achievement ($p < 0.05$). The findings emphasise the need to address psychosocial work factors and improve the well-being of healthcare professionals.

References

Aalto, A.-M., Heponiemi, T., Josefsson, K., Arffman, M., & Elovainio, M. (2018, 01). Social relationships in physicians' work moderate relationship between workload and wellbeing - 9-year follow-up study. *The European Journal of Public Health*, 28(5).

Abdulla, L.; Al-Qahtani, D.M.; Al-Kuwari, M.G. (2011). Prevalence and determinants of burnout syndrome among primary healthcare physicians in Qatar. *South African Family Practice*, 3803, 53.

Alahmari, A. M. (2022, 12 20). Prevalence of Burnout in Healthcare Specialties: A Systematic Review Using Copenhagen and Maslach Burnout Inventories. *Medical Science Monitor*.

Al-Dubai A.R.; Rampal, K.G. (2010). Prevalence and associated factors of burnout among doctors in Yemen. *Journal of Occupational Health*, 5865, 52.

American Association of Psychiatry. (2016). *Diagnostic And Statistical Manual of Mental Disorders, Fifth Edition*. Arlington: American Association of Psychiatry Publishing.

Antanavičienė, G., Zaleckytė, M., & Narbutaitė, J. (2020, 06). Stress and associated factors among dentists. *Stomatologija. Baltic Dental and Maxillofacial Journal*, 22(2).

Bakker, A. B., & Demerouti, E. (2014). Job Demands-Resources Theory. In P. Y. Chen, & C. L. Cooper (Eds.). *In Wellbeing: A Complete Reference Guide, vol. 3, Work and Wellbeing. (Vol. 3)*. New Jersey: Wiley and Sons.

Barton MA, L. M. (2022, 08 08). Reliability and validity support for an abbreviated Copenhagen burnout inventory using exploratory and confirmatory factor analysis. *Journal of the American College of Emergency Physicians Open*.

Brun, J.-P. (2007). Work-related stress: scientific evidence-base of risk factors, prevention, and costs. Laval, Quebec, Canada: WHO. Retrieved from https://www.who.int/occupational_health/topics/brunpres0307.pdf

EU-OSHA. (2013). European Opinion Poll for Occupational Safety and Health. European Union information agency for occupational safety and health Retrieved 12 14, 2020, from <https://osha.europa.eu/lt/facts-and-figures/european-opinion-polls-safety-and-health-work/european-opinion-poll-occupational-safety-and-health-2013>

EU-OSHA. (2014). *Flash Eurobarometer 398 Working conditions Survey requested by the European Commission, Directorate-General for Employment, Social Affairs, and Inclusion and co-ordinated by the Directorate-General for Communication*. European Union Information Agency for Occupational Safety and Health. Retrieved 12 12, 2020, from http://ec.europa.eu/commfrontoffice/publicopinion/flash/fl_398_pres_en.pdf

EU-OSHA. (2014). *Psychosocial Risks and Stress*. European Union information agency for occupational safety and health. Retrieved 12 14, 2020, from <https://osha.europa.eu/lt/themes/psychosocial-risks-and-stress>

EU-OSHA. (2018). *Lithuanian psychosocial Risks and Stress*. European Union Information Agency for Occupational Safety and Health. Retrieved 10 11, 2020, from: <https://osha.europa.eu/lt/themes/psychosocial-risks-and-stress>

Eurofound and EU-OSHA. (2014). *Psychosocial risks in Europe: Prevalence and strategies for prevention*. Luxembourg: Publications Office of the European Union.

Gardner, R., Cooper, E., Haskell, J., Harris, D., Poplau, S., Kroth, P., & Linzer, M. (2019, 02). Physician Stress and Burnout: The Impact of Health Information Technology. *Journal of the American Medical Informatics Association*, 26(2).

Institute of Hygiene of the Republic of Lithuania. (2021). Physician Statistics. *Lithuanian Health and Work of Lithuanian Healthcare Centres*, 1(1).

International Labour Organisation. (1986). *Psychosocial Factors at Work: Recognition and Control (No. 56)*.

Jankauskas, R., & Pajarskienė, B. (1997). *Work-related Stress Causes and their Evaluation. Methodical Recommendations*. Vilnius: Institute of Hygiene of the Republic of Lithuania.

Jankauskas, R., & Pajarskienė, B. (1998). *Work-related Stress evaluation according to psychosocial factors and Employees Reactions*. Vilnius: Institute of Hygiene of the Republic of Lithuania.

Kemeraitytė, I. (2016). *Professional Stress and Burnout Correlations with Psychosocial Work factors among Physicians and Nurses in Hospital X*. Master Thesis, Lithuanian University of Health Sciences, Faculty of Public Health, Kaunas.

Kwiatkowska-Ciotucha, D., Załuska, U., Ślęzyk-Sobol, M., Lehesvuori, M., & Polak, A. (2019). Occupational Burnout in Health care - Analysis of Systemic and Organisational Risks as well as Possible Preventive Actions. *Advances in Applied Data Analysis*, 23(4).

Lastovkova, A., Carder, M., Rasmussen, H. M., Sjöberg, L., De Groene, G. J., Sauni, R., Pelclova, D. (2017, 11). Burnout Syndrome as an Occupational Disease in the European Union: An Exploratory Study. *Industrial Health*, 56.

Lithuanian International Word Dictionary. (2020). *Lithuanian International Word Dictionary*, Vilnius: Alma Littera.

Makara-Studzińska, M., Wontorczyk, A., & Izydorzyc, B. (2019, 07). Stress and occupational burnout in a population of Polish doctors – Organizational-professional and non-professional-social predictors. *Annals of Agricultural and Environmental Medicine*, 27(3).

Maslach, C., & Jackson, S. E. (1976). The Maslach Burnout Inventory. *Consulting Psychologists Press*.

Maslach, C., & Jackson, S. E. (1981). The Measurement of Experienced Burnout. *Journal of Occupational Behaviour*, 2(2).

McManus, I., Keeling, A., & Paice, E. (2004, 08). Stress, burnout, and doctors' attitudes to work are determined by personality and learning style: A Twelve-year Longitudinal Study of the UK Medical Graduates. *BMC Medicine*, 2(29).

Mikalauskas, A., Benetis, R., Širvinskas, E., Andrejaitienė, J., Kinduris, Š., Macas, A., & Padaiga, Ž. (2018, 02). Burnout among Anaesthetists and Intensive Care Physicians. *De Gruyter*, 13, 105-112.

Mikalauskas, A., Širvinskas, E., Marchertienė, I. M., Samalavičius, R., Kinduris, Š., & Benetis, R. (2012, 09). Burnout among Lithuanian Cardiac Surgeons and Cardiac Anesthesiologists. *Medicina*, 48(9).

National Library of Medicine. (2022). Work-related Stress Search Results. PUBMED. Retrieved 12 14, 2020, from PubMed. <https://pubmed.ncbi.nlm.nih.gov/?term=work-related+stress+physician&filter=years.2014-2023>

Nteveros, A., Kyprianou, M., Artemiadis, A., Charalampous, A., Christoforaki, K., & Cheilidis, S. (2020, 11). Burnout among medical students in Cyprus: A cross-sectional study. *PLOS One*, 15(11).

OECD. (2018). *Statistical Data*. Organisation for Economic Co-operation and Development. Retrieved 12 14, 2020, from <https://stats.oecd.org/Index.aspx?ThemeTreeId=9>

Ramanauskienė, I. (2010). *Family Doctor's Work-related Stress and its Management (Šeimios gydytojo darbe patiriamas stresas ir jo valdymas)*. Master Thesis, Lithuanian University of Health Sciences, Faculty of Public Health, Kaunas.

Rodríguez, B. O., & Sánchez, T. L. (2020, 06). The Psychosocial Impact of COVID-19 on health care workers. *International Brazilian Journal of Urology*, 46(1).

Rotenstein, L. S., Torre, M., Ramos, M., Rosales, R., Guille, C., Sen, S., & Mata, D. (2018, 09). Prevalence of Burnout Among Physicians: A Systematic Review. *Journal of American Medical Association*, 320(11).

Shoman Y, M. S. (2021, 01 13). Psychometric properties of burnout measures: a systematic review. *Epidemiology and Psychiatric Sciences*.

Skorobogatova, N., Žemaitienė, N., Šmigelskas, K., & Tamelienė, R. (2017). Professional Burnout and Concurrent Health Complaints in Neonatal Nursing. *Open Med (Wars)*, 12, 328-334.

State Labour Agency at the Ministry of Social Security and Labour of the Republic of Lithuania (2012). *Psychosocial risk factors and Recommendations for Work-related Stress Evaluation*. Vilnius: State Labour Agency. Retrieved 04 22, 2021, from <https://www.vdi.lt/AtmUploads/PsichosocialiniaiRizikosVeiksniaiStresoDarbeVertini moRekomendacijos.pdf>

Statistics Department of the Republic of Lithuania (2020). *Statistical Data of Lithuania*. Retrieved 12 10, 2020, from Official Statistics' Database: <https://osp.stat.gov.lt/statistiniu-rodikliu-analize?hash=ed177f45-849b-4e1e-af80-67efdc8c6045#/>

Tarozė, I; Tarvydienė, N; Jurgutis, A. (2014). Psychosocial work factors among Public Health Specialists. *Public Health of Lithuania*, 104-109.

The Ministry of Social Security and Labour of the Republic of Lithuania. (2018). *Rules of the Professional Risk Evaluation*. Vilnius: State News (Valstybės žinios).