

Research Article

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Burnout among anesthetists and intensive care physicians

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Abstract: Burnout is a syndrome of depersonalization, emotional exhaustion, and low personal accomplishment. Little is known about burnout in physicians. Our objective was to determine the prevalence of burnout among anesthetists and intensive care physicians, and associations between burnout and personal, as well as professional, characteristics.

Methods. In total, 220 anesthetists and intensive care physicians were contacted by email, asking them to participate in the study. For depression screening the PHQ-2 questionnaire, for problem drinking, CAGE items were used. Burnout was measured by the Maslach Burnout Inventory.

Results. Overall, 34% anesthetists and intensive care physicians indicated high levels of emotional exhaustion, 25% indicated high levels of depersonalization, and 38% showed low personal accomplishment. Burnout was found more frequent among subjects with problem drinking (OR 3.2, 95% CI 1.5–6.8), depressiveness (OR 10.2, 95% CI 4.6–22.6), cardiovascular disorders (OR 3.4, 95% CI 1.7–7.1), and digestive disorders (OR 2.2, 95% CI 1.2–4.0). Some favorite after-work activities positively correlated with burnout, such as sedative medications abuse (OR 4.8, 95% CI 1.8–12.5), alcohol abuse (OR 2.4, 95% CI 1.3–4.5), eating more than usual (OR 1.9, 95% CI 1.1–3.5), and transferring the accumulated stress to relatives (OR 2.8, 95% CI 1.4–5.5). In contrast, reading of non-medical literature seemed to have a protective effect (OR 0.5, 95% CI 0.2–0.9).

Conclusions. Burnout was highly prevalent among anesthetists and intensive care physicians with two fifths of them meeting diagnostic criteria. It was strongly correlated with problem drinking, depressiveness, cardiovascular and digestive disorders, use of sedatives and overeating.

Keywords: Burnout; Physicians; Depression; MBI

1 Introduction

The term “burnout” was first mentioned more than 40 years ago by psychoanalyst Freudenberg, who described burnout as physical and psychiatric breakdown [1]. Later, in 1981, Christina Maslach amended the definition and introduced the Maslach Burnout Inventory, a tool for measuring burnout syndrome [2]. This is the instrument most widely used for burnout syndrome assessment to date.

Maslach defined the burnout syndrome as emotional exhaustion that is a result of stress caused by interpersonal interaction [3]. Burnout syndrome is found only in caring and social professions (e.g., doctors, social workers, teachers, nurses), but can never affect people working in a position without direct contact with other people (e.g., welder or factory worker) [4]. The model proposed by Maslach encompasses three dimensions (factors) of burnout: emotional exhaustion, depersonalization, and low personal accomplishment at work [3,5-6]. This condition is included in the 10th revision of the International Classification of Diseases (ICD-10): the term ‘burnout’ was described under code Z.73.0 as a “Burnout-state of total exhaustion” [7].

A career in either anesthesiology or intensive care comes with significant challenges that cause personal distress for a physician individually and with his relatives.

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Studying and practicing anesthesiology or intensive care are stressful endeavors [8-9].

It is essential to investigate professional burnout among Lithuanian anesthetists and intensive care physicians in the context of other European countries. For example, in Belgium, 40% anesthetists experience burnout, especially young trainees under 30 years of age [8]. In France, a high level of burnout was identified among 46% of intensive care physicians, where workload and impaired relationships with other colleagues were associated with higher burnout scores [10]. Data concerning anesthetists and intensive care physicians' burnout in other European countries are quite similar. However, the most alarming situation was found in Portugal, where 57% of anesthetists suffered emotional exhaustion and 90% even experienced depersonalization [11].

In addition, some studies investigated associations of burnout with the presence of physical diseases in general population. They found strong associations of exhaustion and depersonalization with musculoskeletal, cardiovascular, and other physical diseases [12]. Another study on health care workers showed that burnout was associated with poorer self-rated health, increased depression, increased anxiety, sleep disturbances, and impaired memory [13].

The burnout condition can be regarded as negative not only for physician himself but can also lead to negative outcomes in health care. A recent study on burnout and medical errors found that self-perceived major medical errors were strongly related to physicians' degree of burnout [14].

To date, there are no data concerning Lithuanian anesthetists and intensive care physicians' mental health. Only few studies of other medical specialties have been performed regarding mental health. Some studies revealed highly increased burnout rates among Lithuanian physicians [15] as well as an experience of severe stress [16] and having low job satisfaction [17].

Therefore, the main objective of our study was to evaluate the level of burnout among anesthetists and intensive care physicians and to identify the factors that might predispose to this condition.

2 Material and methods

The study was conducted in January–February 2017. The protocol was approved by Kaunas Regional Bioethics Committee, approval no. BE 2-2, 2017 02 21. All directors of Lithuanian adult intensive care units and anesthesiol-

ogy departments were contacted by phone or by email in January 2017 and were asked to participate in the study. Non-responding subjects received a reminder email or phone call one month later. Using an informed consent form, directors had to indicate whether they accepted participation in the survey. After the director confirmed participation in a survey, they were asked to send a link by email to their employees (anesthetists and intensive care physicians). The survey was conducted using an online platform.

2.1 Instrument

The survey used a questionnaire consisting of items from validated questionnaires, also including additional items constructed by the researchers' team.

The term *professional burnout* was assessed using the validated Lithuanian version of Maslach Burnout Inventory (MBI). The Lithuanian version of MBI is available with the purchase of the original MBI license. The 22-item MBI is divided into three subscales (factors): Emotional exhaustion (EE; feelings of emotional overextension through one's work, 9 items), Depersonalization (DP; negative, cynical attitudes towards the recipients of one's care or service, 5 items), and Lack of Personal Accomplishment (PA; loss of competence and achievements in one's work, 8 items). The subject is asked to answer each item on a Likert scale from 0 (never) to 6 (every day). The internal consistency and normative scores of subscales are presented in Table 1.

There is no clear consensus in literature on how to interpret the burnout based on MBI normative scores. According to Ramirez *et al.*, [18] and Tironi *et al.*, [19] burnout is defined when all three subscales are scored as high, whereas Grunfeld *et al.* [20] and Wisetborisut *et al.* [21] define burnout as high scores in any subscale. However, most researchers (Shanafelt *et al.*, Dyrbye *et al.* [22-23] define burnout as having a high score in either the

Table 1: Maslach Burnout Inventory subscales: internal consistency and normative score.

	A	High	Average	Low
Emotional Exhaustion (EE)	0.90	≥27	17-26	0-16
Depersonalization (DP)	0.74	≥13	7-12	0-6
Personal Accomplishment (PA)	0.81	0-31	32-38	≥39

α =Cronbach alfa

DP or EE subscale. The latter approach was used in our study.

The dependences were assessed using two scales. *Nicotine dependence* was evaluated by Fagerstrom Test, a standard instrument for assessing the intensity of physical addiction to nicotine. The test was designed to provide an ordinal measure of nicotine dependence related to cigarette smoking. It contains 6 items on quantity of cigarette consumption, the compulsion to use, and dependence. The term *alcohol dependence* was measured using 4-item CAGE questionnaire.

The term *risk of depression* was assessed using 2-item Patient Health Questionnaire-2; it inquires about the frequency of a depressed mood and anhedonia over the past two weeks.

We also included additional items on basic demographic data, occupational indicators, physical disorders, and after-work activities.

2.2 Statistical analysis

The data were analyzed using SPSS 20.0 software. The significance level was set at 5%. The descriptive analysis included calculations of mean±SD (standard deviation) and frequencies (absolute numbers and percent). Inferential analysis was conducted using univariate logistic regression modeling calculated for burnout risk, with odds ratios (OR) as estimate of association between putative risk/protective factors and the burnout.

3 Results

In all, 220 anesthetists and intensive care physicians responded to the survey and filled in the questionnaire. The prevailing part of sample was female (61.8%), married (75.0%), and having children (78.6%). The majority of anesthetists and ICU physicians (98.6%) reported working on one full-time equivalent (FTE) or more and at several workplaces (58.2%). Table 2 summarizes the profile of participants.

The level of professional burnout was assessed using the MBI scale. A high level in one of three MBI dimensions was observed in 34.1%; two dimensions, in 15.9%; all three dimensions, in 10.9% of study subjects. Professional burnout was defined for subjects who had a high score in either the EE or DE subscale or both, which resulted in 42.3% of respondents meeting this criterion. The most common statements revealing emotional exhaustion were

“Working with people all day is really a strain for me” and “I feel used up at the end of the workday”. The commonest items of depersonalization were “I worry that this job is hardening me emotionally” and “I’ve become more callous toward people since I took this job”, and regarding personal accomplishment, “I can easily create a relaxed atmosphere with my patients” and “I feel I’m positively influencing other people’s lives through my work”. Table 3 represents burnout levels by subscale and its norms.

In our study, the subjects were also asked about negative conditions and behaviors related to poorer health. Analysis revealed that 22% of specialists were at increased risk of alcohol dependence and 13% of nicotine dependence. In addition, 24% of professionals were at increased risk of depression. A huge majority of physicians reported having shorter sleep than 8 hours (84%). About one in three physicians reported suffering from a cardiovascular (28%), digestive (31%), or musculoskeletal disorder (33%). Table 4 represents characteristics of participants (CAGE, Fagerstrom, PHQ-2 and duration of sleep).

Table 2: Sociodemographic and work characteristics of study sample.

Variable		N	%
Age	26–39 years	75	34.1%
	40–49 years	66	30.0%
	50–64 years	79	35.9%
Gender	Women	136	61.8%
	Men	84	38.2%
Marital status	Married	165	75.0%
	Not married	20	9.1%
	Divorced	32	14.5%
	Widowed	3	1.4%
Children	0	47	21.4%
	1	66	30.0%
	2	83	37.7%
	3+	24	10.9%
Number of workplaces	1	92	41.8%
	2	92	41.8%
	3+	36	16.4%
Workload (FTE)*	<1	3	1.4%
	1–1.49	68	30.9%
	1.50+	149	67.7%

*FTE = full-time equivalent.

Table 3: Burnout subscales scores and normative categories (%).

Burnout subscales	Mean±SD	Median	High	Average	Low
Emotional Exhaustion (EE)	22.0±11.9	21	34.1	30	35.9
Depersonalization (DP)	8.8±6.2	8	25.9	31.8	42.3
Personal Accomplishment (PA)	34.1±8.6	35	38.6	25.5	35.9

Table 4: Prevalence of negative health conditions and behaviors in study sample.

Feature	Scale	Answer	N	%
Alcohol dependence	CAGE*	0 pts	126	57.3
		1 pts	46	20.9
		2 pts	27	12.3
		3 pts	13	5.9
		4 pts	8	3.6
Nicotine dependence	Fagerstrom**	very low	192	87.3
		Low	10	4.5
		moderate	6	2.7
		High	8	3.6
		very high	4	1.8
Depressiveness	PHQ-2***	0 pts	64	29.1
		1 pts	39	17.7
		2 pts	63	28.6
		3 pts	16	7.3
		4 pts	23	10.5
		5 pts	5	2.3
Duration of sleep (hours)		<6	88	40.0
		6.5–7.5	98	44.5
		8+	34	15.5

*CAGE = Cut Down, Annoyed, Guilty and Eye Opener. 2 pts or more identify as problem drinking. **Fagerstrom score of higher than very low is considered as increased dependence on nicotine. ***PHQ-2 = Patient Health Questionnaire-2. Score of 3 and more is considered as a demand for further investigations for depression.

To reveal the free-time, relaxing, leisure activities among physicians, the respondents were also asked

Table 5: Favorite after-work activities of respondents (prevalence at least once a week).

Activity	N	%
Listening to music	172	78.2
Reading non-medical literature	145	65.9
TV watching	200	90.9
Physical exercise	145	65.9
Spending time with family or friends	183	83.2
Transferring the stress on relatives or friends	58	26.4
Eating more than usually	118	53.6
Sleeping	145	65.9
Smoking	43	19.5
Alcohol abuse	79	35.9
Sedative medications abuse	27	12.3
Drug abuse	12	5.5
Creative activities	47	21.4
Gambling	23	10.5

about their favorite after-work activities (Table 5). The physicians mostly reported such activities as TV watching (91%), spending time with family and relatives (83%), and listening to music (78%).

After assessment of burnout levels in physicians, their general characteristics and conditions were analyzed as variables that could be considered as risk or protective factors for professional burnout. To define such factors and concurrent conditions, we used logistic regression analysis. The results showed (Table 6) that depressiveness (OR=10.3), cardiovascular disorders (OR=3.5), alcohol dependence (OR=3.2), and digestive disorders (OR=2.2) are all associated with the occurrence of burnout among anesthetists and ICU physicians ($p<0.05$).

In addition, we also assessed after-work activities as indicators of professional burnout (Table 7). We found that abuse of sedative medications (OR=4.9), transferring the stress on relatives or friends (OR=2.9), alcohol abuse (OR=2.5), and eating more than usually (OR=2.0) are the behaviors significantly associated with professional

burnout ($p < 0.05$). In contrast, we also found one possible protective factor— reading non-medical literature— that was likely to decrease the risk of burnout by almost double ($OR = 0.52$).

4 Discussion

Professional burnout is a phenomenon inherent for professionals who are working in direct contact with other people. Even though it is usually considered that burnout deteriorates motivation and general condition of the pro-

fessional him/herself, this may also lead to negative outcomes related with his/her work quality. In the case of intensive care medicine, this is very essential since the errors may have very high costs, leading to lifelong disability or death.

Therefore, our study was aimed to measure level of burnout among anesthetists and intensive care physicians. We also wanted to identify factors or concurrent conditions related to professional burnout. We found that overall 42% of study sample is at risk of professional burnout. Considering burnout subscales, the most frequently expressed were lack of personal accomplishment

Table 6: Associations of professional burnout with health disorders and behaviors.

	OR	95% CI	P
Alcohol dependence (2 pts or more)	3.235	1.524–6.868	0.002
Nicotine dependence (higher than 'very low')	2.082	0.881–4.923	0.095
Depressiveness (3 pts or more)	10.253	4.648–22.620	0.001
Duration of sleep (6 hours or less)	1.786	0.989–3.225	0.055
Cardiovascular disorders	3.485	1.705–7.120	0.001
Digestive disorders	2.203	1.208–4.019	0.010
Musculoskeletal disorders	0.962	0.531–1.743	0.899

OR = Odds ratio, CI = confidence interval.

Table 7: Associations between favorite after-work activities and professional burnout.

	OR	95% CI	p-value
Listening to music	0.785	0.398–1.550	0.485
Reading non-medical literature	0.520	0.286–0.947	0.033
TV watching	0.683	0.253–1.842	0.452
Physical exercise	0.762	0.421–1.377	0.367
Spending time with family or friends	0.648	0.304–1.383	0.262
Transferring the stress on relatives or friends	2.890	1.499–5.587	0.002
Eating more than usually	1.980	1.112–3.521	0.020
Sleeping	1.299	0.711–2.370	0.395
Smoking	1.949	0.957–3.968	0.066
Alcohol abuse	2.475	1.339–4.587	0.004
Sedative medications abuse	4.854	1.883–12.500	0.001
Drug abuse	1.079	0.304–3.831	0.906
Creative activities	0.980	0.491–1.957	0.955
Gambling	1.292	0.512–3.268	0.588

OR = Odds ratio, CI = confidence interval.

(39%) and emotional exhaustion (34%), with depersonalization being less common (26%). We discovered that burnout is associated with alcohol abuse, depressiveness, and presence of cardiovascular and digestive disorders.

Regarding the problem of alcohol abuse, we found that physicians identified as problem drinkers by the CAGE scale are 3 times more likely to have professional burnout than other physicians. This supports previous research that a drinking problem can be associated with burnout [24].

Multiple studies state that physicians are likely to have experimented with illicit substances in their lifetime; however, they are far less likely to be current users of illicit substances. Alcohol abuse is a different question: it has a much higher prevalence of alcohol among physicians [25]. Around 10% to 14% of all physicians will become substance dependent over their career, with anesthesiologists having 2.7 times higher incidence compared to other specialty physicians [26]. Identification of a drinking problem and finding associations with other conditions like burnout or stress may be one of the first steps to recovery.

According to WHO, depression among Lithuanians is highly prevalent and above the regional average. Some authors state that depression and burnout are overlapping and complementary phenomena [27]. In our study, we used the very short PHQ-2 (two items) questionnaire for depression screening. Its cut-off of 3 points has been proven being highly sensitive (83%) and specific (92%) for a major depressive episode [28]. As expected, we found the strongest association (OR=10.2) between burnout and depression. This supports the statement that burnout and depression are strongly related and overlapping, and it is essential to deal with both conditions simultaneously.

Our study has also shown that professional burnout is related to cardiovascular and digestive disorders (odds of 3.4 and 2.2, respectively). However, with a cross-sectional design, we cannot be certain which disorder is a cause and which is an result. We hypothesize that burnout (as a result of a stressful environment) might be a cause rather than a consequence. Although stress or burnout itself may not cause stomach ulcers, celiac disease, or inflammatory bowel disease, it can worsen these and other diseases of digestion. As for cardiovascular disorders and burnout, we hypothesize that cardiovascular disorders might be a consequence of burnout because many studies [29-30] suggest that overtime work, which is one of the leading causes of burnout, is associated with coronary heart disease (CHD).

Furthermore, our study provides some interesting findings about physician's favorite after-work activities. Some after-work behavior such as sedative medications

abuse, alcohol abuse, eating more than necessary, or transferring the stress to relatives or friends is positively associated with burnout, meaning that in burnout group, we find more alcohol abuse or sedative medications abuse and other risky behaviors. Such behaviors may be protective, though non-adaptive actions, after tiredness and exhaustion at work. However, one significant leisure activity was surprising: we found that physicians who after the end of their working day read non-medical literature have almost a twice-lower likelihood of professional burnout. This finding should be re-addressed in future research; to date, we've found no articles reporting a diminishing effect on burnout through such leisure activity.

We highly suggest that physicians start adapting their life and work habits as soon as possible to recover from burnout, or better, to prevent it. We recommend starting by improving self-care: minimize alcohol, tobacco, and caffeine, develop a healthy eating plan, get more exercise, find a creative hobby. Physicians should also change how they think about and do their job: celebrate small victories at work, take regular breaks, resist working overtime, stop multi-tasking, stay disconnected from work after the workday ends or during vacation periods. Further, to avoid burnout, physicians must change the way they live: they should focus on their life accomplishments, keep self-criticism to a minimum, maintain an organized, peaceful and tidy environment. Finally, try relaxation, meditation, or prayer.

5 Limitations and strengths

Our study has a number of limitations. First, our response rate is unknown, since anesthesiologists and intensive care physicians were not contacted directly by investigator, but rather by directors of anesthesiology and ICU departments. All directors were asked to send a link to their employees by email requesting to participate in a survey. The request to directors was repeated twice. It is unknown if all directors forwarded a request to their employees to participate in a survey. Our information, based on the Society of Lithuanian Anesthesiology and Intensive Care, is that there are about 400 licensed anesthesiologists and intensive care physicians working in Lithuanian medical institutions. We suggest that we might have managed to reach more than 50% of our target population.

Second, we investigated two specialties (anesthesiology and intensive care physicians), but we did not separate them into subgroups but rather pooled them; therefore, it is unclear whether anesthesiologists or intensive care

physicians experience more burnout. These specialists were analyzed together because in Lithuania, the anesthesiology and intensive care residency approach the same subjects, although knowing separately how much burnout each subspecialty experiences individually would be a benefit.

Third limitation could be the use of PHQ-2 for measuring depression: it does not set a final diagnosis of major depression, but rather screens for depression in a “first step” approach [31]. Respondents who screen positive should be further queried using the PHQ-9 questionnaire. However, we decided to use PHQ-2 because it is time-saving option for respondents, and we believe that such composition of the survey provided us a higher response rate.

The strengths of our study include the use of an online survey, thereby ensuring maximum privacy and confidentiality. The survey included standardized instruments that are validated measures for burnout, depression screening, smoking habits, and alcohol abuse.

6 Conclusions

In sum, 42% of anesthesiologists and intensive care physicians are at risk of professional burnout. A variety of personal characteristics were related to burnout, including alcohol abuse, depressiveness, and cardiovascular and digestive disorders. In addition, after-work activities such as alcohol abuse, sedative medications abuse, eating more than necessary, and stress release on relatives were also associated with professional burnout. Conversely, reading the non-medical literature seems to have a protective potential against burnout.

Conflicts of interest: The authors have no conflicts of interest to declare.

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