Burnout among anesthetists and intensive care physicians

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 Freudenberger, 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 Z73.0 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.
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 22, 2017 02 21. All directors of Lithuanian adult intensive care units and anesthesiology 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

| Subscale                | 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).

| Variable          | N   | %   |
|-------------------|-----|-----|
| Age (years)       |     |     |
| 26–39             | 75  | 34.1% |
| 40–49             | 66  | 30.0% |
| 50–64             | 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%  |
| 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.
To reveal the free-time, relaxing, leisure activities among physicians, the respondents were also asked 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 depressive ness (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

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

| Burnout subscales       | Means±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 |
|                          |       | 6 pts  | 10 | 4.5 |
| 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.

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|

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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 professional 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.
Some after-work behavior such as sedative medications might be 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).

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 anesthetists or intensive care physicians are more likely to develop 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 anesthetists 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 anesthetists 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.

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.

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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 anesthetists 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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