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High rate of burnout among anaesthesiologists in Belgrade teaching hospitals

Results of a cross-sectional survey

Miodrag Milenović, Bojana Matejić, Vladimir Vasić, Elizabeth Frost, Nataša Petrović and Dušica Simić

BACKGROUND Decisions by anaesthesiologists directly impact the treatment, safety, recovery and quality of life of patients. Physical or mental collapse due to overwork or stress (burnout) in anaesthesiologists may, therefore, be expected to negatively affect patients, departments, healthcare facilities and families.

OBJECTIVES To evaluate the prevalence of burnout among anaesthesiologists in Belgrade public teaching hospitals.

DESIGN A cross-sectional survey.

SETTING Anaesthesiologists in 10 Belgrade teaching hospitals.

MAIN OUTCOME MEASURES Burnout was assessed using Maslach Burnout Inventory-Human Services Survey.

RESULTS The response rate was 76.2% (205/272) with the majority of respondents women (70.7%). The prevalence of total burnout among anaesthesiologists in Belgrade teaching hospitals was 6.34%. Measured level of burnout as assessed by high emotional exhaustion, high depersonalisation and low personal accomplishment was 52.7, 12.2 and 28.8%, respectively. More than a quarter of the studied population responded in each category with symptoms of moderate burnout. We detected that sex, additional academic education, marital status and working conditions were risk factors for emotional exhaustion and depersonalisation. Ageing increased the likelihood of burnout by 21.3% with each additional year. Shorter professional experience and increased educational accomplishment increased the risk of total burnout by 272%.

CONCLUSION Burnout rates in Belgrade teaching hospitals among anaesthesiologists are higher than in foreign hospitals. Emotional and/or physical breakdowns can have serious effects when these individuals care for patients in extremely stressed situations that may occur perioperatively. Causes for burnout should be examined more closely and means implemented to reverse this process.

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Burnout is a psychological term that refers to long-term exhaustion, frustration, poor work performance, apathy and diminished interest due to chronic occupational stress. Although not recognised as a distinct disorder in the Diagnostic and Statistical Manual of Mental Disorders (5th edition) because of its proximity to depressive states, it is included in the International Statistical Classification of Diseases and Related Health Problems (10th Revision) and can be found under work-related neurasthenia. Growing evidence suggests that burnout has multifactorial causes with dispositional factors playing a role. Three interrelated components have been identified: emotional exhaustion, depersonalisation and low personal accomplishment. Each entity is subjective and measured from self-reporting descriptions, synchronised and segregated in three domains. Emotional exhaustion is described as a personal sense of feeling dazed and tired. Depersonalisation is a personal defence mechanism that creates distance between colleagues, team members, work and even patients. Low personal accomplishment is related to work and career achievement, and is described as feelings of dissatisfaction and frustration. Although identified with depression, burnout usually ends soon after the individual leaves the working environment, whereas depression exists even in private life. Burnout syndrome results from hard work, mental and physical exhaustion, stress and chronic unresolved interpersonal problems.

Several studies have concluded that burnout syndrome in anaesthesiologists deserves attention because of the negative consequences that arise at all levels. Health systems are affected as medical practitioners become less interested in the results of the healing process, show less attention to detail or experience/demonstrate cynicism towards patients. Overwhelmed with the burden of personal problems, at some stage, burned-out professionals may negatively affect patient safety. Patients are at risk because of the significant reduction of quality care, with the potential for serious medical errors, which may even result in death. Anaesthesiologists as victims of burnout may have higher job turnover, marriage failures, drug and alcohol abuse, caffeine and nicotine addiction and shorter life expectancy.

Serbia among other southeast European nations has realised the need, in keeping with other Western Countries, to achieve a higher level of training among anaesthesiologists. Factors that have hindered these efforts include lack of equipment and safety regulations, long periods of political instability, military conflicts and an ongoing economic crisis. Moreover, lack of environmental control and a level playing field, community breakdown, value conflicts and insufficient personal incomes, as well as the opening of the European borders and professional flight, have all contributed to staffing problems in anaesthesia, and thereby increased the workload of remaining anaesthesiologists. Without stable funding, the public sector suffers from the influence of governmental and international creditors regarding the reduction of personal incomes and the number of personnel employed. Under such stressful conditions but while still being required to undertake major organisational tasks, a higher prevalence of burnout would be expected to occur among anaesthesiologists and departmental chairpersons.

The aim of our study was to assess the prevalence of burnout among anaesthesiologists in Belgrade public teaching hospitals and to attempt to identify the factors associated with the three dimensions of burnout syndrome.

Methods

Ethical approval (Ethical Committee No. 29/IV-1) was provided by the Ethical Committee of the School of Medicine, University of Belgrade (Chairperson Professor Dr Sinisa Pavlovic) on 25 April 2013. Permission to conduct the study was also obtained from each hospital director.

A cross-sectional survey was undertaken during the months of October and November 2013. All physician specialists in anaesthesiology working in the hospitals at the tertiary level of healthcare in Belgrade (10 teaching hospitals) were eligible to participate. According to official national statistical data, the study population was 272 anaesthesiologists. Self-reported anonymous questionnaires were distributed by heads of the departments. Excluded from participation were physicians who were on sick leave or holiday during the data collection period (approximately 3 weeks per institution), individuals who had leave of more than 1 year (because of prolonged studies abroad, prolonged illness or multiple changes in the workplace) over the past 5 years and individuals who had previously been exposed to a short period of increased mental or physical trauma, independent of the professional environment. All respondents were informed in writing that their participation was anonymous, voluntary and that information provided was confidential.

The first part of the questionnaire comprised 11 questions and was designed to capture basic sociodemographic and work-related characteristic information including age, sex, marital status, number of children, level of academic and professional undergraduate education, length of medical service including time as a specialist and a chairperson of the section or department, intention to work abroad, work experience abroad and satisfaction with the household economic status.

The second part of the study instrument used the Maslach Burnout Inventory-Human Services Survey (MBI-HSS). Legal permission from Mind Garden, Inc., (Menlow Park, CA, USA) was obtained to translate the questionnaire to Serbian. The survey has three...
subscapes to evaluate the three domains of burnout: emotional exhaustion, depersonalisation and low personal accomplishment. Nine of the statements measure emotional exhaustion, five assess depersonalisation and eight evaluate personal accomplishment. Each of the 22 items asks respondents to describe their feelings on a seven-point Likert scale, ranging from ‘never’ to ‘every day’. For each subscale of the MBI-HSS, a score is awarded. Cut-offs used to define low, average or high levels of each dimension of burnout are shown in Table 1.

The instrument was tested in a pilot study that included 10 anaesthesiologists, and confirmed a high level of item acceptance and comprehension. Overall reliability of the scores (items 1 to 22) was sufficient (Cronbach’s α 0.72), with the highest internal consistency for emotional exhaustion (Cronbach’s α = 0.91) and sufficient values for depersonalisation (Cronbach’s α 0.73) and personal accomplishment (Cronbach’s α 0.74).

Depending on whether it was discrete or variable as a continuous predictor, sociodemographic characteristics were tested in relation to sex by Pearson’s χ² test or Mann–Whitney U test. Multivariate logistic regression was used for the analysis of the subscales of emotional exhaustion, depersonalisation and personal accomplishment as the dependent variable, as well as for determination of the overall burnout scale and total burnout.²⁰ In each multivariate logistic regression, the dependent variables are of binary type. Predictors were sex, age, marital status, additional academic education, length of medical experience, working conditions, working abroad, department leading positions and general financial status. Multivariate logistic regression analyses are accurate assuming that the appropriate ratio of observations and variables are met.²¹ All statistical analyses were performed using the software SPSS Statistics (v22; IBM, Armonk, New York, USA). Data are presented as number, proportion or mean ± SD as appropriate.

Results
A total of 205 anaesthesiologists out of 272 participated in the survey (76.2% response rate). The rate of item response was very high and varied from 98.5 to 100%, demonstrating response frequency on the MBI-HSS.

Over two-thirds (70.7%) of respondents in tertiary healthcare were women. The mean age was 48.2 ± 8.3 years and ranged from 34 to 64 years. All respondents were specialists in anaesthesiology having trained in a 4-year postgraduate specialty programme. The number of years of experience in anaesthesiology was 16.2 ± 9.0 years. More than one-third of respondents (36.6%) had been in managerial positions for 6.6 ± 5.0 years. In addition, 31.2% reported that they had obtained additional academic achievements (MSc, PhD or postdoctoral studies) (Table 2). Male anaesthesiologists were living in a marriage/relationship more often than women. Men were more dissatisfied with working conditions and had a shorter length of working experience than women (Table 2). Using Maslach’s three categories, anaesthesiologists experienced a significant level of burnout in emotional exhaustion, depersonalisation and personal accomplishment (52.7, 12.2 and 28.8%, respectively). In each category, more than a quarter of the population responded with symptoms of moderate burnout (Fig. 1).

The scores of three MBI-HSS subscales of emotional exhaustion, depersonalisation and personal accomplishment, as well as crosstabulation results, are shown in Table 3. The two burnout subscales of emotional exhaustion and depersonalisation measure the level of burnout from high to low, whereas personal accomplishment measures the burnout from low to high. Thirteen anaesthesiologists had all three aspects of burnout (high emotional exhaustion, high depersonalisation and low personal accomplishment), indicating a prevalence of total burnout of 6.34%.

Multivariate logistic regression was separately conducted for each component of burnout syndrome (Table 3). Sex, additional academic education and working conditions significantly influenced emotional exhaustion. Women were more likely to be emotionally exhausted (54.4%). The probability of high emotional exhaustion for anaesthesiologists with additional academic education surprisingly increased by 77.2% compared with anaesthesiologists with ‘basic’ academic education. Satisfaction with working conditions significantly increased the probability of high emotional exhaustion.

The second multivariate logistic regression analysis indicating marital status, additional academic education and length of medical experience was significantly associated with depersonalisation. Anaesthesiologists in a marriage/relationship were less likely to have high levels of depersonalisation. Although additional academic education increased the probability of depersonalisation by 146.2%, the length of medical experience reduced the probability of high depersonalisation. Compared with the anaesthesiologists with less than 15 years experience, those with 16 to 25 and more than 26 years of experience had reductions in the probability of depersonalisation of 82.3 and 92.1%, respectively.

The length of medical work experience and household finances significantly influenced the perception of personal accomplishment. Professional experience of 16 to 25 years lowered the likelihood of low personal accomplishment by 71.0% (compared with the

Table 1: Cut-offs used for evaluation of presence of burnout

<table>
<thead>
<tr>
<th>Subscale</th>
<th>Low</th>
<th>Medium</th>
<th>High</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emotional exhaustion</td>
<td>0 to 16</td>
<td>17 to 26</td>
<td>&gt;26</td>
</tr>
<tr>
<td>Depersonalisation</td>
<td>0 to 6</td>
<td>7 to 12</td>
<td>&gt;12</td>
</tr>
<tr>
<td>Personal accomplishment</td>
<td>39</td>
<td>32 to 38</td>
<td>0 to 31</td>
</tr>
</tbody>
</table>

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anaesthesiologists with less than 15 years of experience). Those in poor financial situations experienced significantly lower levels of personal accomplishment; moderate financial situation reduced the probability by 59.3% and good finances by 71.4%.

With each additional year of age, the likelihood that an anaesthesiologist would suffer burnout increased by 21.3%. Professional experience less than 15 years and increased educational accomplishment greatly increased the probability of experiencing high total burnout (272%).

Discussion
The prevalence of burnout among anaesthesiologists in Belgrade teaching hospitals is high at 6.34%. The causative factors associated with the three dimensions of burnout syndrome are multifactorial. Looking at the results of each subscales, high levels were found in emotional exhaustion (high 52.7%, moderate 26.8%), depersonalisation (high 12.2%, moderate 26.3%) and personal accomplishment (low 28.8%, moderate 28.8%). These findings are higher than reported in other national studies among anaesthesiologists. A study from Brazil indicated 41.8% emotional exhaustion, 37.3% depersonalisation and 58.2% for low personal accomplishment; a Portuguese study found 33.0% emotional exhaustion, 27.0% depersonalisation and 23.0% low personal accomplishment; a study from Lithuania reported 19.3% emotional exhaustion, 25.9% depersonalisation and 42.3% low personal accomplishment.

To date, there are no published data on burnout syndrome in Serbian anaesthesiologists. A handful of studies have been completed among other specialties (orthopaedic surgeons, psychiatrists and general practitioners), which differ methodologically from ours in that they have not identified the total number of burnout professionals.
### Table 3  Multivariate logistic regression model of the dependent variable emotional exhaustion, depersonalisation, personal accomplishment and total burnout

<table>
<thead>
<tr>
<th></th>
<th>Emotional exhaustion OR (CI)</th>
<th>Depersonalisation OR (CI)</th>
<th>Personal accomplishment OR (CI)</th>
<th>Total burnout OR (CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sex</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female (ref)</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Male</td>
<td>0.544 (0.303 to 0.976)&lt;sup&gt;a&lt;/sup&gt;</td>
<td>1.102 (0.460 to 2.639)</td>
<td>1.037 (0.560 to 1.921)</td>
<td>0.597 (0.180 to 1.978)</td>
</tr>
<tr>
<td><strong>Age</strong></td>
<td></td>
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<tr>
<td>1.026 (0.945 to 1.114)</td>
<td>1.115 (0.984 to 1.264)</td>
<td>1.054 (0.964 to 1.151)</td>
<td>1.213 (1.027 to 1.432)&lt;sup&gt;a&lt;/sup&gt;</td>
<td></td>
</tr>
<tr>
<td><strong>Marital status</strong></td>
<td></td>
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<tr>
<td>Not in a relationship (ref)</td>
<td></td>
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<tr>
<td>In a relationship</td>
<td>1.000 (0.565 to 1.769)</td>
<td>0.433 (0.201 to 0.930)&lt;sup&gt;a&lt;/sup&gt;</td>
<td>0.955 (0.526 to 1.736)</td>
<td>0.781 (0.287 to 2.280)</td>
</tr>
<tr>
<td><strong>Level of academic education</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Academic education (ref)</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Additional academic education</td>
<td>1.772 (1.007 to 3.116)&lt;sup&gt;a&lt;/sup&gt;</td>
<td>2.462 (1.107 to 5.475)&lt;sup&gt;a&lt;/sup&gt;</td>
<td>1.468 (0.810 to 2.658)</td>
<td>3.720 (1.232 to 11.234)&lt;sup&gt;a&lt;/sup&gt;</td>
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<tr>
<td><strong>Length of medical experience (years)</strong></td>
<td></td>
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<tr>
<td>Up to 15 (ref)</td>
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<tr>
<td>From 16 to 25</td>
<td>0.691 (0.268 to 1.784)</td>
<td>0.012 (0.041 to 0.757)&lt;sup&gt;a&lt;/sup&gt;</td>
<td>0.290 (0.101 to 0.829)&lt;sup&gt;a&lt;/sup&gt;</td>
<td>0.063 (0.005 to 0.778)&lt;sup&gt;a&lt;/sup&gt;</td>
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<tr>
<td>Over 26</td>
<td>0.369 (0.072 to 1.892)</td>
<td>0.079 (0.007 to 0.938)&lt;sup&gt;a&lt;/sup&gt;</td>
<td>0.371 (0.065 to 2.108)</td>
<td>0.041 (0.002 to 1.049)</td>
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<tr>
<td><strong>Working conditions</strong></td>
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<tr>
<td>Not satisfied (ref)</td>
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<tr>
<td>Ambiguous</td>
<td>1.741 (0.854 to 3.551)</td>
<td>1.419 (0.420 to 4.795)</td>
<td>1.220 (0.553 to 2.691)</td>
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<tr>
<td>Satisfied</td>
<td>4.557 (1.438 to 7.778)&lt;sup&gt;a&lt;/sup&gt;</td>
<td>2.253 (0.687 to 7.384)</td>
<td>1.669 (0.760 to 3.669)</td>
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<tr>
<td><strong>Work abroad</strong></td>
<td></td>
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<tr>
<td>No intention (ref)</td>
<td></td>
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<td></td>
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<tr>
<td>Ambiguous</td>
<td>1.265 (0.550 to 2.912)</td>
<td>1.556 (0.428 to 5.659)</td>
<td>1.838 (0.783 to 4.317)</td>
<td>0.772 (0.108 to 5.514)</td>
</tr>
<tr>
<td>I have intention</td>
<td>1.072 (0.605 to 1.900)</td>
<td>1.441 (0.583 to 3.563)</td>
<td>0.962 (0.514 to 1.902)</td>
<td>0.961 (0.311 to 2.976)</td>
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<tr>
<td><strong>Chair position</strong></td>
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<tr>
<td>No (ref)</td>
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<tr>
<td>Yes</td>
<td>0.960 (0.542 to 1.701)</td>
<td>1.345 (0.597 to 3.030)</td>
<td>1.233 (0.673 to 2.260)</td>
<td>0.458 (0.142 to 1.476)</td>
</tr>
<tr>
<td><strong>Household financial situation</strong></td>
<td></td>
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<tr>
<td>Poor (ref)</td>
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<tr>
<td>Moderate</td>
<td>0.662 (0.305 to 1.436)</td>
<td>0.512 (0.188 to 1.390)</td>
<td>0.407 (0.222 to 0.996)&lt;sup&gt;a&lt;/sup&gt;</td>
<td>0.330 (0.096 to 1.133)</td>
</tr>
<tr>
<td>Good</td>
<td>0.521 (0.228 to 1.193)</td>
<td>0.482 (0.156 to 1.489)</td>
<td>0.286 (0.103 to 0.794)&lt;sup&gt;a&lt;/sup&gt;</td>
<td>0.270 (0.066 to 1.107)</td>
</tr>
<tr>
<td><strong>Constant</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>0.329</td>
<td>0.002</td>
<td>0.082</td>
<td>0.000</td>
</tr>
</tbody>
</table>

CI, confidence interval; OR, odds ratio; ref, reference. <sup>a</sup> 90% CI for OR. <sup>b</sup> 95% CI for OR. <sup>c</sup> 99% CI for OR.
Lesić et al. examined studies among orthopaedic surgeons finding 24.5% emotional exhaustion, 9.9% depersonalisation and 35.7% personal accomplishment. Vicentic et al. studied psychiatrists and reported high levels of burnout (29.1% emotional exhaustion, 12.2% depersonalisation and 22.4% personal accomplishment). Putnik and Houkes reported general practitioners and found a high degree of emotional exhaustion in 24.7%. Our findings indicated a significantly higher percentage (52.7%) of emotionally exhausted anaesthesiologists. Putnik and Houkes reported a level of depersonalisation in only 7.3% of respondents compared with 12.2% in our population. In the domain of personal accomplishment, the general practitioner population recorded 51.7% which exceeds that reported in our study population by 28.8%.

A study by West et al. focused on single-item measures of emotional exhaustion and depersonalisation, which are useful for assessing and providing information on burnout in medical professionals. High levels of either emotional exhaustion or depersonalisation are the foundation of burnout among the high-achieving medical professionals that we studied. Low levels of personal accomplishment may be less significant.

Multivariate logistic regression modelling of emotional exhaustion demonstrated an increased probability that female anaesthesiologists suffer high emotional exhaustion and are more exposed to burnout than men, a finding supported by earlier work. In most societies, a woman traditionally supports others in various areas of life, both at home and work. Such stress may be increased by lack of spousal emotional and social support, both of which are recognised coping mechanisms. Our sociodemographic questionnaire showed one-third of female anaesthesiologists are single, as opposed to the majority of men who are married. Sex discrimination at work as a source of stress, less-effective professional networks, fewer mentoring opportunities and a high workload of household and caring family tasks may also trigger emotional exhaustion.

One-third of the participants had additional academic qualifications, such as MSc, PhD or postdoctoral studies. These respondents represent the academic, university hospital departments or section chairs responsible for educational, scientific, professional and organisational structure. Such responsibilities are stressful and depend on a number of other people. In addition, these individuals were also involved in managerial, educational and clinical time-consuming and stressful work. As in various studies, each level of responsibilities has its own stressors. Work complexity in university hospitals (neurosurgical, cardiac, ICU), lack of adequate communication, misunderstandings, physical exhaustion, night hospital duties and additional workload may provoke depersonalisation among highly educated anaesthesiologists, which is probably the most dangerous form of burnout. Similar findings have been made in the United States and Australia.

The most interesting and statistically significant result was the unexpected high probability of high emotional exhaustion burnout scores seen amongst anaesthesiologists who were satisfied with their working conditions. The most frequently examined hypothesis about job satisfaction indicated a strong connection between increased ‘job strain’ or ‘high demands’ and emotional exhaustion/burnout. Some studies have suggested that high work–privacy conflicts, high insecurity and workplace psychological harassment are related to burnout. Such analyses may need more objective measures of working conditions and psychological explanation. Waldenström et al. could find no systematic difference between self-reported and externally assessed psychosocial working conditions. Another explanation for our finding may be that a competitive atmosphere develops among anaesthesiologists from highly ranked, well-equipped university hospitals. Satisfaction with work conditions is realised, but excessive demands of academic performance and problematic interpersonal relations may override the positive influences. Improvements in working conditions may only influence the ‘objective’ stressors. The effectiveness of changing relationships and improving communication may be detected and confirmed with intervention studies.

Marital status seems important in the development of depersonalisation in other studies. As confirmed among faculty physicians, single anaesthesiologists are more exposed to burnout. Orton et al. found that the non-professional side of life plays a protective role and may be the best predictor of individual satisfaction.

Anaesthesiologists with shorter work experience are far more exposed to depersonalisation than experienced anaesthesiologists. Similar results were highlighted in a study in the United Kingdom, where doctors in larger practices comparable to our teaching hospitals are more depersonalised than those in smaller communities. Prevention of depersonalisation is preferable to treatment, both for physicians and patients.

Less medical working experience and moderate or poor household financial situation are predictive for burnout, a finding confirmed in Dutch, United Kingdom, Greek and United States studies. Anaesthesiologists who live in an indigent household are far more exposed to burnout than those who live in better material conditions. Advanced levels of education, hard work and the need to care for critically ill and disabled people may not be enough to allow anaesthesiologists to be the sole financial provider for comfortable living. Thus, extra working hours, such as additional call, with concomitant restrictions in personal and family needs combined with an awareness that other specialists may be compensated...
better (often for less work), lead to feelings of diminished personal accomplishment and burnout.\textsuperscript{39,42}

Our results suggest that less experienced, younger female anaesthesiologists are far more exposed to burnout than more experienced and male anaesthesiologists. There are a few possible reasons for this finding including undeveloped coping mechanisms, workload or unequal distribution of work demands and tasks to younger members, more night shifts and more unstable household financial situations.\textsuperscript{39,41,42}

During the phase of data collection and analysis, we became aware of certain limitations of our study. In future assessments of burnout among anaesthesiologists in our country, a basic questionnaire should be developed to include items that refer to more specific insights of working processes such as availability of regulated working hours and public system or hospital support for individual needs such as child and elder care, mandatory days off after night call, offers of low-income loans for younger people and grants to attend meetings abroad. The availability of mentors and psychological support systems should also be assessed.

The main instrument for this study was MBI-HSS, which was translated, culturally adopted and validated for our purpose. Aware of results of other studies that used this study instrument, we were able to compare our results and obtain an objective insight into the level of burnout among our healthcare professionals. This was the first study of this kind among anaesthesiologists in Serbia with a large number of participants.

Conclusion

Our study confirms that burnout in all three defined areas (emotional exhaustion, depersonalisation and personal accomplishment) is prevalent in anaesthesiologists working in Belgrade teaching hospitals. These results confirm that burnout in our anaesthesiology population is very high and should be of major concern to hospitals, and national health authorities who should be stimulated to examine the reasons and develop strategies to reverse the trend.

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Conflicts of interest: none.

Presentation: preliminary data for this study, without final statistical analysis, were presented at the European Society of Anaesthesiology (ESA) Euroanaesthesia, 31 May to 3 June 2014, Stockholm.

References


