Background: Burnout syndrome (BOS) is caused both by psychological-emotional and physical stress. It is associated with decreased job performance and low career satisfaction. BOS has a significant influence both to physicians’ performance in health care system, and in their private life. Until now, there was no data about this aspect of orthopaedic surgeon condition and health in our community.

Aim: To assess the level of the burnout syndrome in orthopaedic surgeons and general practitioners (GPs), and the relations of their demographic features, job characteristics to the burnout syndrome.

Design: Questionnaire-based survey

Methods: The sample consisted of 30 orthopaedic surgeons from the University Clinical Centre, and 40 GPs from the primary health care centres. The Burnout syndrome was measured by the Maslach Burnout Inventory (MBI). In addition to the MBI, the demographic data were collected and analyzed (age, age of practicing, gender, marital status) in relation to BOS.

Results: Both groups expressed moderate to high rate of emotional exhaustion, depersonalization and low personal accomplishment. However, statistical significance between the groups had not been demonstrated. Neither gender nor years of practice or marital status did express statistically significant impact on the BOS items, i.e. they were not predictors of the BOS. Our results showed that about 70% of the physicians were emotionally exhausted considering both groups. On the other hand, orthopaedics demonstrated slightly higher depersonalisation level (55%) than GPs (38%). While GPs expressed lower personal accomplishment (48%) comparing to orthopaedics (29%).

Discussion: The obtained MBI scores in this study were similar to those registered in US among residents, but when comparing to physicians in West Europe, which have similar health care system, our results demonstrated higher rates of BOS items.

Conclusion: The Burnout syndrome represents an important problem for actively practicing physicians. The results of this and other similar studies should be used to evaluate medical training, practice, professional relations and introduce necessary changes.

Key words: burn-out syndrome, orthopaedic surgeons, general practitioners

INTRODUCTION

In the recent years, the increased attention has been given to stress-related health problems. Through literature stress was assigned to physical, physiological or behavioural problems and even more it had been directly or indirectly linked to leading causes of death. The individuals who expressed early signs of stress arousal, first attempts of stress compensation and signs of exhaustion could be affected with so-called burnout syndrome.

The state of physical, emotional or mental exhaustion caused by long-term involvement in the emotionally demanding situations was firstly defined by Herbert Freudenberger (1974) as Burnout syndrome (BOS). In the following years Maslach and Jackson (1986) proposed more precise definition of the BOS as a syndrome of emotional exhaustion, depersonalization and reduced personal accomplishment among individuals.
who work with people. Further on, emotional exhaustion (EE), which represents central aspect of the BOS, was qualified as excessive psychological and emotional demands that would leave individuals drained and depleted. Depersonalization referred to increased cynical manner, while the third component of this syndrome was marked as feeling of low professional achievement. After Maslach and Freudenberger, the research was focused on this work-related distress syndrome. The professions apart from medical staffs which were also marked as the most prone to burnout were lawyers, police and military officers. The main sharing features of these professions are highly demanding jobs, long working hours, competition and empathy.

Literature suggested that the burnout syndrome is not rare condition. It was more frequently noticed among residents, surgical staff, anaesthesiologists and oncologists. The reported incidence was in the range from 25 to 76%, depending on the medical specialty. Furthermore, it was observed that this syndrome was more common in population of young doctors – up to 76%.

It is well known that surgery, and particularly orthopaedic surgery is a demanding and stressful profession. Orthopaedic training and practice seem to be remarkably challenging physically, mentally and emotionally. This is a responsible job, involving serious consequences of made decisions and increased pressure of avoiding mistakes. There are many modalities to cope with these challenges. Therefore, as the environment of modern medical workplace represents mixture of stimulating and exciting features and again stressful events it is often a place of emotional problems, increased stress, low job performance, professional disappointing, negative attitude or even alcohol and drug abuse which could negatively reflect to private life and lead to stress-related illnesses or BOS.

The aim of this study was to assess the level of BOS among Belgrade orthopaedic surgeons and general practitioners and to evaluate its relation to age, years of practice, sex, marital status and other demographic data.

**MATERIAL AND METHODS**

This study was designed to cover the lowest level of health care system i.e. the primary health care consisting of general practitioners and the highest third level, which includes specialists of orthopaedic surgery. The sample consisted of the 68 physicians divided into two groups. The first sample group included 30 residents and qualified orthopaedic surgeons of the Clinical Centre of Serbia, in Belgrade. The second group consisted of 38 general practitioners (GP) from the primary health centres in Belgrade. The Ethical Committee approved the survey. Each participant filled the questionnaire in a voluntary, anonymous fashion.

The questionnaire represented qualitative and quantitative survey instrument, which consisted of two divided sections. The first section investigated the background data, enquiring the main demographic information (age, sex, marital status, profession, working years). The second part included set of questions for measuring the BOS i.e. the Maslach Burnout Inventory.
TABLE 2

THE DISTRIBUTION OF MBI SCORES IN THE INVESTIGATED GROUPS

<table>
<thead>
<tr>
<th>MBI subscales</th>
<th>Emotional exhaustion</th>
<th>Depersonalisation</th>
<th>Personal accomplishment</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>orthopaedics</td>
<td>GPs</td>
<td>orthopaedics</td>
</tr>
<tr>
<td>Min</td>
<td>0.00</td>
<td>0.00</td>
<td>19.00</td>
</tr>
<tr>
<td>Max</td>
<td>51.00</td>
<td>22.00</td>
<td>47.00</td>
</tr>
<tr>
<td>Mean</td>
<td>24.56</td>
<td>9.97</td>
<td>35.37</td>
</tr>
<tr>
<td>SD</td>
<td>12.47</td>
<td>6.59</td>
<td>6.51</td>
</tr>
</tbody>
</table>

(MBI) 4. MBI is set of 22 questions, with respond scored from zero to six. It includes three subscales. The first subscale measures emotional exhaustion through nine items with maximum score of 54. The second subscale consists of five items assessing depersonalisation with maximum score of 30 and the last subscale has eight items (maximum score 48) measuring personal achievement, in a sense of competence and accomplishment.

The response can be classified as low, medium or high depending on a score. According to Saleh et al. 8, a score of emotional exhaustion below 17 indicates a low level; between 17 and 27 a moderate level and above 27 a high level of BOS. Considering depersonalisation subscale score under 7 indicates a low level, from 7 to 13 a moderate level and over 13 a high level. Results of personal accomplishment above 38 indicates a low level, from 31 to 38 a moderate level and below 31 a high level.

The MBI is not dichotomal and can be marked neither positive nor negative. The emotional exhaustion and depersonalization directly correlate with the burnout, while the personal accomplishment is inversely proportional to the burnout 4.

The results were analysed by descriptive statistical methods, Pearson’s correlation test and t-test.

RESULTS

The sample comprised of 30 orthopaedic surgeons among which 25 (83.33%) were males and 5 (16.67%) were females. On the other hand, in the group of general practitioners only 8 (21.05%) of them were males while the rest of 30 (78.95%) were females (Table 1).

The orthopaedics were represented with 10 (33.33%) residents and 20 (66.67%) orthopaedic surgeons, while the GP group consisted of only one (2.63%) resident, 19 general practitioners and 18 specialists of general medicine. The mean age of orthopaedic surgeons was 41.8 years (SD 9.6; ranging from 26 to 60 years of age), which was similar to general practitioners (42.2 years; SD 10.7; ranging from 25 to 59 years of age). The comparison of years of practice between the two groups is presented in Figure 1. The group of 35 younger doctors (up to 10 years of practising) comprised 16 young orthopaedic surgeons and 19 GPs. Thus, 46.67% of orthopaedics and 50% of GPs were represented by experienced doctors with more than 10 years of practising.

Analyses of marital status showed that 9 (30%) of orthopaedic surgeons were single while 21 (70%) were married. Results revealed that 16 (42.11%) of general practitioners were single, only one (2.63%) divorced, 19 (50%) married and two of them (5.26%) missed to fill in marital status query (Table 1).

The distribution of scores of three main MBI subscales in the group of orthopaedic surgeons and general practitioners is presented in Table 2.

Our results showed almost similar scores in the aspect of emotional exhaustion among orthopaedics (24.56) and GPs (24.71) with no significant differences (t(3.54)=-0.048) between these two samples. Further analyses, revealed slightly higher level of depersonalisation in the group of orthopaedic surgeons (9.97) compared to general practitioners (7.47). However, applied statistical analyses showed no statistically significant differences (t(3.63)=1.661). Finally, comparing the results registered in the aspect of personal accomplishment among investigated groups i.e. orthopaedics and GPs (35.37 and 37.21 respectively) no significant difference (t(3.58)=-1.008) was found. In addition, none of the burnout indices (emotional exhaustion, depersonalisation, personal accomplishment) has shown statistically significant correlation with years of practicing neither among orthopaedics (Pearson’s correlation 0.242; p>0.05; Pearson’s correlation 0.170; p>0.05; Pearson’s correlation -0.073; p>0.05; respectively) nor
The presence of different levels of BOS among surveyed groups is presented in Table 3.

**DISCUSSION**

It is accustomed that all medical postgraduate programmes should be focused on teaching and training skills. However, little attention is dedicated to physical and mental health of physicians. Occasionally, there were remarks about alcohol abuse and high divorce rate followed by depression, drug abuse, mental disruption, and suicidal thoughts11,18,19. The most dramatic were data about doctors in UK where 27% of practicing physicians showed psychological disturbance. Furthermore, same analyses noticed doubled suicidal rate compared to general population 14. Sargent also published an overview of known stressors (financial pressures, lack of free time, heavy work, sleep deprivation etc), risk factors (length of residency training, personal and family psychiatric history, etc) and protective factors (responsibility, friendship among peers, etc) 11. It would be ideal if there is a balance between job and home, profession and private life18.

Precise quantification of residents’ and full time physicians’ condition could be expressed by different tests and MBI is one of them. By this test, however our analyses did not show statistical difference between compared groups considering all three BOS items. In spite of that, our findings have shown some interesting facts. Firstly, the observed high level of emotional exhaustion was only slightly higher in orthopaedic surgeons. This was even more pronounced considering de-personalisation. Such similar values could indicate that communication with patients usually attributed to GPs may be experienced almost as stressful as hard surgical profession. We would like to point out that only one quarter of the subjects in our sample were highly satisfied with their careers. Even more almost a half of GPs expressed low personal accomplishment. Our findings could suggest a higher feeling of achievement among specialised doctors as consequence of belief that surgeons are more honoured in the society than GPs. On the other hand, low rate of career success among orthopaedics could indicate that low organisation level, administrative overload, low salaries and other factors already reported in the literature considerably influence life and work of physicians5,20.

General state of health is unknown since during last 20 years there was no systematic checking of the employees in our professional community. This issue of health condition of employees was investigated by Harms who has shown strong relation of illness and age (over age of 50 years). The stress and burnout could seriously affect somatic and mental health of physicians and even more it was directly or indirectly linked to seven of ten leading causes of death in developed countries in the past 10 years. The BOS could occur both in residents and older physicians, beginners and directors of programmes. At the age of 50 or more 50% of physicians had health problems and 20% of them were voluntary or involuntary retired 8.

Contrary to western countries in our group there was no significant difference in burnout related to age of practice. Actually, residents scored the same as the older colleagues. This could implicate not so great struggle and hardworking among residents in our region compared to those in UK or US 4,21,22. Also, the marital status seems to be irrelevant in relation to BOS in our population. Strong association between BOS and lack of balance among career and family was assessed in western countries, but unfortunately we do not have data to confirm that influence of stress on the family. However, we noticed not so high level of married phy-

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**TABLE 3**

**PRESENCE OF BURNOUT SYNDROME ITEMS AMONG INVESTIGATED GROUPS RATED BY THE LEVELS OF BURNOUT**

<table>
<thead>
<tr>
<th>Burnout level (%)</th>
<th>Low</th>
<th>Moderate</th>
<th>High</th>
</tr>
</thead>
<tbody>
<tr>
<td>Orthopaedics</td>
<td>GPs</td>
<td>Orthopaedics</td>
<td>GPs</td>
</tr>
<tr>
<td>Emotional exhaustion</td>
<td>32.0</td>
<td>25.8</td>
<td>28.0</td>
</tr>
<tr>
<td>Depersonalisation</td>
<td>44.8</td>
<td>61.1</td>
<td>20.7</td>
</tr>
<tr>
<td>Personal accomplishment</td>
<td>29.6</td>
<td>48.5</td>
<td>44.5</td>
</tr>
</tbody>
</table>
Physicians in our sample (70% among orthopaedics and 50% among GPs) compared to findings in literature where 89% physicians were registered as married or remarried and 21.4% as divorced 18.

The obtained MBI scores of all subjects in this study were similar to those registered in US among residents, but when comparing to physicians in West Europe, which have similar health care system, our results demonstrated higher rates of BOS items (Table 4). However, the studies conducted in Middle East region especially considering private hospitals registered higher levels of BOS compared to our data23.

In the comparison between US general surgeons and US orthopaedic surgeons orthopaedic group showed higher level of BOS considering all three items (of EE, DP and PA) 5. However, the results of our study conducted among orthopaedics, revealed even more serious situation in Belgrade (Table 5).

The BOS is defined as state of physicians, but it also has reflection to their patients. The most important are the failures and errors during medical treatment. The authors Quick and Campbell noted three most common problems in orthopaedic practice: prescription errors (in 28% cases), problems with surgical infections and wrong-site surgery (in 16-21% of cases) 5,8. Thus, they highlighted the importance and practical value of reorganisation of early signs and symptoms of the BOS such as: 1. lower work performance which contributes to errors and mistakes, reducing efficiency and motivation; 2. physical and somatic symptoms described as fatigue and exhaustion, headache and sleeplessness; 3. behavioural indicators such as irritability and anger, frustration. Furthermore, they also observed late signs of the burnout syndrome: 1. self-medication followed with alcohol abuse or tranquilizers), 2. cynicism, sarcasm, and attitudinal negativism; 3. Increased self-doubt.

**CONCLUSION**

This data should be of a great concern, because it might have serious consequences for both physicians and their patients. It reflects in increased cynicism, which disturbs already vulnerable physician-patient relationship and confidence. Thus, the Burnout syndrome could represent an important problem for actively practicing physicians and in general medical practice. The results of this and other similar studies should be used to evaluate medical training, practice, professional relations and introduce necessary changes.

**SUMMARY**

Uvod: Sindrom sagorevanja (burnout) izazvan je dejstvom psihi kog-emotionalnog i fizi kog stresa. On je povezan sa smanjenom radnom sposobnoæu i sa sman-
jenim profesionalnim ostvarenjem. Sindrom sagorevanja ima uticaja i na radnu sposobnost lekara, ali i na njegov privatni svijet. U našoj sredini nije, do sada, bilo podataka o ovom sindromu medju ortopedskim hirurzima.

Cilj: da se proceni stepen sindroma sagorevanja kod ortopedskih hirurga i lekara opte prakse.

Mетоди: ispitivana je grupa od 30 ortopeda i grupa od 40 lekara iz doma zdravlja, iji je stepen sagorevanja procenjivan Maslaovim uputnikom. Takođe su procenjivani i odnosi sagorevanja u odnosu na uzrast, godine staa, pol, bra ni status.

Rezultati: obe grupe su pokazale umeren do visok stepen emocionalne iscrpljenosti, depersonalizacije i niskog stepena profesionalnog ostvarenja, ali nije bilo statistički značajnih razlika izmedju posmatranih grupa. Niti pol, niti godine staa nemaju statistički značajni uticaj na elemente sindroma sagorevanja. 70% lekara je bilo emocionalno iscrpljeno u obe posmatrane grupe. 60% ortopedi su pokazali blago vii stepen deperonalizacije (55%) nego lekari opte prakse (38%), ali su lekari opte prakse imali nii stepen iostvaranja (48%) nego ortopedi (29%).

Diskusija: Dobijeni rezultati su sli ni onima kod američkih specijalizanata, ali je stepen sagoravanja vii nego u zemljama Zapadne Evrope.

Zaklju ak: Sindrom sagoravanja (burnout) predstavlja značajnji problem kod aktivnih lekara. Rezultati treba da služe proceni stanja kod specijalizanata, kod lekara koji rade u praksi, stanja profesionalnih odnosa, kao i da se uvedu eventualno potrebne promene.

REFERENCES:


<table>
<thead>
<tr>
<th></th>
<th>US general surgeons</th>
<th>US orthopedics</th>
<th>Belgrade - ort</th>
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</thead>
<tbody>
<tr>
<td>Emotional exhaustion</td>
<td>30%</td>
<td>34%</td>
<td>40%</td>
</tr>
<tr>
<td>Depersonalisation</td>
<td>9%</td>
<td>21%</td>
<td>34.5%</td>
</tr>
<tr>
<td>LOW personal accomplishment</td>
<td>6%</td>
<td>4%</td>
<td>29.6%</td>
</tr>
</tbody>
</table>

**TABLE 6**
THE DISTRIBUTION OF HIGH LEVEL OF BOS ITEMS AMONG DIFFERENT STUDIES


