

Factors Predisposing to Burnout Syndrome among Medical Staff Participating in Complex Surgical Processes

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Abstract

Background: Burnout syndrome is a serious manifestation of distress among health-care professionals. **Objective:** Due to the specific nature of work in operating theaters, factors that affect the staff performance and therefore predispose to burnout syndrome were assessed. **Methods:** Based on the original questionnaire, 254 respondents working in the operating theaters of the university hospital, appraised levels of work satisfaction, sources of stress, and psychosocial burden. Work-related mental stress was assessed using the Meister's questionnaire. Burnout levels were evaluated in the group extended to 316 employees with Maslach Burnout Inventory. **Results:** Work satisfaction analysis indicated unsatisfactory management and remuneration as the negative agents. The majority of the respondents emphasized the maintenance of medical records as a prominent stress factor. A large number of participants ($n = 221$; 87%) described work as emotionally burdensome. The results showed that the highest burden was related to the following variables: time pressure, responsibility, problems, and conflicts. The examined group was qualified to the second degree of mental load related to the work. Similarly, the entire group reached a high level of emotional exhaustion. **Conclusions:** Presented data indicate the need of evaluation to minimize occupational burnout problem.

Keywords: Burnout syndrome, chronic stress, medical staff, stress factors, work satisfaction

INTRODUCTION

Burnout syndrome among health-care professionals is related to prolonged exposure to work-related stress.^[1] It is characterized by emotional exhaustion (EE), depersonalization (DP), and a sense of low personal achievement (PA). In accordance with the Rotenstein's analysis, operating theater staff is expected to have special psychosocial predispositions.^[2] Potential mental burdens include interpersonal conflicts, poor organizational structure, and insufficient training. The abovementioned aspects reduce the sense of co-responsibility for the treatment process as well as motivation to work.^[3,4] Decreased work efficiency has a direct impact on treatment outcome and induces the risk of medical error. Through identification of adverse factors which may contribute to burnout syndrome occurrence, it is possible to eliminate unfavorable agents. Therefore, the aim of this study was to evaluate factors predisposing to the development of burnout syndrome in a variety of professional groups involved in the surgical procedures of the university hospital.

METHODS

The study consisted of pilot and main research. In the first stage, 254 members of operating teams have been surveyed in order to assess whether the problem of burnout applies to this particular group. Among respondents, the largest group were surgeons, 37.8% ($n = 96$), and anesthesiologists, 17.7% ($n = 45$). The group of nurses included 65 surgical nurses (25.6%) and 48 anesthesia nurses (18.9%). The majority of the respondents were women ($n = 156$; 61.4%). The assessment was based on the proprietary questionnaire that contained questions about work satisfaction, sources of stress, and psychosocial burden.

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In the second stage, the number of participants was extended to 316 people working in operating theaters of the same university hospital. The study involved 104 surgeons (33%), 57 anesthesiologists (18%), 92 surgery nurses (29%), and 63 anesthesia nurses (20%). Among the surveyed doctors, 108 (67.1%) were men. All nurses were female. Considering age category, the biggest group was 36–50 years old – 160 respondents (50.6%). At the age of 20–35, there were eighty people (25.3%), whereas the least numerous group was people aged 50+ (24.1%). The analysis of marital status showed that 115 employees from the group of surgeons and anesthesiologists (71.4%) and 105 nurses (68.2%) were married.

In this stage, the standardized questionnaires: I-Meister's questionnaire^[5] and II-Maslach Burnout Inventory (MBI) were answered by respondents.^[6] Meister's questionnaire was used to assess work-related mental stress based on the subjective reaction to the burden. The results were evaluated according to Hladký key.^[7] Assessed factors were divided into the following categories: (1) mental overload including rush, responsibility, problems, and conflicts at work; (2) monotony – low job satisfaction, tedious work, and monotony; and (3) nonspecific load – nervousness, work overload, fatigue, and decreased productivity. The critical median values for each question were determined and assigned to mentioned factors. Degree of psychological burden related to performed work and the tendency to overload were assessed for all respondents. The severity of burnout syndrome was estimated using the second edition of the MBI questionnaire. It consists of 22 components rating the intensity of particular experiences in the respondents on a scale from 0 to 6. Specific questions built up categories: EE, DP, and the lack of PA. Burnout levels for each category were calculated by summing the results obtained for individual components. The high level of burnout was demonstrated by high scores on the scale of EE and DP as well as low scores on the scale of a reduced sense of PA. In addition, the received data were analyzed with reference to sociodemographic parameters: sex, age, and marital status.

The participation in the study was voluntary and completely anonymous. The bioethics committee of the medical university allowed to conduct the research. All actions followed the Helsinki Declaration.

Nonparametric methods were used in the statistical analysis. Sample distribution between groups was compared using the Mann–Whitney and Kruskal–Wallis tests. In the evaluation of relations between variables, the Pearson's Chi-square independence test was implemented. The value of 0.05 was assumed as the level of significance of statistical tests. The statistical analysis was performed in IBM Statistics 20.0 software (IBM, New York, United States).

RESULTS

Pilot stage

The majority of the surveyed pilot group (53.9%) had a negative opinion on the organizational structure of work. On the other

hand, relations with superiors (65.6%) and cooperation in a team (74.0%) were rated highly. Over 50% of the respondents expressed their satisfaction in the possibilities of professional development. The vast majority of the respondents (71.3%) were satisfied with their performance. The aspect rated very unfavorably was remuneration for work [Table 1]. The analysis of determinants of the workload and occupational effectiveness demonstrated that for 221 respondents (87%), the work turned out to be a factor strongly correlated with emotional burden [Table 2]. The maintenance of medical records was the most frequently chosen source of stress (68.2% “yes” and “rather yes” responses). On the other hand, relation with the patient and his/her family was considered less important (24.4% “yes” and “rather yes” responses). Responses considering other mentioned factors (nature of the job itself, scope of duties, and work conditions) were ambiguous.

Main research stage

Meister's questionnaire

The analysis of the psychological burden on operating theater staff based on the Meister's questionnaire showed that the highest burden in the work was related mainly to variables such as time pressure, high responsibility, or problems and conflicts. In the study group concerning both doctors and nurses, the median estimations of mental overload exceeded their critical values. In the case of the other factors – monotony and nonspecific factor, the critical values were not overstated. After summing up the median values according to the Meister's questionnaire, the whole examined group was qualified to the second degree of mental burden related to the performed work.

Analysis of burnout phases according to the Maslach Burnout Inventory questionnaire

Assessment of the level of occupational burnout based on the MBI questionnaire revealed that in the entire study group, there was a noticeably high level of EE (EE = 30.72) and sense of lack of PA (PA = 26.27). Feeling of DP was estimated as average (DP = 6.78).

The vast majority of the respondents showed a high degree of EE (58.9%) and only 12.0% declared low level. The analysis of the severity of professional burnout in the aspect of DP showed that 49.1% of the respondents had a low level of DP while almost ¼ of the surveyed group (23.7%) assessed it as high. 69.8% of the participants stated that they had no sense of PA. In addition, the correlation between burnout syndrome phases and sex, age, and marital status was analyzed [Tables 3-5].

DISCUSSION

The nature of the job and its intensity enhances the incidence of burnout syndrome in health-care employees. The Taiwanese study by Chou *et al.* showed that among the medical staff, nurses and surgeons are the most exposed to this disorder.^[8] Not only frequent contact with pain, death, and the need of decision-making but also the challenges of a teamwork often result in EE.

Table 1: Assessment of job satisfaction among health-care employees of selected operating theaters of the university hospital (n=254)

Work satisfaction	Yes		No	
	Definitely, n (%)	Rather, n (%)	Rather, n (%)	Definitely, n (%)
Work organization	15 (5.9)	102 (40.2)	93 (36.6)	44 (17.3)
Possibility of professional development	33 (13.0)	95 (37.4)	84 (33.1)	42 (16.5)
Contact with superiors	40 (15.8)	127 (49.8)	47 (18.6)	40 (15.8)
Team cooperation	63 (24.8)	125 (49.2)	52 (20.5)	14 (5.5)
Job satisfaction	55 (21.7)	126 (49.6)	45 (17.7)	28 (11.0)
Remuneration for work	4 (1.6)	38 (15.0)	57 (22.4)	155 (61.0)

Table 2: Psychosocial burdens in assessment of health-care employees of selected operating theaters of the university hospital (n=254)

Psychosocial burden	Yes		No	
	Definitely, n (%)	Rather, n (%)	Rather, n (%)	Definitely, n (%)
My work is appreciated by supervisors and colleagues	19 (7.5)	118 (46.5)	90 (35.4)	27 (10.6)
I'm motivated to work	13 (5.1)	57 (22.5)	125 (49.4)	58 (22.9)
My work is emotionally burdensome	135 (53.1)	86 (33.9)	31 (12.2)	2 (0.8)
My work requires physical effort	97 (38.2)	89 (35.1)	57 (22.4)	11 (4.3)
My work affects my private life	88 (34.6)	82 (32.3)	73 (28.7)	11 (4.3)

Table 3: Evaluation of dependence of burnout phases on sex according to Maslach Burnout Inventory questionnaire (n=316)

Feature	Sex	Mean	SD	Minimum	Median	Maximum	P
Exhaustion	Female	31.0	11.1	0	32	48	0.265
	Male	30.1	10.5	0	32	48	
DP	Female	5.7	5.5	0	5	23	0.001
	Male	8.8	6.7	0	10	23	
PA	Female	28.0	12.8	3	27	54	0.001
	Male	22.9	13.9	3	18.5	54	

SD: Standard deviation, DP: Depersonalization, PA: Personal achievement

Table 4: Evaluation of dependence of burnout phases on age according to Maslach Burnout Inventory questionnaire (n=316)

Feature	Age	Mean	SD	Minimum	Median	Maximum	P
Exhaustion	20-35	32.6	7.7	17	33	48	0.457
	36-50	30.1	11.5	0	32.5	48	
	>50	29.8	11.9	0	28	48	
DP	20-35	6.7	5.9	0	6	19	0.953
	36-50	6.7	6.3	0	5	23	
	>50	6.8	5.8	0	7.5	18	
PA	20-35	22.2	11.8	3	19	50	0.001
	36-50	26.2	13.1	3	25	54	
	>50	30.7	14.2	3	33	54	

SD: Standard deviation, DP: Depersonalization, PA: Personal achievement

It is extremely important to understand factors influencing professional satisfaction as they affect the quality of health care, patient satisfaction, and their attitude to offered therapies. Slightly over half of the respondents in our study (53.9%) expressed a negative opinion on the organization of work. These observations are consistent with the data presented by

Carpenter *et al.*^[9] The authors claim that the group of junior doctors (including residents) is a demanding group in terms of working conditions and personnel management. It was found that poor organizational structure and dissatisfaction with salaries were complementary factors interrelated with each other. Sociologists point, for example, medical employees from

Table 5: Evaluation of dependence of burnout phases on marital status according to Maslach Burnout Inventory questionnaire (n=316)

Feature	Marital status	Mean	SD	Minimum	Median	Maximum	P
Exhaustion	Single	32.5	9.5	11	33	48	0.100
	Married	29.9	11.3	0	32	48	
DP	Single	6.4	6.2	0	6	23	0.290
	Married	7	6.0	0	6	23	
PA	Single	23	12.8	3	19	49	0.005
	Married	27.7	13.5	3	27	54	

SD: Standard deviation, DP: Depersonalization, PA: Personal achievement

eastern European countries as a group in which money is a strong motivation.^[10] Looseley *et al.* showed a close correlation between the lack of financial satisfaction and the number of duties.^[11] Similar correlations were observed in our study. Interestingly, the pilot study also confirmed the conclusion of Domagała *et al.* that the excess of medical records was likely to induce the possibility of burnout syndrome.^[10] The evaluation of psychobiosocial factors determining the workload and professional effectiveness allowed to identify symptoms of lack of motivation to work in the majority of the respondents (72.3%). There was an interesting duality in the examined group, as 71.3% of them declared satisfaction with their professional work. Knupp *et al.* stated that excessive working hours, lack of sleep, and psychological burden (e.g., recent adverse effect of performed procedure) may cause a significant decrease in mental and physical ability.^[12] The majority of the participants indicated shift work as an unfavorable phenomenon affecting their private lives.

In our study, on the basis of the Meister's questionnaire, the median values of analyzed factors were significantly increased for the whole group only in the range of the overload. A study carried out in Hungary confirmed the connection between the psychological burden and the risk of occupational burnout syndrome.^[13] In the appraisal of particular stages of professional burnout, the whole group was characterized by high levels of EE and lack of PA. Our own research demonstrated that women tend to be more emotionally exhausted and lack a sense of PA. Men, on the other hand, presented a stronger DP phase. Similar results considering differences between genders have been provided by Abut *et al.* who evaluated a group of anesthesiologists.^[14] Dyrbye *et al.* in the big study on American surgeons described a higher level of EE among women.^[15] Thai study by Wisetborisut *et al.* revealed five-fold more frequent occurrence of burnout syndrome in female surgeons comparing with men.^[16] In the presented publications, it was stated that social role of women, who have to combine professional and family duties, had an impact on their results. Possible reasons of excessive burden among female surgeons include also unfriendly working environment. In the study conducted by Barnes *et al.*, sexism in the workplace was indicated as a burnout risk factor which affects women.^[17] This is probably an aspect which can be taken into consideration in our own research in the future. In addition, it was revealed that the level of EE decreased with the age of the respondents. In the

studies conducted on the groups of residents and specialists of orthopedics^[18] and rehabilitation,^[19] it has been noted that the highest values of EE concerned younger employees. Moreover, a significant statistical dependence was observed that with the age of the respondents, employees had a growing lack of sense of professional achievements. In our study, self-esteem level among employees aged 20–35 was estimated at 22.2 points while in the group of employees aged over 50–30.7. The results may suggest that young professionals are overburdened emotionally at the beginning of their work. This is probably due to the new challenges and responsibilities they are facing. Jackson *et al.* explained this dependence by the professional experience and obtained financial income growing with age and, on the other hand, the decreasing number of people supervising work.^[20] The obtained material revealed that married employees presented higher values of DP and lack of achievement at work than unmarried individuals. On the other hand, married employees demonstrated reduced EE. Some authors try to explain the high level of lack of PAs by the fact that there is a probable conflict between family and work, which results in disappointment of the employee and an increase in the feeling of nonfulfillment.^[21,22]

A comprehensive review article by West, Dyrbye, and Shanafelt shed light on the major impact of burnout occurrence in medical staff on whole health-care systems and patients' outcomes. It has been suggested that lack of job satisfaction among doctors and nurses results in personal problems, reduced productivity, and limited patient access to services. This leads to decreased care quality or even medical errors. It has been recommended to implement solutions improving work organization on each level, from single medical unit to nationwide programs.^[23]

Mentioned unfavorable circumstances may be observed, especially in COVID-19 pandemic, which challenged health-care systems all over the world. The significance of work organization and psychological support in health care is currently more visible than ever before.

CONCLUSION

Conclusions from our study provide information about factors which are leading to a development of burnout among health-care employees. One of the most challenging issues is remuneration of work. This struggle is definitely troublesome

to solve, especially in low- and middle-income countries with malfunctioning health-care systems. However, the attempts of improving working conditions may be focused on limiting bureaucracy, as maintenance of medical records has been indicated in the study as one of the most burdensome factors. State or hospital administration should consider preparing straightforward guidelines of maintaining medical documentation, so the efforts of doctors or nurses could be reduced in this aspect. Another significant struggle is the sense of lack of PA, especially prominent among women and younger employees. Possible solutions of this issue may include facilitation for female workers who take care of their children and household, for example, tax credit or involvement of their male partners in extra-professional activities. Furthermore, young doctors or nurses might benefit from tax credits or regular professional and psychological training focusing on avoiding symptoms on burnout. Systematic assessment of burnout among health-care employees must be considered a key issue in identification of the syndrome, making the reduction of its unfavorable effects possible.

The data obtained in the study clearly indicate that the identification of this syndrome is an undoubtedly difficult process, as diagnostic analysis should be conducted by specialists. It is particularly problematic when it concerns entire professional groups since health-care continuity at functional and structural level is mandatory. There is a need to identify the true motivators of the medical staff, both in the population of nurses and doctors in order to limit the effects of professional burnout syndrome.

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Conflicts of interest

There are no conflicts of interest.

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