

Analysis of potential factors conditioning burnout rates in Polish female physiotherapists and nurses

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Abstract

The aim of the study: Comparison of burnout rates and analysis of potential factors conditioning them in women representing selected medical professions.

Subject or material and methods: The research covered 343 women (165 physiotherapists and 178 nurses) aged 20-60 in working age, employed in randomly selected health care facilities in the Podkarpackie Voivodeship, Poland. The research tool of choice was a Maslach Burnout Inventory. The analysis was carried out using the Pearson Chi-square test, Mann Whitney U test and Spearman rank correlation.

Results: There were statistically significant intergroup differences in the values of rates: DP ($p < 0.001$) and OB ($p = 0.010$). Statistically significant associations of age with the EE rate (physiotherapist: $R = 0.41$; $p < 0.001$ and nurses: $R = 0.29$; $p < 0.001$) were noted for both groups. In physiotherapists, age also positively correlated with the DP rate ($R = 0.16$; $p = 0.035$). For both groups, there were statistically significant positive associations of work experience with the EE (physiotherapist: $R = 0.39$; $p < 0.001$ and nurses: $R = 0.30$; $p < 0.001$) and the OB (physiotherapist: $R = 0.27$; $p = 0.001$ and nurses: $R = 0.18$; $p = 0.019$) rates.

Discussion: Both physiotherapists and nurses have a syndrome of occupational burnout, and the intergroup differences shown may be due to the different characteristics of work.

Conclusions: Physiotherapists especially need support from employers in implementing measures aimed at cooperation with a psychologist, relaxation training and other ways of lowering stress, as well as exercising interpersonal skills, and resolving and preventing the aggravation of current difficulties, and, when necessary, modifying the scope of professional duties. Healthcare workers should observe their own well-being and pick up non-peaceful symptoms of burnout.

workplace stress; exhaustion; occupational burnout; self-efficacy; healthcare professionals

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INTRODUCTION

Professional burnout syndrome is defined in different ways, most often as mental or as emotional exhaustion resulting from prolonged intense stress and lack of satisfactory job results. It is a state that crystallizes slowly, and is associated with decrease of energy and motivation, and which consequently has an obstructive impact

on commitment to work, and a person's behavior [1-4]. Burnout syndrome is the result of the changes that occurs in the minds of people who overuse their own strength while offering themselves to others [5, 6].

The subjects who are most prone to burnout are usually those extremely devoted to professional or social life as well as focused on issues regarding the environment and perform actions closely connected to it. These individuals accept more and more responsibilities because of high ambition, and arising overload, following excessive stimulation. This is the cost incurred by them for their own goals [7-11].

Maslach [12] gave a definition of burnout as a syndrome including: emotional exhaustion, depersonalization and underestimating of own professional accomplishments. Emotional exhaustion concerns the sense of emotional overloading and low energy resources resulting from professional contacts with others. It is characterized by pessimism, discouragement, a feeling of frustration and constant stress, loss of activity, reduced range of interests and mood swings from anxiety to irritability. In turn, depersonalization involves negative, indifferent, and even objective, cynical and contemptuous treatment of other people. Reducing professional satisfaction, on the other hand, consists in the emotional reaction of unpleasantness, dissatisfaction and unfulfillment experienced in connection with performing specific tasks and functions.

Employees representing the medical services sector are particularly vulnerable to burnout, mainly due to working under time pressure, responsibility, in close contact with other people, requiring involvement in interpersonal relationships and providing help to others. These include i.e. the professions of physiotherapist and nurse. Work in the aforementioned professions requires a great deal of activity and dedication, and causes physical fatigue, which can intensify the propensity to emotional exhaustion. Physiotherapy and the care of chronically ill patients, can be a predisposing factor for a significant stress burden resulting both from the professional role itself, which requires close, direct, highly involved

contact with human suffering, and can also be associated with difficulties in achieving therapeutic success [13-17]. Professional burnout is a multifaceted issue that requires research, and the identification of risk factors can be an important step in creating effective prevention programs.

The study aim was comparison of burnout rates and analysis of potential factors conditioning them in women representing selected medical professions.

RESEARCH QUESTIONS:

1. Do the values of individual indicators of professional burnout differentiate between women representing the profession of physiotherapists and nurses?
2. What are the associations of age, length of service and frequency of participation in training and refresher courses with the values of indicators of professional burnout in women representing the profession of physiotherapist and nurse?
3. Do participation in postgraduate education, time for rest after work and physical activity constitute differentiating factors among the studied groups of women?

MATERIAL AND METHODS

The cross-sectional study covered 343 women aged 20-60 ($\bar{x} = 40.48 \pm 11.06$ years), including 165 physiotherapists (average age: $\bar{x} = 39.87 \pm 11.32$ years), and 178 nurses (average age: $\bar{x} = 41.05 \pm 10.78$ years), employed in randomly selected health care facilities in the Podkarpackie Voivodeship, Poland. The following inclusion criteria were applied: female sex, age between 20 and 60, qualifications to practice as a physiotherapist or nurse, work as a physiotherapist or nurse, written informed consent to participate in the study. Women affected by physical or mental illness were considered ineligible. Table 1 presents characteristics of the study subjects.

Table 1. Characteristics of study population

Variable	Physiotherapists	Nurses	Statistics
Age, n (%)			
20-29 years	48 (28.0)	44 (25.0)	$\chi^2(3)=1.56$ $p=0.668$
30-39 years	36 (22.0)	36 (20.0)	
40-49 years	3 (23.0)	41 (23.0)	
50-60 years	44 (27.0)	57 (32.0)	
Work experience, n (%)			
Less than 10 years	59 (36.0)	61 (34.0)	$\chi^2(2)=0.27$ $p=0.873$
10-20 years	54 (33.0)	63 (36.0)	
Over 20 years	52 (31.0)	54 (30.0)	
Workplace, n (%)			
Hospital	26 (16.0)	121 (68.0)	$\chi^2(5)=128.72$ $p<0.001^*$
Clinic	36 (22.0)	37 (21.0)	
Spa	45 (27.0)	20 (11.0)	
Revalidation-educational center	22 (13.0)	0 (0.0)	
Residential medical care facility	28 (17.0)	0 (0.0)	
Non public office	8 (5.0)	0 (0.0)	
Participating in postgraduate education, n (%)			
Yes	87 (53.0)	147 (83.0)	$\chi^2(1)=35.21$ $p<0.001^*$
No	78 (47.0)	31 (17.0)	
Frequency of participation in postgraduate education, n (%)			
Once every 5 years	11 (12.0)	5 (3.0)	$\chi^2(5)=12.73$ $p=0.026^*$
Once every 3 years	4 (5.0)	8 (5.0)	
Once every 2 years	4 (5.0)	19 (13.0)	
1 time a year	44 (51.0)	69 (47.0)	
2 times a year	24 (27.0)	43 (29.0)	
3 times a year	0 (0.0)	3 (2.0)	
Relaxing less than 11 hours a day, n (%)			
Yes	63 (38.0)	83 (47.0)	$\chi^2(1)=2.50$ $p=0.114$
No	102 (62.0)	95 (53.0)	
Taking physical activity, n (%)			
Yes	122 (74.0)	124 (70.0)	$\chi^2(1)=0.77$ $p=0.379$
No	43 (26.0)	54 (30.0)	

n – number of subjects; % – percent of subjects; χ^2 – Pearson Chi-square test

* $p<0.05$

The direct probing method was used for research. The investigative tool of choice was a Maslach Burnout Inventory (MBI) adapted into the Polish language by Pasikowski [18]. The questionnaire is comprised 3 subscales including 9 items regarding emotional exhaustion

(EE), 5 items relating to depersonalization (DP), and 8 items relating to professional accomplishment (PA) [12].

Higher levels of burnout were positively associated with higher scores on EE and DP, and with lower scores on PA [12].

We also calculated overall burnout ratio (OB), which was the arithmetic mean of the ratios of all individual dimensions [12].

The Cronbach's alpha value for the EE indicator is 0.91, for the DP indicator 0.81, for the PA indicator 0.84, and for OB 0.93 [19].

An invitation to participate in the research was sent to physiotherapists and nurses aged 20-60. A self-administered questionnaire was distributed among these medical staff. The respondents completed the questionnaires using the Pen-and-Paper Personal Interview method (PAPI), where the dataset is collected using pen and paper. All participants were given detailed instructions on how to complete the questionnaire and returned it immediately after answering all questions.

The research was carried out after obtaining consent of the managerial staff of individual institutions, and the Bioethics Review Committee, University of Rzeszow (Resolution No. 4/01/2020), in accordance with the assumptions of the Declaration of Helsinki. The research was anonymous, and was conducted in institutions which agreed to participate. Each participant was advised of the study aim, key principles, their right to opt out of the study protocol at every stage, and gave written informed consent.

Consistency of variables with normal distribution was verified by means of the Shapiro-Wilk test. The Pearson Chi-square test was used to assess the relationship between demographics and a specific study group (physiotherapists or nurses). The intergroup comparison of burnout indicator values was performed using the Mann-Whitney U test. Spearman's rank correlation was used to assess the relationship between age, length of service and frequency of participation in postgraduate education with burnout indicators. The results were considered statistically significant, if the probability level of the test was lower than the predetermined significance level $p < 0.05$. Statistical analysis was performed by Statistica application, version 13.1 PL (StatSoft Inc., Tulsa, OK, USA; StatSoft, Krakow, Poland).

RESULTS

The data in Table 2 indicate the presence of statistically significant intergroup differences in the values of rates: DP ($p < 0.001$) and OB ($p = 0.010$). The values of the mentioned rates were higher for female physiotherapist.

Table 2. Intergroup comparison of burnout indicator values

Group	$\bar{X} \pm SD$	Max-Min	Q ₂₅	Me	Q ₇₅	Z	p
EE [%]							
Physiotherapists	41.62±30.42	100.00-0.00	11.11	33.33	66.67	1.66	0.096
Nurses	36.20±29.79	100.00-0.00	11.11	33.33	55.56		
DP [%]							
Physiotherapists	41.21±34.12	100.00-0.00	20.00	40.00	60.00	4.67	<0.001*
Nurses	24.27±25.77	100.00-0.00	0.00	20.00	40.00		
PA [%]							
Physiotherapists	68.79±30.03	100.00-0.00	50.00	83.33	100.00	0.52	0.601
Nurses	68.82±26.10	100.00-0.00	50.00	66.67	83.33		
OB [%]							
Physiotherapists	38.01±24.80	100.00-0.00	17.04	35.56	57.04	2.58	0.010*
Nurses	30.55±20.06	96.30-0.00	14.81	27.04	44.07		

\bar{X} – arithmetic mean value; SD – standard deviation; Max – maximum value; Min – minimum value; Q₂₅ – lower quartile; Me – median; Q₇₅ – upper quartile; Z – value of the Mann Whitney U test statistic; p – probability value

* $p < 0.05$

The data in Table 3 indicate a statistically significant positive associations of age with the EE rate (physiotherapist: $R=0.41$; $p<0.001$ and nurses: $R=0.29$; $p<0.001$) were noted for both groups. In the group of female physiotherapists, age also positively correlated with the DP rate ($R=0.16$; $p=0.035$).

For both groups, there were statistically significant positive associations of work experience with the EE (physiotherapist: $R=0.39$; $p<0.001$ and nurses: $R=0.30$; $p<0.001$) and the OB (physiotherapist: $R=0.27$; $p=0.001$ and nurses: $R=0.18$; $p=0.019$) rates. In addition, in female physiotherapists, seniority negatively correlated with the PA rate: $R=-0.16$; $p=0.039$ (Table 3).

Table 3. Associations of age, work experience, and frequency of participation in postgraduate education with the z with the values of burnout indicators

Variable		Physiotherapists		Nurses	
		R	p	R	p
Age	EE	0.41	<0.001*	0.29	<0.001*
	DP	0.16	0.035*	0.06	0.404
	PA	-0.08	0.317	0.01	0.918
	OB	0.27	<0.001*	0.16	0.033*
Work experience	EE	0.39	<0.001*	0.30	<0.001*
	DP	0.12	0.137	0.07	0.358
	PA	-0.16	0.039*	-0.01	0.923
	OB	0.27	0.001*	0.18	0.019*
Frequency of participation in postgraduate education	EE	0.01	0.956	-0.12	0.150
	DP	-0.14	0.210	0.00	0.964
	PA	0.05	0.677	0.07	0.401
	OB	-0.05	0.615	-0.10	0.223

R – Spearman's rank correlation coefficient; p – probability value

* $p<0.05$

Table 4 shows that physiotherapists, providing themselves with an adequate amount of time for rest after work compared to the other subjects in this group obtained lower values of the EE ($p<0.001$), DP ($p<0.001$) and OB ($p<0.001$) rates. Similarly, nurses providing themselves with an adequate amount of time to rest after work compared to the other subjects in this group obtained lower values of the EE rate ($p=0.006$) and the OB rate ($p=0.003$).

Physiotherapists who were physically active, compared to the other subjects in this group, obtained a lower values of the EE ($p=0.001$), DP ($p<0.001$) rates, and a higher values of the PA rate ($p=0.023$), as well as a lower values of the OB rate ($p<0.001$). Similarly, nurses, physically active compared to the other subjects in this group obtained a lower values of the EE ($p=0.021$), DP ($p=0.003$) rates, and higher values of the PA rate ($p=0.023$), as well as a lower values of the OB rate: $p=0.005$ (Table 4).

Table 4. Comparison of job burnout indices values, obtained in groups depending on the participating in postgraduate education, number of hours devoted to rest after work, and non-professional physical activity

Indicator	$\bar{X} \pm SD$	Max-Min	Me	$\bar{X} \pm SD$	Max-Min	Me	Z	p
	Participating in postgraduate education			Not participating in postgraduate education				
Physiotherapists								
EE	39.59±27.62	88.89-0.00	33.33	37.41±30.25	100.00-0.00	33.33	-0.69	0.493
DP	39.54±31.99	100.00-0.00	20.00	23.40±25.03	100.00-0.00	20.00	-0.37	0.709
PA	72.99±26.93	100.00-0.00	83.33	68.48±26.76	100.00-0.00	66.67	1.54	0.124
OB	35.38±23.73	89.63-0.00	29.63	30.78±20.16	96.30-0.00	27.04	-1.28	0.202
Nurses								
EE	43.87±33.30	100.00-0.00	44.44	30.47±27.21	100.00-0.00	22.22	1.06	0.289
DP	43.08±36.48	100.00-0.00	40.00	28.39±29.11	100.00-0.00	20.00	-0.91	0.363
PA	64.10±32.69	100.00-0.00	66.67	70.43±23.06	100.00-16.67	66.67	-0.19	0.852
OB	40.95±25.76	100.00-0.00	38.70	29.47±19.85	88.89-0.00	25.93	0.26	0.796
Relaxing more than 11 hours a day			Relaxing less than 11 hours a day					
Physiotherapists								
EE	30.34±25.88	100.00-0.00	22.22	48.58±31.03	100.00-0.00	55.56	-3.65	<0.001*
DP	28.25±26.31	100.00-0.00	20.00	49.22±36.01	100.00-0.00	60.00	-3.53	<0.001*
PA	73.02±28.31	100.00-0.00	83.33	66.18±30.89	100.00-0.00	66.67	1.33	0.182
OB	28.52±17.39	66.30-0.00	25.19	43.87±26.87	100.00-0.00	42.22	-3.54	<0.001*
Nurses								
EE	30.12±29.01	100.00-0.00	22.22	41.52±29.58	100.00-0.00	33.33	-2.77	0.006*
DP	20.24±23.48	100.00-0.00	20.00	27.79±27.26	100.00-0.00	20.00	-1.76	0.078
PA	72.69±25.18	100.00-0.00	66.67	65.44±26.55	100.00-0.00	66.67	1.86	0.063
OB	25.89±18.68	88.89-0.00	25.19	34.62±20.42	96.30-3.70	31.48	-2.96	0.003*
Physically active			Physically inactive					
Physiotherapists								
EE	36.61±28.98	100.00-0.00	33.33	55.81±30.23	100.00-0.00	66.67	-3.48	0.001*
DP	34.10±28.94	100.00-0.00	20.00	61.40±39.62	100.00-0.00	80.00	-3.87	<0.001*
PA	71.86±29.39	100.00-0.00	83.33	60.08±30.46	100.00-0.00	66.67	2.28	0.023*
OB	32.95±22.44	96.30-0.00	28.70	52.38±25.77	100.00-3.70	57.41	-4.29	<0.001*
Nurses								
EE	32.62±28.36	100.00-0.00	22.22	44.44±31.57	100.00-0.00	38.89	2.30	0.021*
DP	20.16±22.88	80.00-0.00	20.00	33.70±29.54	100.00-0.00	20.00	2.94	0.003*
PA	71.64±25.77	100.00-0.00	66.67	62.35±25.94	100.00-0.00	66.67	-2.27	0.023*
OB	27.05±17.02	71.85-0.00	25.19	38.60±24.01	96.30-3.70	33.52	2.81	0.005*

\bar{X} – arithmetic mean value; SD – standard deviation; Max – maximum value; Min – minimum value; Q25 – lower quartile; Me – median; Q75 – upper quartile; Z – value of the Mann Whitney U test statistic; p – probability value

*p<0.05

DISCUSSION

Our study showed that physiotherapists, compared to nurses, had higher depersonalization rate values, the symptom of which is an instrumental and impersonal approach to patients and a loss of concern for their welfare. This suggests that the sphere of contact with patients should become an area of special interest in programs to counteract professional burnout among physiotherapists. In addition, higher values of the overall rate of professional burnout were recorded in the group of female physiotherapists than in nurses. The literature lacks comparative studies of job burnout in representatives of these professional groups. Among few are the results of Li Calzi et al. [20] which indicate that Italian physiotherapists were more likely to experience professional burnout compared to nurses. Kowalska [21], on the other hand, concludes that the rate of emotional exhaustion is higher in physiotherapists who provide kinesiotherapy services, compared to those who perform massage and physical therapy.

A separate issue is the effect of age and seniority on job burnout. Szaton and Harazin [22] considered this problem jointly in various medical professionals. They concluded that these variables are determinants of occupational burnout. Nurses, physicians, and paramedics employed in emergency stations showed symptoms of professional burnout reaching medium levels for emotional exhaustion and sense of self-doubts, and high levels for depersonalization. Interesting data were obtained by França et al. [23] at hospitals in Cáceres/Spain, noting a 15% incidence of burnout in nurses who had worked less than a year. Those declaring job tenure of no more than 5 years were most affected by burnout. Hai-Ying and Chun-Mei [24] at hospitals in Shandong/China, observed that nurses under 30 years of age were characterized by higher values of the emotional exhaustion and depersonalization rate, as well as lower values of the job satisfaction rate. The authors claim that this is due to the fact that younger female workers take on more professional responsibilities and are heavily burdened by family situations. This is because most women in this age band decide to have offspring and start the social role of a parent. In addition, respondents with work experience

in the range of 5 to 10 years were characterized by higher values of the index of emotional exhaustion and depersonalization, which may stem from the fact that being at the initial stage of their careers, when their skills are not yet fully developed, they focus too much on the quality of care. On the other hand, Kupcewicz and Szczypiński [25], as a result of a study in the Polish population, found that age is not a determinant of nurses' professional burnout, and that the values of the emotional exhaustion rate increase with increasing seniority. Śliwinski et al. [26] also analyzed the factors influencing the evolution of professional burnout in 200 active physiotherapists from Poland. In the group with seniority in the range of 5 to 15 years, professional burnout was not recorded, which may be due to job satisfaction. On the other hand, the tendency to professional burnout intensified in respondents declaring at least 15 years of seniority. Our study found that regardless of occupation, emotional exhaustion rate values increased with age. In addition, in the group of female physiotherapists, age increased the values of the depersonalization rate. In both groups, the values of the emotional exhaustion rate and the overall occupational burnout rate increased with increasing seniority, and in the case of female physiotherapists, the values of the professional accomplishment rate decreased with increasing seniority. These results confirm a previous study by Puszczalowska-Lizis et al. [7] among physiotherapists from the Subcarpathian region in Poland where age and seniority had an impact on the development of professional burnout, and the most susceptible were those between 35 and 40 years of age, including those with more than 10 years of work experience. In their case, emotional exhaustion clearly increased and the value of the overall rate of professional burnout decreased. Therefore, it is worth noting the need for physiotherapists and nurses to create support groups aimed at helping them deal with emotional problems.

Our study showed that the frequency of participation in postgraduate education, although it was higher for nurses, was not related to indices of professional burnout, as well as did not differentiate the values of these rates in the studied groups. This is puzzling, since it is widely believed that up-skilling, which is inherent in

the health professions, is associated with the possibility of promotion, expansion of competence and increase of professional prestige, and thus should have an impact on the sense of professional satisfaction. An interesting conclusion was reached by Hai-Ying and Chun-Mei [24], who showed that the pressure for promotion and the associated professional improvement can influence the development of professional burnout. On the other hand, commuting to courses and training can provide an excuse for absence at work and avoidance of work activities.

Many authors believe that chronic fatigue is a symptom of the development of burnout. Kowalska's [21] research indicates that mental exhaustion is more likely in people who take on additional work. This does not allow for full recovery and rest, and an overstressed body is more prone to stress and depression. Under the Labor Code [27], the worker shall have at least 11 hours of uninterrupted rest every day between the end of the work and its commencement. This means that a person employed in the basic working system can work up to 13 hours per day [27]. In our material, female physiotherapists and nurses who rested more than 11 hours a day were characterized by lower values of the emotional exhaustion, depersonalization and overall burnout indices. In addition, female physiotherapists in this group had a lower depersonalization index. In contrast, an earlier study by Puszczalowska-Lizis et al. [7] found that most of the respondents allocated less than 11 hours a day for rest after work, but this did not affect the level of occupational burnout.

In our study, physiotherapists and nurses who were physically active had lower emotional exhaustion, depersonalization and overall job burnout scores, and higher professional accomplishment scores. Also, Puszczalowska-Lizis et al. [7] found in a previous study that physiotherapists who do not engage in extra-professional physical activity are at higher risk of burnout. Therefore, taking care of proper psycho-physical condition should be based on maximizing the use of leisure time for active leisure. This is supported by the results of an international, e-cohort study by Henwood et al. [28] among 2264 nurses from Australia and New Zealand. The authors found a beneficial effect

of physical activity on nurses' well-being. They also found that physical activity in the workplace was not sufficient for health maintenance, in contrast to physical activity outside of work. Meanwhile, a study by Peplowska et al. [29] found that nurses doing rotating night work, which involves increased physical activity at work, are deficient in leisure-time physical activity. Therefore, the authors point to the need to introduce concepts that implement gymnastics in night shift workers.

In summary, it can be concluded that the issues raised at this work should be considered as valuable. As our study population was homogenous in terms of age and sex, our research findings might matter for their peers the world over and therefore hold an appreciable application potential in overall prevention policies. The authors believe that in that sense their findings may offer a certain application potential in rethinking public health policies, as presently in place.

CONCLUSIONS

Both physiotherapists and nurses have a syndrome of occupational burnout, and the intergroup differences shown may be due to the different characteristics of work. Since occupational burnout increases with age and seniority, it is important to quickly identify its signs and initiate measures to counteract its occurrence. Therefore, healthcare workers should observe their own well-being and pick up non-peaceful symptoms that may resemble those of depression as soon as possible. In counteracting burnout, it is particularly important to rest after work and engage in physical activity outside of work. Our study has shown that female physiotherapists, compared to nurses, have higher depersonalization index values. This indicates the need for assistance from employers in implementing measures aimed at cooperation with a psychologist, relaxation training and other ways of lowering stress, as well as exercising interpersonal skills, and resolving and preventing the aggravation of current difficulties, and, when necessary, modifying the scope of professional duties.

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