YOĞUN BAKIM ÜNİTESİ ÇALIŞANLARI ARASINDA TÜKENMİŞLİK SENDROMU İLE İLİŞKİLİ FAKTÖRLER

Factors Associated with Burnout Syndrome Among Intensive Care Unit Professionals

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ÖZET

Amaç: Tükenmişlik sendromu (BS), yaygın olarak insanların yüz yüze çalıştığı mesleklerde bireylerin, duygusal yönden kendilerini tükenmiş hissetmeleri, işleri gereği karşılaştıkları insanlara karşı duyarsızlaşmaları ve kişisel başarı duygularında azalma şeklinde görülen bir sendromdur. Tükenmişlik sendromu; duygusal tükenme (EE), duyarsızlaşma (DEP) ve azalmış kişisel başarı (PA) ile karakterizedir. Maslach Tükenmişlik Envanteri (MBI) bu üç boyutu ayrı ayrı belirlemek için 22 sorudan oluşan bir ankettir. Bu çalışmada amacımız yoğun bakım ünitesinde (YBÜ) çalışanların BS prevelansını ve risk faktörlerini MBI kullanarak değerlendirmektir.
Materyal ve Metod: YBÜ personeline; demografik verileri, çalışma yıllarını, YBÜ düzeyini ve mesleğini ve MBI'yi içeren bir anket uygulanmıştır. Çalışmaya toplam 115 çalışan katıldı.
Bulgular: Yüz on beş katılımcının MBI sonuçları değerlendirildiğinde, %68,7'sinin yüksek MBI-EE seviyesine sahip olduğu, %62,6'sının yüksek MBI-PA'ya ve %38,3'ünün orta düzeyde MBI-DEP'ye sahip olduğu belirlendi. Alt gruplarda erkek cinsiyete sahip olanlar değerlendirildiğinde; PA bayanlarda daha fazla idi ($p<0.001$). Seviye 2 YBÜ'de çalışanlarda DEP seviye 3'e göre daha fazla ($p=0.029$) PA daha az idi ($p=0.010$). Hemşirelerde PA doktorlara göre daha fazla iken ($p=0.011$) DEP doktorlara göre daha az idi ($p<0.001$).
Sonuç: Seviye 2 yoğun bakım ünitesinde çalışan kırk yaş üstü personellerin ve deneyimli çalışanların tükenmişlik sendromu riski daha fazladır. Doktorların tükenmişlik düzeyleri hemşirelerden daha fazlaydı.

Anahtar Kelimeler; *Tükenmişlik sendromu; Yoğun bakım ünitesi; Maslach tükenmişlik envanteri*

ABSTRACT

Objective: Burnout syndrome (BS) is commonly seen in the occupations where people work face-to-face, as individuals feel emotionally exhausted, desensitization towards the people they meet due to their jobs and decrease in their feelings of personal accomplishment. Burnout syndrome is characterized by emotional exhaustion (EE), depersonalization (DEP) and reduced personal accomplishment (PA). Maslach Burnout Inventory (MBI) is a questionairre based on 22 questions to determine these three dimensions, seperately. In this study, our aim was to evaluate the prevelance and risk factors of BS in intensive care unit (ICU) employees by using MBI.
Material and Methods: A survey involving demographical data, working years, level of ICU and profession, and MBI was applied to the ICU personnel. A total of 115 employees attended to the study.
Results: When MBI results of 115 participants were evaluated, it was determined that 68.7% had high level of MBI-EE, 62.6% had high level of MBI-PAand 38.3% had moderate level of MBI-DEP. PA was higher in women ($p<0.001$). Patients in level 2 ICU had more PA than DEP level 3 ($p=0.029$) and less PA ($p=0.010$). In nurses, PA was higher than physicians ($p=0.011$) and DEP was less than physicians ($p<0.001$).
Conclusion: Persons over forty years and experienced professionals working in level 2 ICU are under risk of BS. Physicians were determined to be under more risk of BS when compared to nurses.

Keywords: *Burnout syndrome; Intensive care unit; Maslach burnout inventory*

INTRODUCTION

The term "burnout" was first used in 1974 by Freudenberger in his study called "Staff burnout". Shortly after that, in 1976, burnout syndrome was defined by Maslach and Jackson as a three dimensional syndrome characterized by exhaustion, cynicism and inefficacy, i.e. the opposite to engagement, described as energy, involvement and efficacy (1). Burnout has been described by Maslach et al. as a psychological syndrome arising in response to chronic interpersonal stressors on the job (2). Burnout describes a condition of fatigue, detachment and cynicism resulting from prolonged high levels of stress (3). The probable clinical impacts of BS are reported to be decreased well-being (insomnia, irritability, eating problems, and depressive problems) and increased sickleave among staff (4).

Maslach et al. also developed a survey -Maslach Burnout Inventory (MBI)- consisting of 22 questions with 5 options for each question in order to determine BS (5). The objective of the MBI is to measure the professionals' physical and emotional exhaustion by assessing their feelings towards their own work (6).
In the critical care setting, burnout rates may be driven by high workload, frequent changes in technology and guidelines, efforts for high-quality care and emotional challenges of dealing with critically ill patients and their relatives (7). Doctors and nurses who work in intensive care units (ICU) are thought to have higher levels of burnout because of their stressful work demands (8). The presence of burnout is a serious phenomenon, because it can lead to psychosomatic complaints, work-associated withdrawal behaviour, and a lower quality of care at ICUs (9).

Burnout is a dynamic process that can be influenced by working conditions, geographical region, hospital characteristics and health policies. Although this issue has been studied many times before, burnout levels in healthcare workers are affected by many factors. We hypothesized that considering these multifaceted factors in healthcare workers, we think that burnout syndrome will be high. In this study, we aimed to determine the burnout levels and factors contributing to BS in ICU personnel by using MBI.

MATERIALS AND METHODS

After ethical approval from a Hitit University Ethics Comitee (Number; 2018-124), surveys involving demographical data, working years, level of ICU and profession, and MBI were sent to 115 employees in the ICU of Hitit University School of Medicine. All the employees decided to participate in the study and signed the Informed Consent. The survey included demographic data and MBI scoring test (22-item questionnaire) identified by the three main components associated with burnout: emotional exhaustion (MBI-EE, nine items), personal accomplishment (MBI-PA, eight items) and depersonalization (MBI-DEP, five items). Each item was assessed as high, moderate and low. In our country, the Turkish adaptation was made by Ergin et al (10). The cut-offs used for high, moderate and low levels for each subgroups were as follows: MBI-EE; low, ≤16; moderate, 17-26; high, 27≥; MBI-PA; low, 37≤; moderate, 31-36, high 30≥; MBI-DEP; low, 8≥; moderate, 9-13; high, 14≤. It is known that high levels of MBI-EE and MBI-DEP and a low level of MBI-PA indicates burnout. The survey was filled by a total of 115 employees (physicians and nurses) in the ICU setting in a private room in order to maintain privacy. The inclusion criteria was to be a nurse or a physician working in an intensive care unit during the study period. Those who were on medical leave, maternity leave and on vacation, or if they declined to participate in the study were excluded. Results of MBIs were compared with gender, age, working year, level of ICU and professions.

Statistical Analysis

The statistical analysis of data was performed by IBM Statistical Package for the Social Sciences (SPSS 22.0, licence: Hitit University). The descriptive data were given as frequency, percentage, mean, standart deviation, median and minimum-maxiumum (min-max). Chi-square, and Fisher exact tests were used used for ratio comparisons of categorical variables. For evaluation of normal distribution, Kolmogorov-Smirnow tests were used. The relationship between MBI scale scores and age and working years in ICU was evaluated with Spearman correlation coefficient. P value<0.05 was considered statistically significant. Power analysis was performed by G-Power 3.1.9.2

Package Programme for Statistics. For n=115, α=0,05, EffectSize ρ=0,3; Power was determined to be (1-β)=0,92.

RESULTS

A total of 115 employees [20 physicians (17.4%) and 95 nurses (82.6%)] participated into the study, voluntarily. Of the 20 physicians, 8 (40%) were male and 12 (60%) were female. Of the 95 nurses, 39 (41%) were male and 56 (59%) were female. General characteristics of the personnel is summarized in Table 1.

When MBI results of the participants were evaluated, it was determined that 68.7% had high level of MBI-EE (mean: 30.1±8,0), 62.6% had high level of MBI-PA (mean:29.3±5.3) and 38.3% had moderate level of MBI-DEP (mean: 11.1±4.7). Results for MBI are summarized in Table 2.

When the survey results were compared according to gender; MBI-EE and MBI-DEP levels were not significantly different among genders (p=0.420, p=0.080).

Table 1. Characteristics of the participants

			Mean ± SD	**Median (Min-Max)**
Age			32.3 ± 7.6	32 (18-50)
Professional Experience (Year)			10.4 ± 7.1	9 (1-33)
Years in ICU			6.6 ± 5.9	5 (1-33)
			n	%
Age Groups		<30 Years	48	41.7
		30-39 Years	42	36.5
		≥40 Years	25	21.8
Gender	Physician	Female	6	30
		Male	14	70
	Nurse	Female	62	65.3
		Male	33	34.7
Level		Level 3 ICU	64	55.7
		Level 2 ICU	51	44.3
Experience Groups		<5 Years	25	21.7
		5-9 Years	34	29.6
		10-14 Years	23	20
		15-19 Years	20	17.4
		≥ 20 Years	13	11.3
Year Groups in ICU		<10 Years	90	78.3
		10-19 Years	19	16.5
		≥20 Years	6	5.2
Profession		Nurse	95	82.6
		Physician	20	17.4

ICU: Intensive Care Unit

Table 2. Results of MBI of all participants

		n	%	n	%	n	%	n	%	n	%
Emotional Exhaustion	1- I feel emotionally drained from my work	12	10.4	13	11.3	50	43.5	32	27.8	8	7.0
	2- I feel used up at the end of the work day	1	0.9	6	5.2	24	20.9	55	47.8	29	25.2
	3- I feel fatigued when I get up in the morning and have to face another day on the job	2	1.7	15	13.0	35	30.4	46	40.0	17	14.8
	4- Working with people all day is really a strain for me	10	8.7	21	18.3	39	33.9	31	27.0	14	12.2
	5- I feel I treat some recipients as if they were impersonal object.	28	24.3	31	26.9	27	23.4	16	13.9	13	11.3
	6- I feel frustrated by my job	14	12.2	25	21.7	32	27.8	26	22.6	18	15.7
	7- I feel I'm working too hard on my job	5	4.3	7	6.1	18	15.7	40	34.8	45	39.1
	8- Working with people directly puts too much stress on me	17	14.8	30	26.1	25	21.7	25	21.7	18	15.7
	9- I feel like I'm at the end of my rope	16	13.9	25	21.7	33	28.7	21	18.3	20	17.4
Personal Accomplishment	1- I can easily understand how my recipients feel about things	1	0.9	5	4.3	16	13.9	66	57.4	27	23.5
	2- I deal very effectively with the problems of my recipients	0	0.0	5	4.3	9	7.8	61	53.0	40	34.8
	3- I feel I'm positively influencing other people's lives through my work	0	0.0	4	3.5	20	17.4	56	48.7	35	30.4
	4- I feelvery energetic	6	5.2	21	18.3	50	43.5	22	19.1	16	13.9
	5- I can easily create a relaxed atmosphere with my recipients	6	5.2	16	13.9	42	36.5	37	32.2	14	12.2
	6- I feel exhilarated after working closely with my recipients	3	2.6	22	19.1	31	27.0	41	35.7	18	15.7
	7- I have accomplished many worthwhile things in my work	2	1.7	21	18.3	42	36.5	38	33	12	10.4
	8- In my work, I deal with emotional problems very calmly	3	2.6	17	14.8	32	27.8	37	32.2	26	22.6
Depersonalization	1- I feel I treat some recipients as if they were impersonal 'objects'	50	43.5	29	25.2	21	18.3	12	10.4	3	2.6
	2- I've become more callous to ward people since I took this job	35	30.4	38	33.0	19	16.5	18	15.7	5	4.3
	3- I worry that this job is hardening me emotionally	16	13.9	30	26.1	30	26.1	29	25.2	10	8.7
	4- I don'treally care what happens to some recipients	79	68.7	13	11.3	7	6.1	10	8.7	6	5.2
	5- I feel recipients blame me for some of their problems	39	33.9	44	38.3	15	13.0	10	8.7	7	6.1
	MBI: Maslach Burnout Inventory										

However, MBI-PA levels were significantly higher in males (p<0.001). When subgroups were compared as low, moderate and high, a greater frequency of high level of MBI-PA was obtained in females when compared to males.

When groups were compared according to age groups, it was determined that MBI-EE, MBI-PA and MBI-DEP levels were not significantly different among groups (p=0.399, p=0.923, p=0.085, respectively).

When wards were compared; MBI-PA levels were higher in personel working in level 3 ICU when compare to those working in level 2 ICU (p=0.010). MBI-DEP levels were higher in personel working in level 2 ICU when compare to those working in level 3 ICU (p=0.029). MBI-EE levels were not significantly different among ICU groups (p=0.060).

When groups were compared according to working years groups, it was determined that MBI-EE, MBI-PA and MBI-DEP levels were not significantly different among groups (p=0.296, p=0.374, p=0.077, respectively).

When professions were compared, MBI-PA levels were found to be higher in nurses when compared to physicians (p=0.011). MBI-DEP levels also were found to be higher in physicians when compared to nurses (p<0.001). MBI-EE levels were not significantly different among profession (p=0.086). Comparison of characteristics of participants according to subgroups of MBI is summarized in Table 3.

According to the results of correlation analysis between age, working years in ICU and MBI-EE, MBI-DEP and MBI-PA, only statistically significant correlation was found between age, working years in ICU and MBI-EE scale scores (r=0.392, p<0.001; r=0.292, p=0.042, respectively).

DISCUSSION

According to the results of our study, higher risk for MBI-PA was associated with female gender, working in level 3 ICU, and being a nurse. In addition higher risk for MBI-DEP was associated with working in level 2 ICU, and being a physicians. Our results are in contradiction with numerous previous studies. Intensivists are known to be at a higher risk of BS (11). In a study by 91 nurses in ICU, burnout was presented by 14.29% of the nurses and 10.98% had symptoms of depression. The higher the level of MBI-EE and MBI-DEP, and the lower MBI-PA were significantly correlated with the depressive symptoms. Additionally, MBI-EE, the nucleus of burnout, showed a stronger correlation with depressive symptoms (12). In our study, when all participants were considered, the highest frequency was obtained in MBI-EE which means that ICU personnel in our hospital are under a high risk for depression and related disorders. Our findings are in contradiction with the results of the study among anesthesiologists by Barbosa et al., who found high level of MBI-EE in 25.58%, high level of MBI-PA in 51.16% and high level of MBI-DEP in 44.19%. The highest frequency of high score was obtained in MBI-PA (5). It is known that in environments in which the professionals report having autonomy and control over the environment tend to present lower levels of MBI-EE (6). In order to obtain lower MBI-EE scores, it may be useful to organize working conditions in our ICU in collaboration with administrators.

Results of a study by Guntupalli et al. revealed that gender had no effect on BS development (13). Lederer et al. also reported that fully developed burnout or burnout risk was not related to demographical characteristics, including gender, of the employees (14). Against stress, women show turning to one self as defence mechanisms, whereas the men show aggressiveness-anger as trouble of mood. The women doctors show depression-disheartement as trouble of mood, the men doctors show tension-anxiety (15). Accordingly, in a study by Myhren et al. it was reported that females scored higher than males on vulnerability (16). To our knowledge, our findings are unique when literature is investigated. This was due to the fact that the number of males in the ICU staff was lower and the severe working conditions.

In our study, employees over 40 years and working in ICU for over 20 years had higher scores.

Table 3. Comparison of subgroups of MBI

		Low (n,%)	Moderate (n,%)	High (n,%)	P values
	Gender				
MBI-EE	Male	4 (8.5)	14 (29.8)	29 (61.7)	0.420[b]
	Female	3 (4.4)	15 (22.1)	50 (73.5)	
MBI-PA	Male	10 (21.3)	20 (42.6)	17 (36.2)	**<0.001[b]**
	Female	2 (2.9)	11 (16.2)	55 (80.9)	
MBI-DEP	Male	14 (29.8)	15 (31.9)	18 (38.3)	0.080[a]
	Female	26 (38.2)	29 (42.6)	13 (19.1)	
	Age				
MBI-EE	<30	5 (10.4)	13 (27.1)	30 (62.5)	0.399[b]
	30-39	1 (2.4)	12 (28.6)	29 (69.0)	
	≥40	1 (4.0)	4 (16.0)	20 (80.0)	
MBI-PA	<30	5 (10.4)	11 (22.9)	32 (66.7)	0.923[b]
	30-39	4 (9.5)	13 (31.0)	25 (59.5)	
	≥40	3 (12,0)	7 (28,0)	15 (60.0)	
MBI-DEP	<30	15 (31,3)	24 (50,0)	9 (18,8)	0.085[a]
	30-39	16 (38.1)	15 (35.7)	11 (26.2)	
	≥40	9 (36.0)	5 (20.0)	11 (44.0)	
	ICU level				
MBI-EE	Level 3	5 (7.8)	21 (32.8)	38 (59.4)	0.060[b]
	Level 2	2 (3.9)	8 (15.7)	41 (80.4)	
MBI-PA	Level 3	2 (3.1)	21 (32.8)	41 (64.1)	0.010[a]
	Level 2	10 (19.6)	10 (19.6)	31 (60.8)	
MBI-DEP	Level 3	26 (40.6)	27 (42.2)	11 (17.2)	0.029[a]
	Level 2	14 (27.5)	17 (33.3)	20 (39.2)	
	Working Year				
MBI-EE	<10	5 (8.5)	18 (30.5)	36 (61.0)	0.296[b]
	10-19	2 (4.7)	10 (23.3)	31 (72.1)	
	≥20	0 (0.0)	1 (7.7)	12 (92.3)	
MBI-PA	<10	5 (8.5)	14 (23.7)	40 (67.8)	0.374[b]
	10-19	6 (14.0)	15 (34.9)	22 (51.2)	
	≥20	1 (7.7)	2 (15.4)	10 (76.9)	
MBI-DEP	<10	20 (33.9)	28 (47.5)	11 (18.6)	0.077[b]
	10-19	16 (37.2)	14 (32.6)	13 (30.2)	
	≥20	4 (30.8)	2 (15.4)	7 (53.8)	
	Profession				
MBI-EE	Doctor	0 (0.0)	2 (10.0)	18 (90.0)	0.086[b]
	Nurse	7 (7.4)	27 (28.4)	61 (64.2)	
MBI-PA	Doctor	6 (30.0)	5 (25.0)	9 (45.0)	0.011[b]
	Nurse	6 (6.3)	26 (27.4)	63 (66.3)	
MBI-DEP	Doctor	3 (15.0)	3 (15.0)	14 (70.0)	<0.001[a]
	Nurse	37 (38.9)	41 (43.2)	17 (17.9)	

[a]: Chi-square test, b: Fisher exact test MBI: Maslach Burnout Inventory, EE: Emotional Exhaustion, PA: personal accomplishment , DEP: Depersonalization, ICU: Intensive Care Unit

In a study, managerial position and years of experience, had no effect on burnout (13). However, a weak correlation between the length of experience and job satisfaction was also reported in another study (6). According to results of a study by Myhren et al.,accordingly, experienced staff were reported to beless vulnerable (16). Tawfik et al. reported that BS was more common in experienced staff (17). Lower BS frequency may be explained by advanced problem-solving ability obtained from past experiences. However, in some conditions, increased working year may result in increased exposure to high workload and tendency to experience BS. Being in a poor workplace condition for a long time may cause exhaustion, such as in our study.

Another interesting finding in our study was that employees in level 2 had higher scores for MBI-DEP when compared to level 3 ICU. This means that personnel in level 2 ICU, regardless of other parameters, tend to experience DEP. In addition employees in level 3 had higher scores for MBI-PA when compared to level 2 ICU. In the literature, when the type of ICU is considered, the prevalence of depressive symptoms in nurses is not significantly different between the units (12). In a study, it was reproted that personnel working ICU experience BS more often when compared to those work in palliative care. However, in the same study, when ICUs were compared any difference between units could not be obtained (16). Accordingly, multiple trauma patients, patients with prolonged mechanical ventialtion and poor outcomes of patients may cause decreased job satisfiction in level 3 ICU.

Experiencing conflicts is known to be the most significant determinant of burnout. The personnel who had an education in ICU are likely to protect themselves from developing BS (7). Physicians tend to assume an emotionally neutral and technical attitude towards patients. More affiliation of nurses with patients may result in more conflicts with physicians (18). There are various studies in the literature investigating BS in respect to professions. In a study by Teixeira et al., although ICU personnel had a high level of burnout, there was not any difference between nurses and physicians. In the same study, nurses showed higher MBI-EE scores (19). In another study, burnout was found to be more commonin non-physicians (17). Raggio et al. reproted higher scores of MBI-EE and MBI-DEP in physicians when compared to nurses (15). Another study also revealed that MBI-PA level in nurses was higher when compared to other parameters (3).

It was reported that resilience minimises and buffers the impact of negative outcomes of workplace stress on mental health of critical care professionals. As a result, resilience prevents the occurrence of burnout syndrome. Resilience improves not only their mental health, but also their ability to practice effectively (20). Thus, higher resilience that physicians have may be a protective fetaure from workplace stress and BS.

In another report, any statistical significance could not be obtained among professions regarding BS. However, it was also reported that physicians had significantly higher scores on job satisfaction compared to the nurses. Several factors are known to be associated with job satisfaction such as autonomy and workload. Physicians may have more autonomy and have a greater impact on patient related decisions than nurses in general. Working hours, number of nightshifts, nurseto-bed ratio, organization, and relation to the unit leader may be different (16). Accordingly, the prevalence was found to be higher in the physicians (21). However, in a study, emotional exhaustion in MBI subscale was higher among nurses. Authors attributed this result to the fact that physicians share the burden of decision making and care of patients in group and with the attending physicians (22). In our study, DEP risk was found higher in physicians than in nurses. Physicians, particularly those in ICUs, generally confront an unlimited workload with an undetermined working hours. Number of daily admissions, stressful work environment, and increasing expectations of both administrators and families may be major stress factors. Additionaly, continous technologic developments in patients' care may also result in a sense of unsatisfactoriness in professionals.

CONCLUSIONS

According to our results; female gender, working in level 3 ICU, and being a nurse are the main factors to cause PA. Working in level 2 ICU, and being a physician

are the main factors to cause DEP. Interventions to reduce burnout prevalence for professionals in ICUs are needed. Health care facilities must focus on taking measures to alleviate high workload burden the professionals experience. Support from facilitators appears to be an important preventive factor (13). Additionally, experienced staff probably feel and undertake more responsibility on the ward in order to maintain the workplace harmony. Our recommendations to reduce BS are improving the employees' rights and make arrangements for socialization of employees.

Limitations

Our study also has some limitations. Firstly, due to study design, only one center has been included to the study. A multi-center study may provide more accurate information on causes of burnout syndrome in ICU. Secondly, other tests for determination of BS such as Human Services Survey and the Beck Depression Inventory could have been implied to the employees participating in the study. Also, correlation between other personal variables such as marital status, number of children, economic status, mood, etc. and MBI could have been evaluated.

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