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Burnout and its Related Factors among the Operating Room Staff in Teaching Hospitals affiliated with the Isfahan University of Medical Sciences

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ABSTRACT

Background: The operating room staff is exposed to stress due to the frequent contacts with patients, which may ultimately leads to burnout. The aim of this study was to determine burnout and its related factors among the operating room staff in teaching hospitals affiliated with the Isfahan University of Medical Sciencesin 2018.

Methods: The present quantitative and qualitative study was conducted in Isfahan. In the quantitative phase, 206 employees were selected by simple random sampling method and data were analyzed by $SPSS_{23}$ using descriptive statistics, one-way ANOVA, t-test, and other related tests . Data were collected by "Demographic form" and "Maslach Burnout Inventory" (MBI) questionnaires . In the qualitative phase, data were collected by conducting interviews with 20 participants including managers, supervisors, and matrons of the operating roomby using MAXQDA12. Software.

Results: Results showed that the demographic variables had a significant relationship with burnout variable and its dimensions. Work experience and academic degree had a significant relationship with depersonalization (P-value < 0.05). According to the multiple linear regression, academic degree had the highest predictive power for depersonalization. In the qualitative phase, three factors associated with burnout included: internal factors of organization, external factors of organization and individual and personal factors of organization.

Conclusion: Burnout affects the staff's efficiency and performance in the operating room. Therefore, managers must provide programs to reduce burnout among the staff, so that they can provide high-quality services and reduce costs.

Key words: Burnout, Depersonalization, Emotional exhaustion, Personal accomplishment

Citation

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Introduction

Burnout, as a global issue, has been considered in many studies worldwide (1). Burnout is a result of high work pressure, a psychological syndrome that occurs with prolonged physical and mental fatigue. In fact, this syndrome is a response to high workload and long work hours, which is detrimental to the health of staff (1, 2). According to the European Union, the cost of burnout syndrome is 20 million euros per year. For this reason, the World Health Organization (WHO) mentioned burnout as a global disease in the next decade. This disease is associated with abnormal functioning of the endocrine, metabolic, cardiac, and immune systems (3, 4).

This disease was initially reported in the United States by Freudenberger in the 1970s.The results of his study showed the detrimental physical and mental health status of a clinic staff, which included symptoms such as exhaustion and irritation towards the patients (1). Burnout is more prevalent among the healthcare workers and not only endangers the health of medical staff, but also reduces productivity and quality of care (2). Although burnout can be widespread in all occupations, it is more prevalent among people who work in highly demanding jobs. For this reason, the health care providers are at risk of job burnout (5). The Ministry of Health considers Burnout Syndrome as a prolonged response to stress. This is also the description found in International Classification of Diseases and Related Health Problems (ICD-10). In the 10th International Classification of Diseases, burnout was coded Z73.0 and defined as an exhaustion mode, which is an effective agent in health status among the health staff (6).No gold standard exists for burnout today, but many studies use Maslach Burnout Inventory" (MBI), which measures burnout using three dimensions of Emotional Exhaustion (EE), Depersonalization (DP), and Personal Accomplishment (PA). Many studies consider EE as a major aspect of job burnout (3, 5-8).

The EE is a feeling emotionally over-extended by work. The DP is a situation in which a negative and cynical attitude exists towards the clients. The DP will separate staff from their work as well as relationships with colleagues. The PA is defined as feeling reduced levels of ability and performance at work. It refers to reduced self-esteem and reflects feeling ineffective in the work environment. The most common tool used for measuring burnout is the Maslach Burnout Inventory-Human Services Survey (MBI-HSS). Burnout mentions a high degree of EE, high degree of DP, and a low sense of PA (6, 9,10). Some factors of burnout include depression, high workloads, long work hours, poor relationships, lack of autonomy, and nonstructural programs, lack of social support, and self-efficacy (6, 2). Occupational burnout has irreparable consequences for patients and institutions and affects job performance, interpersonal relationships, and organizational commitment negatively (1, 11). Some consequences of burnout can reduce quality and safety of the healthcare professionals, decrease medical staff productivity, increase depression, decrease professional effort, and affect satisfaction, mental, and physical health, rates of absenteeism, family roles and functions. It also can cause high turnover, early retirement, health care costs, and high-risk of abuse and suicide among medical staff (6, 9, 12-16).

The most important issue in burnout is understanding the causes of burnout and then implementing programs to reduce or prevent it (17). In the United States, burnout was estimated about 35.2 percent in 2013 and 54.4 percent in 2014 among the physicians (18). Janus et al. (19) reported that more than one-third of the German healthcare professionals have experienced this syndrome. The results of another study showed that burnout affected more than 45 % of the medical and nursing staff (20). Health workers, especially operating room personnel, are highly exposed to environmental stressors. Moreover, the cooperation and relationship of the operating room with other units of the hospital caused burnout to affect the quality of service delivery. So, according to the working conditions in the operating room

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environment and considering the few number of studies on burnout of the operating room staff in teaching hospitals, the present study was carried out. It aimed to investigate burnout and its Related Factors among the Operating Room Staff in Teaching Hospitals affiliated with the Isfahan University of Medical Sciences

Materials and Methods

This study was conducted in the qualitative and quantitative phases.

- Quantitative phase

The purpose of this phase was to evaluate burnout among the operating room staff. The research population included all operating rooms' staff selected form the teaching hospitals in Isfahan in 2018. Inclusion criterion was having work experiences of more than one year and the exclusion criteria included unwillingness to participate in the study. Therefore, the operating room staffs of Amin, Al-Zahra, Khorshid, Kashani, and Feiz hospitals were selected. For determining the sample size in this phase, all operating room staffs were calculated (n = 460) by census and then the sample of study was calculated using the Morgan Table (n = 206). The research participants in this phase were selected by simple random sampling. Maslach questionnaire and the demographic form were sued collect the data in this phase. The demographic form included seven questions dealing with age, gender, work experiences, field of study, job position, and academic degree. The MBI-HSS questionnaire had 22 questions and determined burnout among the operating room staff. The questionnaire is based on a seven-point Likert scale 7 items and included nine questions 9 items related to the emotional exhaustion, five questions 5 items about depersonalization, and eight questions 8 items about the personal accomplishment (21). Filian (1992) translated Maslach's questionnaire into Persian and confirmed its validity. The correlation coefficient calculated by Filian was r = 0.96 % (22). Participation in the study was voluntarily and data were analyzed by $SPSS_{23}$ using t-test, one way ANOVA, Post Hoc Tests, and Multiple Linear Regression.

- Qualitative phase

The purpose of this phase was to study the factors associated with burnout in the operating room staff. In this regard, a qualitative phase was conducted using the content analysis method. Several pilot interviews were performed to confirm the validity of this phase of the study. Later, the feedback was given to the participants and the validity was confirmed. Reliability of the interviews was confirmed evaluating the interview results.

The population of this phase included 20 participants from hospital managers (n = 5), clinical supervisors (n = 10), and hospital matrons (n = 5) the teaching hospitals affiliated to the medical university of Isfahan (Al-Zahra, Khorshid, Amin, Kashani, Feyz) in 2018. The purposeful sampling method was applied and sampling continued until the data saturation was met. Inclusion criterion was having work experiences of higher than 15 years and the exclusion criterion included unwillingness to enter the study. Prior to data collection, the participants were explained about the purpose of this phase and ensured about the information confidentiality and voluntary participation. Furthermore, all participants were required to sign informed consent forms to enter the study. The data were collected using semi-structured and depth personal interviews in the participants' workplace.

The interviews contained five questions: 1) Could you tell us about the operating room unit, the pressures in the ward, the severity and job burnout of operating room staff? 2) Can you explain the factors associated with job burnout among the operating room staff? 3) In your opinion, what are the external factors of job burnout in the operating room staff? 4) In your opinion, what are the internal factors of job burnout in the operating room staff? 5) Do you think specific and personal factors have an effect on burnout of the operating room staff? Can you explain more it?

Interviews started with an open question and the other questions depended on the information of the

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first question. The interviews lasted 45 minutes on average and the data were analyzed using the analytical software MAXQDA12. In the first stage, the interviews were immediately typed and stored in the MAXQDA12 software after each interview. In the next step, the interviews' texts were read and reviewed, so that the researchers found enough mastery in the data. In the third step, the data were broken into semantic units (in the form of sentences and paragraphs related to the original meaning). Semantic units were also reviewed several times and the appropriate codes were written for each semantic unit. In each interview, the sub-categories were separated from each other, then they were merged, and the main themes were identified. In the next step, the categories were classified according to their conceptual and semantic similarity and shortened as possible. Finally, the data were placed within main categories, which were more general and conceptual. In order to observe ethical considerations in this study, people were entered completely voluntarily and consciously and their specifications and information remained completely confidential. It should be noted that the informed consent of individuals has already been taken

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Results

- Quantitative phase

The highest number of participants were collected from Al Zahra hospital (31/6 %) and the lowest number of participants were from the Khorshid hospital (10.2 %). Among the participants, 48.5 % (n = 100) were men and 51.5 % (n = 106) were women. The participants' age ranged from 20-58 years. Moreover, the minimum and maximum work experience of the participants were 1 and 35 years, respectively. Regarding the education level, most participants had bachelor's degree 68 % (n = 140) and only 2 % of them had master's degree (n = 4). Most participants (29.1 %; n = 60) were working as the operating room staff and 17.5 % worked in other positions within the operating room unit (n = 36). Demographic characteristics of the participants are represented in Table 1 and Table 2 contains the summary of the burnout status and its dimensions.

Furthermore, ANOVA and t-tests were run to study the relationship of job burnout and its dimensions with other variables. According to ANOVA test, only work experience and academic degree had a significant relationship with depersonalization dimension (P-value < 0.05).No significant relationship was found between variables (Table 3).

Multiple linear regression test was used to determine the influence of work experience and academic degree on depersonalization. The results of this test showed a significant relationship between academic degree (staff with Master's degree) and depersonalization (P-value = 0.002). On the other hand, no significant relationship was observed between work experience and depersonalization (Table 4).

- Qualitative phase

The participants' demographic information included income ($), number of children, marital status, interest in the job, gender, work experience, age, and academic degree. Most participants (75 %; n = 15) earned higher than 833$ (50000000 Rial), 50 % (n = 10) had two children, more than 80 % (n=16) of them were married, most of them had interest in their jobs (65 %; n = 13), 75 % (n = 15) of the interviewees were woman, 50 % (n = 10) of the participants had work experience of about 26- 30 years, and most participants were in the age group of 46-50 years. Most participants had bachelor's degree (45 %; n = 9). (Table 5)

We determined themes and subthemes by MAXQDA12, which resulted in three main themes.

1. Internal factors of the organization: Most factors associated with burnout were related to the internal factors of organization and most participants mentioned its themes. Internal factors of organization were 37 themes that included:

1.External factors of organization: Following

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the internal factors of organization, participants selected external factors of organization as the secondary factor associated with burnout. External factors of organization had 11 themes that included:

2.Individual and personal factors of organization: It had a minimum effect of burnout among other factors and had 3 themes that included:

Table 1. A Summary of the Status of Demographic Variables

	Variable	Frequency (%)
Job position	Nursing	55 (26.7%)
	Operating Room	60 (29.1%)
	Anesthesiology	55 (26.7%)
	Other positions	36 (17.5%)
Gender	Female	106 (51.5%)
	Man	100 (48.5%)
Work experiences	< 10 years old	134 (65.0%)
	10-20 years	50 (24.3%)
	21-30 years	19 (9.2%)
	More than 30 years old	3 (1.5%)
Age Category	20-30 years	78 (37.9%)
	31-40 years	87 (42.2%)
	41-50 years	31 (15.0%)
	> 50 years old	10 (4.9%)
Academic degree	Under bachelor's degree	62 (30%)
	Bachelor's degree	140 (68%)
	M.Sc.	4 (2%)

Table 2. A Summary of the Status of burnout and its dimensions

		Frequency (%)
Exhaustion	Low	127 (62.3%)
	middle	55 (26.5%)
	High	24 (11.3%)
Depersonalization-Emotional	Low	91 (44.6%)
	middle	79 (38.2%)
	High	36 (17.2%)
Personal Accomplishment	Low	24 (11.8%)
	middle	42 (20.1%)
	High	140 (68.1%)

Table 3. A Summary of the Results of the Relationship Between Research Variables

Variables		Burnout Mean ± SD	Personal accomplishment Mean ± SD	Depersonalization Mean ± SD	Emotional exhaustion Mean ± SD	Type of Test
Gender	Man	60.77 ± 14.65	30.33 ± 10.81	8.36 ± 6.77	22.18 ± 11.63	t-test
	Female	65.63 ± 12.69	32.42 ± 8.88	8.24 ± 5.98	24.96 ± 10.61	
	P-value	0.604	0.114	0.59	0.32	
Job position	Nursing	66.50 ± 14.11	30.76 ± 9.10	9.61 ± 7.12	26.12 ± 12.03	ANOVA
	Anesthesiology	63.58 ± 11.73	30.60 ± 10.35	9.01 ± 6.52	22.96 ± 11.23	
	Operating Room	63.33 ± 13.05	32.10 ± 9.34	7.58 ± 5.60	23.65 ± 10.64	
	P-value	0.35	0.65	0.21	0.45	

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Work experiences	Under 10 years old	64.38 ± 12.80	30.12 ± 9.55	9.37 ± 6.61	24.88 ± 11.35	ANOVA
	10-20 years	65.02 ± 14.56	34.51 ± 9.43	7.42 ± 5.60	23.08 ± 11.72	
	21-30 years	63.00 ± 6.96	35.16 ± 9.93	2.00 ± 2.09	25.80 ± 7.02	
	More than 30 years old	62.00 ± 15.55	28.00 ± 2.82	8.50 ± 4.94	25.50 ± 13.43	
	P-value	0.97	0.06	0.02**	0.85	
Age Category	20-30 years	64.58 ± 31.19	29.48 ± 8.79	9.42 ± 6.48	25.68 ± 11.60	ANOVA
	31-40 years	64.74 ± 13.33	32.07 ± 10.35	8.76 ± 6.60	23.89 ± 11.18	
	41-50 years	61.57 ± 11.13	34.28 ± 8.42	5.35 ± 4.74	21.92 ± 10.95	
	More than 50 years old	66.00 ± 12.49	35.00 ± 8.86	5.75 ± 4.57	25.25 ± 9.63	
	P-value	0.85	0.16	0.13	0.62	
Academic degree	M.Sc.	70.83 ± 18.84	16.25 ± 9.45	16.50 ± 5.46	29.16 ± 7.41	ANOVA
	Bachelor's degree	64.47 ± 1.35	30.79 ± 9.79	9.07 ± 6.38	24.59 ± 11.55	
	Under bachelor's degree	62.80 ± 11.28	34.61 ± 7.38	4.92 ± 4.62	23.26 ± 10.60	
	P-value	0.39	0.51	0.000**	0.51	

Table 4. A Summary of the Results of Multiple Linear Regression (Enter method) Test

	B	Std. Error	Beta	t	Sig
M.Sc.	8.620	2.779.	0.228	3.102	0.002
Bachelor's degree	0.990	1.434	0.073.	0.695.	0.480
Under bachelor's degree	2.277	1.671.	- 0.121	- 1.362.	0.175
Under 10 years old	1.602	1.703	0.120	1.493	0.137.
> 30 years	- 1.939.	1.695	- 0.088.	- 1.114.	0.254.

Table 5. A Summary of the Status of Demographic participants

Variable		Frequency	percent
Income ($)	595-833	5	25 %
	833-1071	15	75 %
number of children	0	5	25 %
	1 child	3	15 %
	2 children	10	50 %
	3 children	2	10 %
marital status	Married	16	80 %
	Single	4	20 %
Interest in the job	Low	1	5 %
	medium	2	10 %
	Much	13	65 %
	too much	1	5 %
Gender	Female	15	75 %
	Man	5	25 %
Work Experience	Under 20 years old	3	15 %
	20-25 years	7	35 %
	26-30 years	10	50 %
Age category	Under 40 years old	4	20 %
	40-45 years	3	15 %
	46-50 years	14	70 %
Academic degree	Bachelor's degree	9	45 %
	595-833	5	25 %
	833-1071	15	75 %

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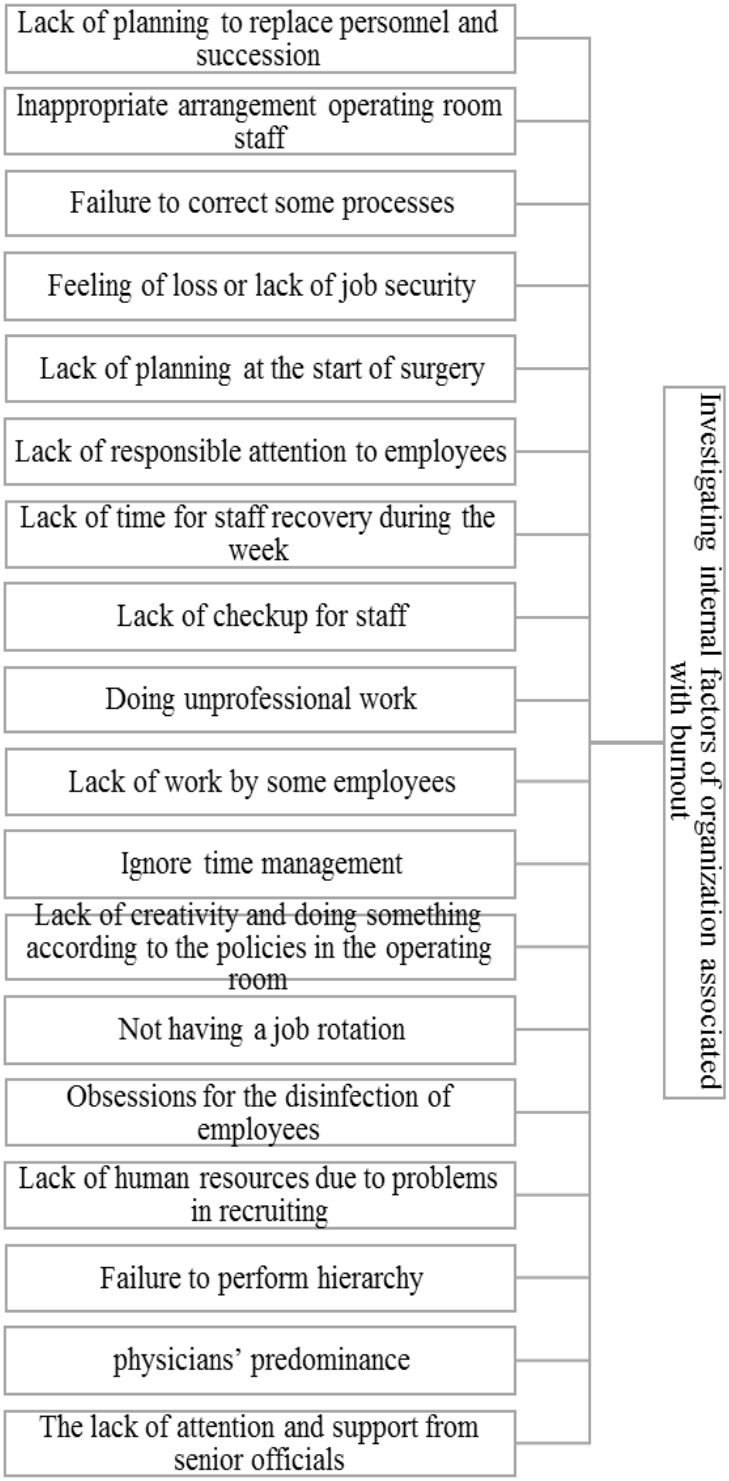

Figure 1. The main themes and sub-themes of the organization internal factors

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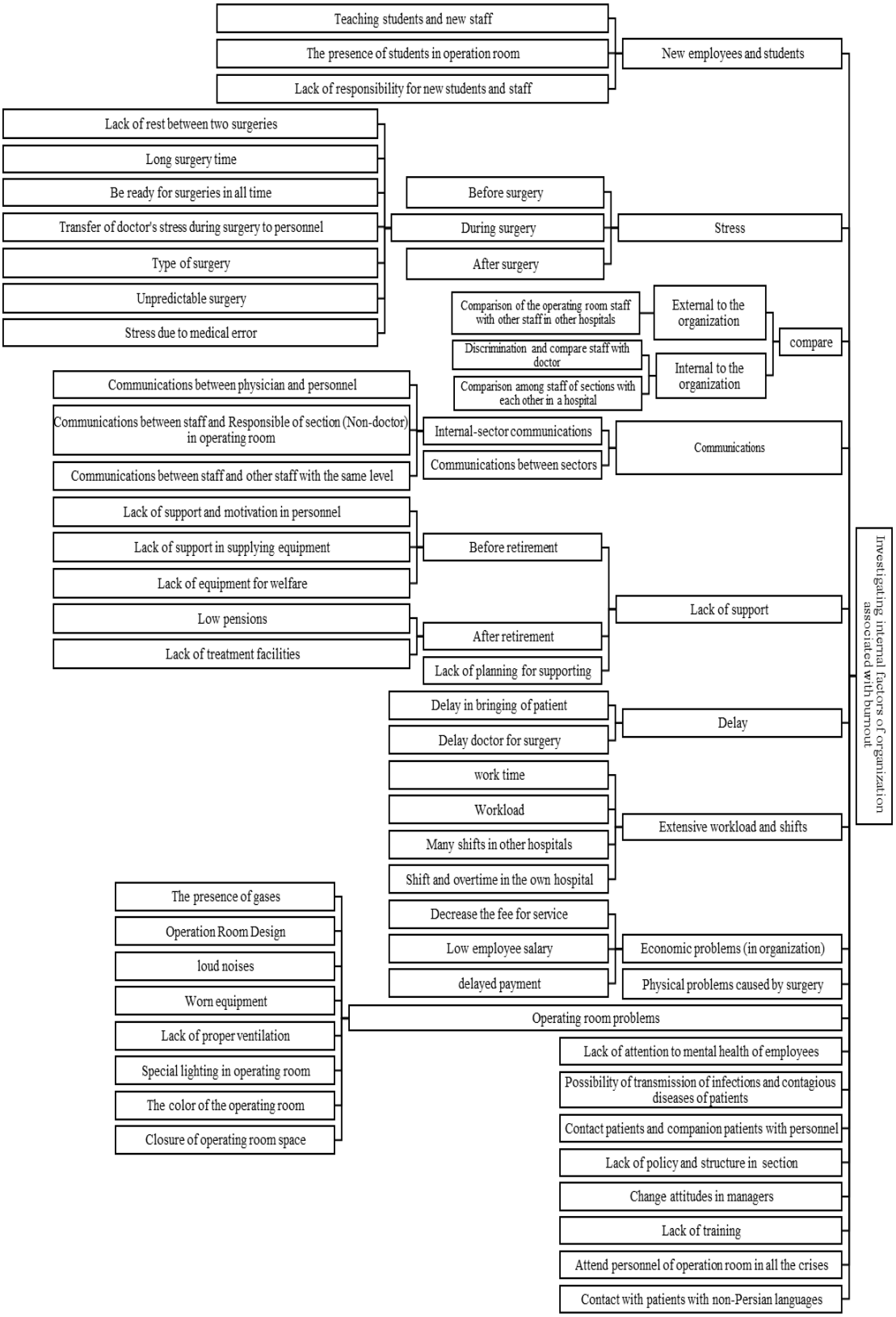

Figure 2. The main themes and sub-themes of the organization internal factors

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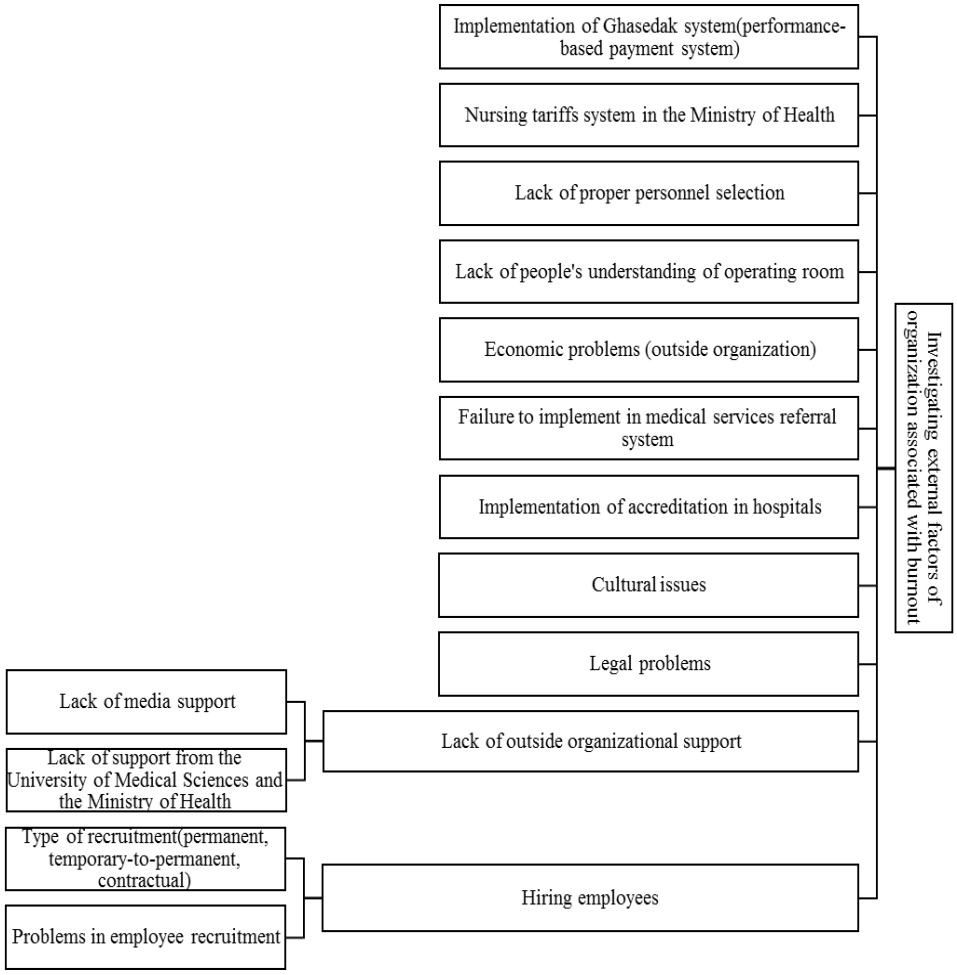

Figure 3. The main themes and sub-themes obtained from data analysis external factors of organization

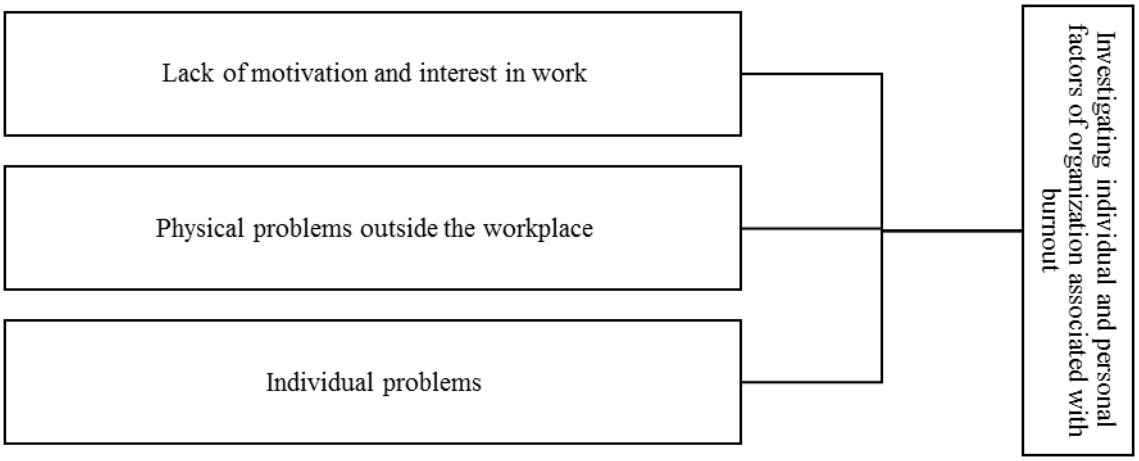

Figure 4. The main themes and sub-themes of the individual and personal factors of organization

Discussion

The study was conducted in two phases of quantitative and qualitative.

- Quantitative phase

We found the rate of burnout among the operation room staff. Various studies have investigated the relationship of burnout and its dimensions (EE, DP, and PA) with demographic

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characteristics among health professionals. In this phase of study, variables such as age, gender, work experiences, field of study, job position, and academic degree were investigated. The results of this phase showed that many operation room staffs were at low levels of EE and DP, while they were at high levels of PA. So, it is better to pay more attention to PA dimension.

Konstantinou et al. (23), investigated burnout among nurses and showed that the rate of EE was high (53.8 %), while the rates of DP and PA were low. Moreover, Dahmash et al. (24), examined burnout in radiology residents and stated that EE was high, while DP and PA were low. Card et al. (25), showed that the EE level was quite high, but other dimensions (PA and DP) were at low levels, which is similar to the findings reported by Konstantinou and Dahmash studies. Hacer et al. (26), investigated burnout in physicians and reported that EE and DP had normal scores in burnout; in other words, the participants were at moderate levels of burnout. They also found that the PA score was at a high level, which is similar to our study. Differences in the culture and sample size of the population are influenced in the result of studies.

Robinson et al. (27), reported that age with DP and gender with EE had a significant relationship, whereas, no significant relationship was observed between work experiences and all dimensions. So, their findings were not similar with the results of our study. Moreover, Torre et al. (28), reported that burnout had no significant relationship with gender, age, and work experiences, which was similar to the present study. Contrary to the current research, academic degree did not have a significant relationship with burnout dimensions. Hacer et al. (26), examined burnout in physicians and stated that gender had a significant relationship with EE and DP. Furthermore, they reported that age and work experiences had a significant relationship with PA and DP, which were different with our results. Nguyen et al. (29), investigated job burnout among the clinical nurses in Vietnam. They reported that work experiences and academic degree had a significant relationship with all dimensions of burnout, which was in the same line with our results. Colindres et al. (30), investigated the effect of burnout on infection control among nurses and reported that job position had a significant relationship with burnout; whereas, no significant relationship was observed between job position variable and all dimensions investigated in this study; these results were not similar with our study.

- Qualitative phase

We studied the factors of burnout among the operating room staff after interviewing with the hospital managers, clinical supervisors, operating room supervisor, and hospital matrons. The findings of this phase showed that the burnout factors were categorized under three subcategories, including external factors of organization, individual and personal factors of organization, and internal factors of organization among the operating room staff. Alimoradnori et al. (31), found that job burnout had no significant relationship with interest in job and motivation. These results were different with the findings of this research. Tawfik et al. (32), reported the effective factors of burnout among the NICU workers. According to the findings, excess of daily admissions, bed turnover, and staff sensitivity were the most important factors related to the job burnout. The results showed that nurses' burnout was higher than the physicians' burnout. In addition, a significant relationship was found between other internal organizational factors, such as postponement in the patient transfer to hospital and long work hours, which was similar to our results.

Dalia et al. (33), also investigated some factors related to burnout and reported a significant relationship among burnout and some factors such as workload, control, reward, justice, values in the organization, and communication between wards of the hospital. These findings were similar with the results of the present study. Green et al. (34), examined the factors related to burnout and showed a significant relationship between leadership and burnout, which was similar to our findings. Demir et al. (35), and Cordes et al. (36), reported that job rotation could reduce job stress of

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the working environment. The findings of their studies were similar with our study. Nogueira et al. (37), and Vasconcelos et al. (38), examined burnout in public health institutions and showed that autonomy, control over the work environment, physician-nurse relationship, work shift, income (salaries), workload (hours), and organizational support affected burnout. These findings were similar with our study. Some limitations of this study included difficulty in accessing the operating room staff due to their specific working conditions such as night shifts. Furthermore, it was difficult to access the managers and department heads due to their busy schedules.

Conclusion

The operating room staff working in the teaching hospitals of Isfahan had burnout, especially in the PA dimension. So, the teaching hospitals' heads and managers are recommended to improve the quality of service delivery, reduce costs, and implement programs to reduce burnout of staff. Internal factors of organization, external factors of organization, as well as individual and personal factors of the organization were three groups of the most important causes of burnout. In this regard, identifying factors of burnout helps the teaching hospitals' managers to improve their quality of care in hospitals by planning appropriate programs. In addition, recognizing these factors will increase awareness of the operating room staff. So, appropriate training programs should be developed to reduce the rate of burnout.

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Conflict of interests

The authors declared no conflict of interests.

Authors' contributions

Alimoradnori M designed research; Shaarbafchi Zadeh N and Keyvanara M conducted research and analyzed data; Alimoradnori M and Keyvanara M wrote manuscript. All authors read and approved the final manuscript.

References

1. Azevedo KC, Batista JB, Azevedo RC, Araujo AL, Barros ED, Rodrigues MD. National scientific production on Burnout Syndrome in ICU nurses and physicians: a bibliometric study. Revista da Associaçao Médica Brasileira. 2019; 65(5): 722-9.
2. Huang EC, Pu C, Huang N, Chou YJ. Resident burnout in Taiwan Hospitals—and its relation to physician felt trust from patients. Journal of the Formosan Medical Association. 2019; 118(10): 1438-49. doi: 10.1016/j.jfma.2018.12.015.
3. Traunmüller C, Stefitz R, Gaisbachgrabner K, Hofmann P, Roessler A, Schwerdtfeger AR. Psychophysiological concomitants of burnout: Evidence for different subtypes. Journal of psychosomatic research. 2019; 118: 41-8. doi: 10.1016/j.jpsychores.2019.01.009.
4. Bargellini A, Barbieri A, Rovesti S, Vivoli R, R Roncaglia R, Borella P. Relation between immune variables and burnout in a sample of physicians. Occup Environ Med. 2000; 57(7): 453–7. doi: 10.1136/oem.57.7.453.
5. Alotaibi AK, Alsalim A, Alruwaili F, Almubarak A, Alhamzah A, Albahlal A, et al. Burnout during ophthalmology residency training: A national survey in Saudi Arabia. Saudi Journal of Ophthalmology. 2019; 33(2): 130-4.
6. Frajerman A, Morvan Y, Krebs MO, Gorwood Ph, Chaumette B. Burnout in medical students before residency: a systematic review and meta-analysis. European Psychiatry. 2019; 55: 36-42.
7. Janko MR, Smeds MR. Burnout, depression, perceived stress, and self-efficacy in vascular surgery trainees. Journal of vascular surgery. 2019; 69(4): 1233-42.
8. Kemper KJ, Wilson PM, Schwartz A, Mahan JD, Batra M, Staples BB, et al. Burnout in pediatric residents: comparing brief screening questions to the Maslach Burnout Inventory. Academic pediatrics. 2019; 19(3): 251-5. doi:

[DOI: 10.18502/jebhpme.v4i1.2553]

10.1016/j.acap.2018.11.003.
9. Chetlen AL, Chan TL, Ballard DH, Frigini LA, Hildebrand A, Kim S, et al. Addressing burnout in radiologists. Academic radiology. 2019; 26(4): 526-33. doi: 10.1016/j.acra.2018.07.001.
10. Lee CY, Wu JH, Du JK. Work stress and occupational burnout among dental staff in a medical center. Journal of Dental Sciences. 2019; 14(3): 295-301.
11. Siddiqui AA, Jamil M, Kaimkhani GM, Wasim M, Katto MS, Yaqoob U, et al. Burnout among orthopedic surgeons and residents in Pakistan. Cureus. 2018; 10(8): 2-6. doi: 10.7759/cureus. 3096.
12. Yaghmour NA, Brigham TP, Richter T, Miller RS, Philibert I, Baldwin DC Jr, et al. Causes of Death of residents in ACGME-accredited programs 2000 through 2014: implications for the learning environment. Acad Med. 2017; 92(7): 976–83. doi: 10. 1097/ ACM. 0000000000001736.
13. Dyrbye LN, Thomas MR, Massie FS, Power DV, Eacker A, Harper W, et al. Burnout and suicidal ideation among U.S. medical students. Ann Intern Med. 2008; 149(5): 334–41. doi: 10.7326/0003-4819-149-5-200809020-00008.
14. Center C, Davis M, Detre T, Ford DE, Hansbrough W, Hendin H, et al. Confronting depression and suicide in physicians: a consensus statement. JAMA. 2003; 289(23): 3161–6. doi: 10.1001/jama.289.23.3161.
15. Rothenberger DA. Physician burnout and well-being: a systematic review and framework for action. Dis Colon Rectum. 2017; 60(6): 567–76. doi: 10.1097/DCR.0000000000000844.
16. Abdo SA, El-Sallamy RM, El-Sherbiny AA, Kabbash IA. Burnout among physicians and nursing staff working in the emergency hospital of Tanta University, Egypt. East Mediterr Health J. 2016; 21(12): 906-15. doi: 10.26719/2015.21. 12. 906.
17. Doherty GM. How Do We Prevent Burnout in Surgery?. Advances in surgery. 2019; 53: 131-43. doi: 10.1016/j.yasu.2019.04.017.
18. Shanafelt TD, Hasan O, Dyrbye LN, Sinsky C, Satele D, Sloan J, et al. Changes in burnout and satisfaction with work-life balance in physicians and the general US working population between 2011 and 2014. Mayo Clin Proc. 2015; 90(12): 1600-13. doi: 10.1016/j.mayocp.2015.08.023.
19. Janus K, Amelung VE, Gaitanides M, Schwartz FW. German physicians "on strike"–shedding light on the roots of physician dissatisfaction. Health Policy. 2007; 82(3): 357–65. doi: 10.1016/j.healthpol.2006.11.003.
20. Embriaco N, Azoulay E, Barrau K, Kentish N, Pochard F, Loundou A, et al. High level of burnout in intensivists: prevalence and associated factors. Am J Respir Crit Care Med. 2007; 175(7): 686–92. doi: 10.1164/rccm.200608-1184OC.
21. Keyvanara M, Shaarbafchi Zadeh N, Alimoradnori M. Occupational Burnout in the Operating Room Staff in Teaching Hospitals: Affiliated Isfahan University of Medical Sciences in 2016. payavard. 2018; 12 (3): 210-20.
22. Talebi M. Relationship between job stress and job burnout among occupational therapists in governmental centers and private clinics in Tehran in 2014[PhD Thesis]. Tehran: Iran University of Medical Sciences; 2014.
23. Konstantinou AK, Bonotis K, Sokratous M, Siokas V, Dardiotis E. Burnout evaluation and potential predictors in a Greek cohort of mental health nurses. Archives of psychiatric nursing. 2018; 32(3): 449-56. doi: 10.1016/j.apnu. 2018. 01. 002.
24. Dahmash AB, Alorfi FK, Alharbi A, Aldayel A, Kamel AM, Almoaiqel M. Burnout Phenomenon and Its Predictors in Radiology Residents. Academic Radiology. 2019; doi: org/ 10. 1016/ j.acra.2019.09.024.
25. Card EB, Hyman SA, Wells N, Shi Y, Shotwell MS, Weinger MB. Burnout and Resiliency in Perianesthesia Nurses: Findings and Recommendations from a National Study of Members of the American Society of PeriAnesthesia Nurses. Journal of PeriAnesthesia Nursing. 2019; 34(6): 1130-45. doi: org/10.1016/ j.jopan.2019.05.133.
26. Hacer TY, Ali A. Burnout in Physicians Who

[DOI: 10.18502/jebhpme.v4i1.2553]

Are Exposed To Workplace Violence. Journal of Forensic and Legal Medicine. 2019; 69: 1-6. doi: org/10.1016/j.jflm.2019.101874.
27. Robinson DB, James OP, Hopkins L, Brown C, Bowman C, Abdelrahman T, et al. Stress and Burnout in Training; Requiem for the Surgical Dream. Journal of surgical education. 2019; doi: org/10.1016/j.jsurg.2019.07.002.
28. Torre M, Popper MS, Bergesio A. Burnout prevalence in intensive care nurses in Argentina. Enfermería Intensiva. 2019; 30(3): 108-15. doi: 10.1016/j.enfi.2018.04.005.
29. Nguyen HT, Kitaoka K, Sukigara M, Thai AL. Burnout study of clinical nurses in Vietnam: Development of job burnout model based on Leiter and Maslach's theory. Asian nursing research. 2018; 12(1): 42-9. doi: 10.1016/j.anr. 2018.01.003.
30. Colindres CV, Bryce E, Coral-Rosero P, Ramos-Soto RM, Bonilla F, Yassi A. Effect of effort-reward imbalance and burnout on infection control among Ecuadorian nurses. International nursing review. 2018; 65(2): 190-9. doi: 10. 1111/ inr.12409.
31. Zargar Balaye Jame S, Alimoradnori M. Investigating Job Burnout and Its Dimensions in the Personnel of Selected Military Clinics in Tehran in 2018. Journal of Military Medicine. 2019; 21 (1): 82-90. [In Persian]
32. Tawfik DS, Phibbs CS, Sexton JB, Kan P, Sharek PJ, Nisbet CC, et al. Factors Associated With Provider Burnout in the NICU. Pediatrics. 2017; 139(5). doi: 10.1542/peds.2016-4134.
33. Al-Imam DM, Al-Sobayel HI. The Prevalence and Severity of Burnout among Physiotherapists in an Arabian Setting and the Influence of Organizational Factors: An Observational Study. J PhysTher Sci. 2014; 26(8): 1193-8. doi: 10.1589/jpts.26.1193.
34. Green AE, Albanese BJ, Shapiro NM, Aarons GA. The roles of individual and organizational factors in burnout among community-based mental health service providers. Psychol Serv. 2014; 11(1): 41-9. doi: 10.1037/a0035299.
35. Demir A, Ulusoy M, Ulusoy MF. Investigation of factors influencing burnout levels in the professional and private lives of nurses. Int J Nurs Stud. 2003; 40(8): 807-27. doi: 10.1016/s0020-7489(03)00077-4.
36. Cordes CL, Dougherty TW. A review and an Integration of Research on Job Burnout. Academy of management. 1993; 18(4): 621-56. doi: 10.5465/AMR.1993.9402210153.
37. Nogueira LS, Sousa RMC, Guedes ES, Santos MAD, Turrini RNT, Cruz D. Burnout and nursing work environment in public health institutions. Revista brasileira de enfermagem. 2018; 71(2): 336-42. doi: 10.1590/0034-7167-2016-0524.
38. Vasconcelos EM, Martino MMF, França SPS. Burnout and depressive symptoms in intensive care nurses: relationship analysis. Revista brasileira de enfermagem. 2018; 71(1): 135-41. doi: 10.1590/0034-7167-2016-0019.

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