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Evaluating Occupational Stress and Associated Burnout Based on Demand–Control Model among EMS Personnel in Ilam

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ABSTRACT

Occupational stress with the physical, chemical, biological, and ergonomic hazards is among the five main risks in the workplace. One of the most common techniques used for assessing occupational stress is the demand-control model developed by Karasek. This study was aimed to determine occupational stress and associated burnout based on Demand–Control Model among EMS personnel in Ilam. This cross-sectional study was carried out on 72 of Ilam emergency medical services center in 2016. Occupational stress was assessed by the Persian version of Job Content Questionnaire (P-JCQ) and the occupational burnout was assessed by the Maslach Burnout Inventory (MBI) in emotional exhaustion, depersonalization, and reduced personal accomplishment levels. Descriptive statistics and multiple logistic regression were applied for data analysis via SPSS software version 21. Mean and standard deviation score for decision-making freedom, psychological demands, social support, physical demands, and job insecurity dimensions were (70.87±7.99), (35.18±4.84), (23.64±6.33), (16.30±2.86), (9.1± 4.65), respectively. About 27.3% of personnel reported their job active, 30.3% passive, 22.7% high strain, and 19.7% low strain. A comparison of the relationship between occupational stress and associated burnout showed a significant relationship between the decision-making freedom dimension and depersonalization level ($P<0.05$). Based on the results, it can be concluded that the majority of personnel reported low psychological demands and low control. In such situation, the probability of mental disorders is increased.

KEYWORD: Occupational Stress, Occupational Burnout, Emergency Medical Services, Ilam

INTRODUCTION

Along with spread of globalization, higher competitions, mass movement across nations, and change in employment relationships, stress has reached a particular importance in occupational health [1]. Occupational stress along with the physical, chemical, ergonomic and biological hazards of the workplace is one of the five main risks in work environments. The costs of stress-imposed illnesses such as heart attacks, hypertension, depression, digestive complications, musculoskeletal disorders,

immune deficiencies, and various cancers that are estimated to be billions of dollars annually; Moreover premature deaths and low efficiency-caused largely by the lack of ability to overcome these stresses- threaten the effectiveness of different organizations [2-5].

Different methods have been introduced to assess the occupational stress in workplaces over recent years [6]; however, the most common method for this purpose is the demand-control model developed by Karasik et al. [2]. This model determines job stress dimensions by combining the requirements of occupational demands, job control, and social support [2-6-8]. The results of previous studies showed that inappropriate conditions of working environment such as high occupational demands, low level of occupational control, and low social support in the workplace may increase occupational stress and consequently occupational burnout [9-10]. The term occupational burnout was first used by Berger in 1974. He described occupational burnout as a result of long-term stress in work [11]. The symptoms of this syndrome are manifested when one's ability is not sufficient for the work environment demand. Occupational burnout is one of the major unavoidable consequences of occupational stress and it will continue to persist as long as this stress is not eliminated [11-12]. Studies showed that the risk of burnout is high among health care staffs [13-14]. The emergency medical services contain a complete range of emergency care such as position identification, telephone access system, pre-hospital care provision, definite care in the hospital, medical response to natural disasters, planning and provision of medical services in public gatherings, and transfer of patients across the treatment centers [15-16]. The outcomes of various studies showed that the occupational stress is remarkable among employees who are often the first individual present in a variety of emergency situations ranging from heavy vehicle accidents and natural disasters to minor injuries and illness [5-16]. Emergency personnel who has experienced a crisis or other incidents suffer from post-traumatic stress disorder, fatigue, and occupational burnout [17-18]. If burnout is not recognized and an appropriate solution didn't developed and implemented to reduce or prevent it, it can results in decreased quality and efficiency, and reduced physical and mental health. Consequently, it may impose secondary costs for organizations including employees' absent, displaced and loss of productivity or health care expenditure. This is more important for health professionals working as community service providers [19]. Having considered these issues and with regard to the importance of the services provided by the emergency medical staffs that require high levels of activities in working conditions [16], this study was aimed to evaluate occupational stress and associated burnout based on Demand–Control Model among EMS personnel in Ilam.

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METHODS

This cross-sectional study was conducted on all Ilam emergency medical services center in 2016. The research community consisted of all operational staffs in these centers (Sample size includes 72 persons). Study entry criteria included at least 6 months of work experience and willingness to participate in the study and exclusion criteria were the reluctance to participate in the study.

The data collection instrument contained three sections: (1) a checklist of demographic characteristics: This checklists were completed by the staffs and contained information such as age, gender, work experience, level of education, work shift, intention to change the job, and marital status. (2) The Maslach job Burnout Inventory: This Questionnaire, which was validated in Persian and completed by staffs, included 22 questions: Nine items on emotional exhaustion (a situation in which a person's emotional force is reduced), 5 items on depersonalization (a situation in which a person is mechanically confronted with his or her clients and sees them as objects), and eight items on reduced personal accomplishment (a situation in which one feels that his performance is not successful). Each questions was scored based on a 7-point Likert scale ranging from never to everyday. Scores obtained in each of the subscales based on the benchmark was determined as high, medium, and low burnout categories. The cut-off point for each subscale has been shown in Table 1 [6].

Maslach Burnout Inventory has been used in many studies in Iran and other countries. Cronbach alpha coefficients for each subscales of emotional exhaustion, depersonalization and personal accomplishment were reported 80%, 88% and 75%, respectively [20] and in internal studies for each of

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these subscales were 89%, 78 % and 83%, respectively [21]. Job Content Questionnaire (P-JCQ) [3], this Questionnaire was evaluated based on the translated and Persian version of the job content questionnaire of occupational stress dimensions [22]. There were nine questions on the dimension of decision-making freedom or control, five questions on the psychological demands of the job, eight questions on the social support dimension, five questions on the dimension of physical demands of job, and three questions on job situation insecurity. Each questions were scored based on a four-dimensional scale with options of strongly disagree, disagree, agree, and strongly agree. In some dimensions and sub-scales, the number of options was more and different. In order to form the demand-control model cells, the proposed benchmark in the job content questionnaire was used [23]. In order to achieve this goal, two dimensions of demand and control were divided into two groups, upper and lower using median as the cutoff point. Finally, four cells were formed including high strain, active occupation, low strain and inactive occupation (Figure 1)[6]. Data were analyzed using SPSS software version 21 at a significance level of 0.05. To determine the level of burnout, descriptive statistics analysis was used and chi-square was run to assess job burnout and its dimensions. The data obtained from the job content questionnaire were evaluated based on the descriptive statistics and the relationship between the dimensions of demand-control model and three dimensions of occupational burnout were analyzed using multiple logistic regression.

RESULTS

Table 2 shows the demographic characteristics of the participants (age, employment background, marital status, etc.). According to the results of this table, the participants had a mean age of 31.73 years and were mostly male (94.4%); 43% were married and generally had a bachelor degree (36%); 76.5% were emergency technicians and 7.4% were others. The maximum working experience of these individuals in their current job was 24 years with a minimum working experience of 1 year.

Table 1. Cutting point of job burnout subscales

Severity of Burnout / Dimensions of burnout	Low	Medium	Much
Emotional exhaustion	0-16	17-26	>27
Mournful Character	0-6	7-12	>13
Feeling of personal competence	>39	32-38	0-31

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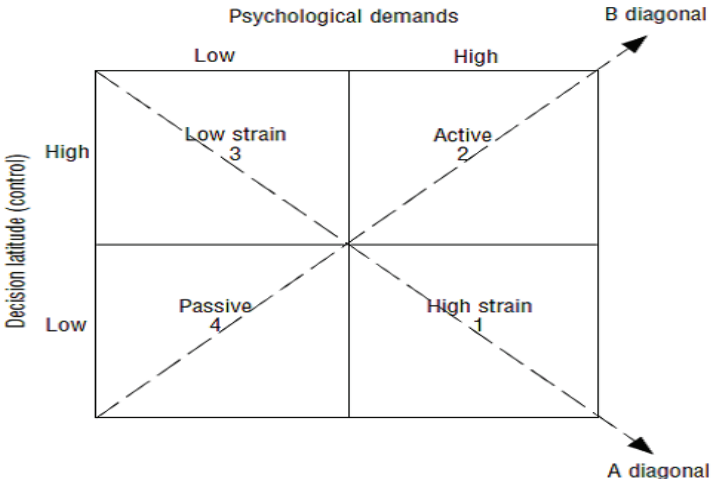

Fig 1. Demand-control model

1) High Strain Jobs: High Job Requirements and Low Job Control. 2) Low strain jobs: Low job requirements and high job control. 3) Active occupation: Job requirements and high job control. 4) Inactive occupation: low job requirements and low job control (6).

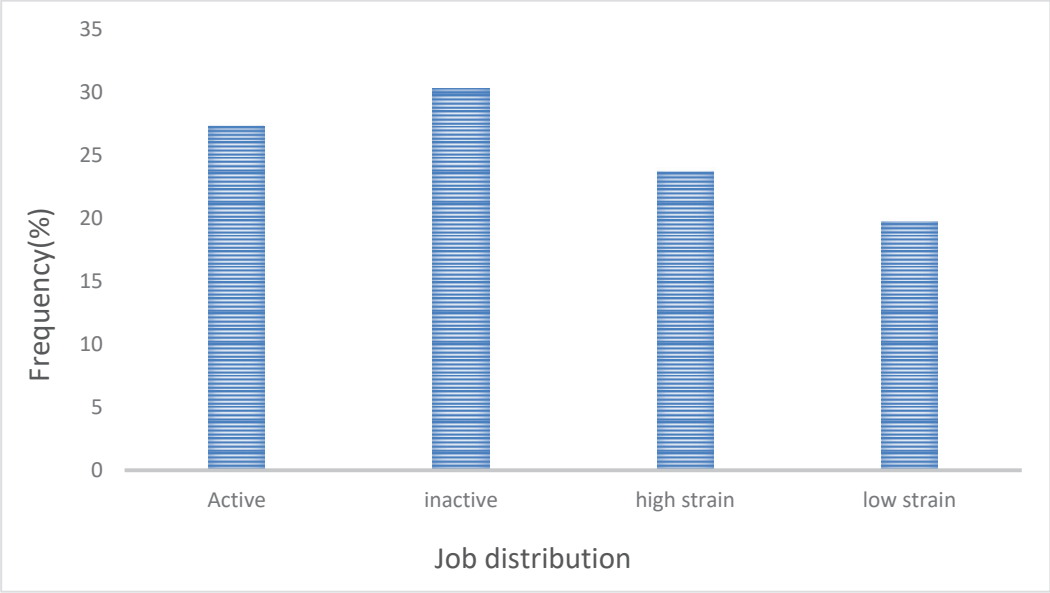

Fig 2. Job distribution according to demand-control model

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Table 2. Mean, standard deviation, minimum and maximum scores of job stress dimensions among the employees (n= 72)

Age (year)	Mean (SD)	31.73 (6.57)
	Max-Min	22-49
Job experience (years)	Mean (SD)	8.02 (5.71)
	Max-Min	1-24
Sex	Male	68 (97.1 %)
	Female	2 (2.9 %)
marital status	Married	43 (61.4 %)
	Single	27 (36.8 %)
education	Associate Degree	22 (31.9 %)
	license	36 (52.2 %)
	Master's degree	5(7.2 %)
	Others	6(8.7 %)
job title	Prehospital Emergency Care	52 (76.5 %)
	Emergence technician	5(7.4 %)
	Prehospital Emergency Care Driver	4 (5.9 %)
	Paramedic	3 (4.4 %)
	Others	2 (3%)

The mean, standard deviation, minimum, and maximum scores obtained for the demand-control model dimension have been presented in Table 3. In this table, the higher the score of decision making freedom (occupational control) is equivalent to lower stress, and the higher the mean of the psychological and physical demands of job and job insecurity were equivalent to higher stress. It is worth noting that the obtained mean score was compared with the possible minimum and maximum scores in each dimension in order to determine highness or lowness of scores for that dimension. Accordingly, the mean scores for the dimensions of the decision-making freedom (control) are high, indicating a low level of stress. Moreover, the mean scores of the dimensions of the psychological demands are high, showing a high level of stress. Furthermore, the results showed that the mean scores of the burnout dimensions were 9.29 for emotional exhaustion, 20.75 for depersonalization, and 4.82 for personal accomplishment. With regard to the results and the cut-off point presented in Table 1, it was found that the mean scores of occupational burnout dimensions among the employees were low in terms of depersonalization, emotional exhaustion, and personal accomplishment, which represents low occupational burnout among the staffs (Table 4). Considering the emotional exhaustion scale, 8 persons (11.1%) suffered from high levels of job burnout; however, none of the employees were placed at high levels of burnout with regard to personal accomplishment scale. Table 5 shows median as a cut-off point, indicating that about 50% of the employees had high mental health demands and 46.3% of the participants had also reported high levels of job control. The median for two main dimensions of job and the decision-making freedom psychological demands can be used to depict the distribution of psycho-social features of the employees' occupation

based on the demand-control model. Figure 1 shows the occupational distribution. As it can be observed, 27.3%, 30.3%, 22.7%, and 19.7% reported to have active, inactive, high strain, and low strain, respectively.

The relationship between the demand-control model dimensions and those of occupational burnout has been presented in Table 6. As it can be observed, there is only a statistically significant relationship between decision-making freedom and depersonalization (P <0.05).

Table 3. Mean, standard deviation, minimum and maximum score of occupational stress dimensions of employees (n = 72)

Dimensions of job content	Mean (SD)	Earned score (max -Min)	The score that can be obtained in any dimension * (max -Min)
Freedom of making decision	70.87 (7.99)	38-82	24-96
Ability to use skill	36.84 (4.41)	14-42	12-48
Authority of making Decision	34 (4.7)	24-44	12-48
Psychoanalysis of the job	35.18 (4.84)	24-48	12-48
social support	23.64 (6.33)	9-48	8-48
Partner support	12.22 (2.52)	5-16	4-16
Personnel support	11.43 (4.96)	4-32	4-32
Physical needs of the job	16.30 (2.86)	7-20	5-20
Physical effort	10.3 (1.83)	5-12	3-12
Isometric physical load	6 (1.5)	2-8	2-8
Lack of job security	9.1 (4.65)	3-16	3-17

** Based on the job content questionnaire guide*

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Table 4. Mean and standard deviation of occupational burnout levels in subjects participating in the study (n = 72)

Dimensions of burnout	Mean (SD)	Low Number (%)	Medium number (%)	Much Number (%)
Emotional exhaustion	9.29	40 (55.6)	24 (33.3)	8 (11.1)
Mournful Character	4.82	25 (34.7)	15 (20.8)	32 (44.4)
Decrease of job adequacy	20.75	71 (98.6)	1 (1.4)	0

Table 5. Median and psychosocial distribution of the occupation of the studied staff

Freedom of making decision (job control)	Median	72
Low	Number (%)	36 (53.7)
Much	Number (%)	31 (46.3)
Psychological needs of the job	Median	35
Low	Number (%)	33 (50)
Much	Number (%)	33(50)
High psychological need and high control (active)	Number (%)	18 (27.3)
High psychosocial need and low control (high strain)	Number (%)	15 (22.7)
Low psychosocial need and high control (low strain)	Number (%)	13 (19.7)
Low psychological need and low control (inactive)	Number (%)	20 (30.3)

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Table 6. Comparison of the mean scores of dimensions of the Demand–Control Model with dimensions of burnout in the population studied

Dimensions of the Demand–Control Model	Variable	OR	CI 95%	P- value
Freedom of making decision	Emotional exhaustion	0.451	0.169-1.21	0.087
	Mournful Character	0.311	0.114-0.847	0.019
	Decrease job adequacy	0.938	0.359-2.45	0.545
Psychological needs	Emotional exhaustion	0.543	0.205-1.44	0.162
	Mournful Character	0.479	0.179-1.27	0.109
	Decrease job adequacy	1.84	0.694-4.88	0.162
Active job	Emotional exhaustion	0.727	0.181-2.91	0.461
	Mournful Character	0.50	0.121-2.06	0.271
	Decrease job adequacy	0.256	0.06-1.10	0.065
Inactive job	Emotional exhaustion	0.268	0.062-1.16	0.076
	Mournful Character	1.286	0.314-5.26	0.503
	Decrease job adequacy	0.367	0.086-1.567	0.157
Jobs with low strain	Emotional exhaustion	0.375	0.093-1.512	0.148
	Mournful Character	0.643	0.157-2.62	0.397
	Decrease job adequacy	3	0.742-12.13	0.111
Jobs with high strain	Emotional exhaustion	0.375	0.093-1.512	0.638
	Mournful Character	0.643	0.301-1.86	0.249
	Decrease job adequacy	3	0.742-12.13	0.561

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DISCUSSION

Emergency medical staffs are the first that experience stressful situations, and these stresses lead to occupational burnout over time [24]. It has been shown that occupational burnout is one of the most important factors affecting the desire to leave a job [25-26]. Studies have shown that occupational stress is associated with burnout and can be used as a predictor for occupational burnout [27-28]. According to the results of the present study, it can be concluded that the participants were at high levels of decision-making freedom or control, which represents low level of stress. This findings were consistent with the Pahlavian et al.'s [6] findings regarding the demand-control model dimensions and their relationship with the burnout among nurses; however, the findings were in contrast with the ones obtained by Barzideh et al. [29]. The subjects were at low level of psychological demands. This finding shows that the participants were under pressure in terms of psychological demands (work load, time pressure, etc.). A same finding was reported by Barzideh et al. [29], Pahlavian et al. [6], Shen et al. [30], and Eum et al [31]. As it is shown in Fig. 2, 27.3% of the employees reported their job as active. Pahlavian et al. in their study reported a value of about 30% for nurses too.

According to the demand-control model, an active job is defined as a good stress and involves the development of active behaviors under conditions in which both mental and occupational demands are high, which predict motivation, learning new behaviors, and the development of coping strategies [8]. In addition, the results showed that employees enjoy from a low level of social support, and this factor can lead to an increased level of occupational stress [8]. Barzideh et al. [30] also achieved the same results in their study.

According to the first assumption of demand-control model, a job with high strain is the one in which psychological-occupational demands and occupational controls are low. Occupations in this category are set to speed their work based on the machines. In this regard, it was found that 22.7% of the participants had high strain jobs. This value was 22% in Pahlavian et al.'s [6] study. The findings also revealed that the level of physical demands was high among the employees. The high level of physical demands in an occupation enhances the risk of physical damages (such as musculoskeletal disorders, etc.). It was also found that the employees were at a medium to high level in terms of job insecurity.

The high level can psychologically cause rumination; therefore, the individuals seek to find a suitable way to change their job [8-31-32]. Among the participants, 30.3% reported their job as inactive. An inactive job is a job with low psychological demands and low job control, which leads to lack of motivation and gradual loss of previous skills. In such situation, the psychological injuries are also more likely to be happened. Furthermore, the findings indicated that the employees' mean scores of occupational burnout dimensions were low in terms of depersonalization, emotional exhaustion, and personal accomplishment. Biganeh et al. [33] in their study of investigating the effect of occupational stress on occupational burnout showed that 62.79% and 68.6% of the nurses reported a low level of depersonalization and job failure, respectively and that 40.7% of the participants were at a moderate level of emotional exhaustion. In a study conducted by Hayes et al. [34], 52.2%, 53%, and 58% of the participants reported high emotional exhaustion, high depersonalization, and low personal accomplishment, respectively. Emotional exhaustion is one of the most important aspects of occupational burnout so that an increase in this dimension enhances occupational burnout [35].

The low depersonalization in the present study can be indicative of proper intra-organizational relationships between the employees. Since depersonalization is defined as a person's perceived misunderstandings of himself, his colleagues, and the workplace, the burden of mental workload and lack of support ignites a feeling of demotivation and isolation, which ultimately lead to depersonalization. There were also no significant relationship between age, gender, level of education, ethnicity, marital status, type of occupation, and work experience with emotional exhaustion. Similarly, Xie et al. [36] documented no significant relationship between body mass index, marital status, and work experience with emotional exhaustion; however, they reported a significant relationship between age, level of education, and emotional exhaustion. Lack of support for occupational stress is the most important variables

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affecting depersonalization. A significant relationship was also detected between gender, marital status, and type of occupation with depersonalization. Portero et al. [37] revealed a significant relationship between marital status and depersonalization. Spooner [38] in his study reported a negative correlation between age and depersonalization so that the younger nurses had higher levels of occupational burnout. This is consistent with Shahnazdoust et al. [39] findings and those found in the present study.

CONCLUSION

The results of the present study will be used in the training and management of Ilam emergency medical services personnel. Recognition of environmental and underlying factors of stress and then using the right coping strategies help burnout prevention. In this case, the physical and mental health of the employees was maintained and the opportunity to increase productivity was created. The restrictions of the present study was the small size of the sample that reduces the possibility of generalizing the results and also some participants did not cooperate in filling and timely delivery of questionnaires despite the follow-up. His findings showed that the majority of employees were inactive (low psychological demand and low control) in their jobs. In such situation, the psychological damages are more probable. The mean scores of occupational burnout dimensions among the employees were low in terms of depersonalization, emotional exhaustion, and personal accomplishment that suggest a low level of occupational burnout among them. The comparison of the relationship between occupational stress and occupational burnout revealed only a statistically significant relationship between decision-making freedom and depersonalization dimensions.

It is recommended for the future studies that identify the psychosocial risk factors and relevant factors in order to increase productivity and efficiency among the employees. Additionally, in order to reduce the risk of psychosocial factors application is suggested in the future macro-ergonomic and psychological interventions.

Ethical Approval and Consent to participate:

All human experiments in this study was conducted within the framework of accepted national and international norms of ethics in research, ethical guides and guidelines approved by the Ministry of Health and Medical Education with an exclusive code (IR.Ilam.REC).

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REFERENCE

1. Li J, Yang W, Liu P, XU Z, CHO S-I. Psychometric evaluation of the Chinese (mainland) version of Job Content Questionnaire: a study in university hospitals. Industrial health. 2004;42(2):260-7.
2. Karasek, R., Theorell, T. Healthy Work: Stress, Productivity, and the Reconstruction of Working Life. New York: Basic Books.1990.
3. Brady KT, Sinha R. Co-occurring mental and substance use disorders: the neurobiological effects of chronic stress. American Journal of Psychiatry. 2005;162(8):1483-93.
4. Assadi SN. Cardiovascular disorders risk factors in different industries of Iran. International journal of preventive medicine. 2013;4(6):728-45.
5. Levy BS. Occupational and environmental health: recognizing and preventing disease and injury: Lippincott Williams & Wilkins; Book.2006.
6. HeidariPahlavian A, Gholami T, HeidariMoghaddam R, Akbarzadeh M, Motamedzadeh M. Demand–Control model and its relationship with burnout syndrome in nurses. Journal of Fasa University of Medical Sciences. 2015;5(1):23-35.
7. Karasek Jr RA. Job demands, job decision latitude, and mental strain: Implications for job redesign. Administrative science quarterly. 1979;24(2):285-308.
8. Karasek R, Brisson C, Kawakami N, Houtman I, Bongers P, Amick B. The Job Content Questionnaire (JCQ): an instrument for internationally comparative assessments of psychosocial job characteristics. Journal of occupational health psychology. 1998;3(4):322-38.
9. Johnson JV, Hall EM. Job strain, work place social support, and cardiovascular disease: a cross-sectional study of a random sample of the Swedish

working population. American journal of public health. 1988;78(10):1336-42.
10. Müller C, Bomball J, Schwanke A, Stöver M, Schmitt S, Görres S, et al. Job strain, work place social support, and cardiovascular disease: A cross-sectional study of a random sample of the Swedish working population. Zeitschrift für Arbeits-und Organisationspsychologie A&O. 2014;58(2):101-3.
11. Ganjeh SJ, Oraizi HR, Molavi H, Nouri A. The Relationship of Employees' Job Control with Job Stress and Subjective Well-being. Journal of Isfahan Medical School. 2010;27(103).
12. Karasek RA, Theorell T, Schwartz JE, Schnall PL, Pieper CF, Michela JL. Job characteristics in relation to the prevalence of myocardial infarction in the US Health Examination Survey (HES) and the Health and Nutrition Examination Survey (HANES). American journal of public health.1988;78(8):910-8.
13. McAllister M, McKinnon J. The importance of teaching and learning resilience in the health disciplines: a critical review of the literature. Nurse education today. 2009;29(4):371-9.
14. Essex B, Scott LB. Chronic stress andassociated coping strategies among volunteer EMS personnel. Prehospital emergency care. 2008;12(1):69-75.
15. Habibi H, Mooghali A, Bagheri Lankarani K, Habibi F. Relationship between nurses' job satisfaction and burnout with patients satisfaction in Shiraz, 2012. Journal of hayat. 2014;20(3):30-42.
16. Sadeghi a, Shadi m, Moghimbaeigi A. Relationship between Nurses'job satisfaction and burnout. Avicenna Journal of nursing and midwifery care. 2016;24(4):238-246.
17. Massoudi R, Aetemadifar S, Afzali SM, Khayri F, Hassanpour Dehkordi A. The influential factors on burnout among nurses working in private hospitals in Tehran. Iranian journal of nursing research. 2008;3(9):47-58.
18. Siegrist J. Adverse health effects of high-effort/low-reward conditions. Journal of occupational health psychology. 1996;1(1):27-36.
19. Siegrist J, Siegrist K, Weber I. Sociological concepts in the etiology of chronic disease: the case of ischemic heart disease. Social Science & Medicine. 1986;22(2):247-53.
20. Beckstead JW. Confirmatory factor analysis of the Maslach Burnout Inventory among Florida nurses. International Journal of Nursing Studies. 2002;39(8):785-92.
21. Solaty K. Relationship of burnout among employees with mental health research center in Isfahan and produce nuclear fuel. Shahrekord J Med Sci. 2000;2(6):34-41.
22. Choobineh A, Ghaem H, Ahmedinejad P. Validity and reliability of the Persian [Farsi] version of the Job Content Questionnaire: a study among hospital nurses. 2011;17(4):335-341.
23. Karasek RA, Karasek R, Karasek Jr R, Gordon-Strachan G, Pietrowsky C, et al. Job content questionnaire and user's guide. 1985.
24. Karasek RA, Karasek R, Gordon-Strachan G, Pietrokovsky C, Frese M, Pieper C, et al. Job Content Instrument: Questionnaire and user's guide. 1985.
25. ESLAMI AH, RAJABI R, ASADI F. burnout among emergency medical services (EMS) staff. 2017;5(3):62-70.
26. Oyeleye O, Hanson P, O'Connor N, Dunn D. Relationship of workplace incivility, stress, and burnout on nurses' turnover intentions and psychological empowerment. JONA: The Journal of Nursing Administration. 2013;43(10):536-42.
27. Scanlan JN, Still M. Job satisfaction, burnout and turnover intention in occupational therapists working in mental health. Australian occupational therapy journal. 2013;60(5):310-8.
28. Lin Q-H, Jiang C-Q, Lam TH. The relationship between occupational stress, burnout, and turnover intention among managerial staff from a Sino-Japanese joint venture in Guangzhou, China. Journal of Occupational Health. 2013;55:458-467.
29. Ding Y, Qu J, Yu X, Wang S. The mediating effects of burnout on the relationship between anxiety symptoms and occupational stress among community healthcare workers in China: a cross-sectional study. PloS one. 2014;9(9): 107-130.
30. Barzideh M, Choobineh A, Tabatabaei SH. Job stress dimensions and their relationship to job change intention among nurses. Iranian Journal of Ergonomics. 2013;1(1):33-42.
31. Shen H-C, Cheng Y, Tsai P-J, Guo YL. Occupational stress in nurses in psychiatric institutions in Taiwan. Journal of occupational health. 2005;47(3):218-25.

32. Chiu Y-L, Chung R-G, Wu C-S, Ho C-H. The effects of job demands, control, and social support on hospital clinical nurses' intention to turn over. Applied Nursing Research. 2009;22(4):258-63.
33. Eum K-D, Li J, Jhun H-J, Park J-T, Tak S-W, Karasek R, et al. Psychometric properties of the Korean version of the job content questionnaire: data from health care workers. International archives of occupational and environmental health. 2007;80(6):497-504.
34. Biganeh J, Abolghasemi J, Alimohammadi I, Ebrahimi H, Torabi Z, Ashtarinezhad A. Survey of occupational stress effects on burnout among nurses. 2018;13(1):10-18.
35. Hayes B, Douglas C, Bonner A. Work environment, job satisfaction, stress and burnout among haemodialysis nurses. Journal of nursing management. 2015;23(5):588-98.
36. Prinz P, Hertrich K, Hirschfelder U, de Zwaan M. Burnout, depression and depersonalisation–Psychological factors and coping strategies in dental and medical students. GMS Zeitschrift für medizinische Ausbildung. 2012;29(1) :1-14.
37. Xie Z, Wang A, Chen B. Nurse burnout and its association with occupational stress in a cross-sectional study in Shanghai. Journal of advanced nursing. 2011;67(7):1537-46.
38. Portero de la Cruz S, Vaquero Abellán M. Professional burnout, stress and job satisfaction of nursing staff at a university hospital. Revista latino-americana de enfermagem. 2015;23(3):543-52.
39. Spooner-Lane R. The influence of work stress and work support on burnout in public hospital nurses: Queensland University of Technology. Thesis . 2004:1-325.
40. Shahnazdoust M, Maghsudi S, Tabari R, Kazemnegad E. Relationship between nursing burnout and occupational support. Journal of Guilan University of Medical Sciences. 2012;20(80):49-59.

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