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Prevalence of Occupational Stressors from the Perspective of Pre- Hospital Personnel in Disaster and Emergency Medical Management Center

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ABSTRACT

Introduction and Aim: medical emergency technicians offer the first medical actions to the patients because of their occupational nature. Occupational stress of personnel has many effects on quality of clinical care. This study aimed to assess the prevalence of occupational stress from the perspective of pre-hospital personnel of 115 Emergency in Golestan province. **Materials and Methods:** this research is a descriptive cross sectional study in which research society was selected by Census method from all personnel of emergency 115 of Golestan province at 2012-2013 consists of 206. Tools of collecting data were demographic form occupational stress and self-designed questionnaire that was measured by Lickert scale. In analyzing statistical, data was discussed by SPSS software version 16 and Descriptive and inferential statistics, ANOVA Test, T-test and Tukey test. **Findings:** the findings showed that 75/5% of EMS personnel suffer from moderate to high stress and organizational had the highest score of producing stress. As if, from other organizational factors is "shortage of salary and benefit" ($2/44 \pm 0/82$), had the highest mean to it and had the highest point in questionnaire. In physical dimension, "danger expose to disease or damages due to work" ($2/3 \pm 0/8$) in dimension of occupation, "having malignant patient in ambulance", ($1/99 \pm 0/87$) and in group dimension, "verbal conflict with patient's companion" ($1/92 \pm 0/95$) had the more stressful factors and there was significant relation between occupation stress and age type of employment. **Discussion and Concluding:** occupational stress can have negative effects on the medical performance of pre hospital staff, thus recognitions of factors and apply strategies for reduce occupation stress can increase quality care of patient.

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INTRODUCTION

In our country, Center of Management of Accidents and Medical Emergencies is known as 115, was established for saving health of population and as for its role in seconds or minutes, play vital role in this case [1]. Of stressful stimulators can make chronic pressure, is type of occupation as if mental pressure due to workplace can make bodily and mental pressure and endanger his health. Organizational aims conduce to reductions of person's performance [2]. During recent decades, researchers regarded occupation stress as significant factors. [3] Occupational stress is important and significant factor between 1-3.5 of GNP. Researches [4] showed that different factors influence upon occupational stress, the occupations are performed as shift can disorder in 24 hours rhythm and have physiologic and mental defects. [5] As if increasing work hour can increase struggle in occupational duties and family. [6] Between it, technicians of emergency face to stressful factors like place of full of damaged, malignant patients in which medical working is so hard 7). Mental and physical stress is following with stabilizing patient, relax them, ensure suitable continuum for reaching to hospital [8]. Also angry patients challenge technicians in which the patients consume alcohol or drug or have mental problem as if technicians have to close them carefully so that it is possible to attack by them [9]. Sofianopoulos by narration of Parliament writes that physical mental and spiritual stimulators can endanger the technician on dangers like, accident, faults and other defects (9). So that, in average, it is 1.2-2 times more

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probable to be killed while performing the services compared to other jobs and the amount of damage due to transportation is 5 times more than average for them [10]. Based on studies, annually more than thousands die in which their death is due to medical preventable mistakes and its origin is regarded as stress in clinical activity and medical treatment and medical faults are preventable. Exposure to stress occurs. [11] As if work place can make negative stress or environmental stress and if work place is remote area, type of restless factor is made [12]. In England, it is estimated that occupational stress is most great stimulators after skeleton disorders and cost of patient and absent pertain to stress is estimated at 4 trillion pounds [13]. In Iran, different factors show prevalence of stress between 23/4 to close 50% [14]. Since, there are similarities between cause and factors of stress in different organizations, but difference between these factors is significant [15]. Thus, in this research, as for stressful nature of occupations than actions like treatment actions in more danger environments and 24 hours shift, transferred stress from the patient's companions, continued 48 hours shift in form of extra work caused that the researcher consider prevalence of occupational stress.

Methodology:

Current research is occasional descriptive cross sectional that was performed between 247 of pre-hospital emergency center in 44 of urban and road bases, are selected which as Census method. 7 persons because of family problems like death, divorce and mental problems during 6-4 weeks, 9 persons because of having service year lower than one year were deleted and 25 persons did not respond it finally, 206 were selected for final analysis.

Researcher offered questionnaire to refer in emergency base without insertion name as well as necessary description and because of fatigue, some of them competed at home, the criterion are 1- be practitioner in urban and road emergency bases (technicians who practitioner in administrative and central wards did not consider) 2- minimum 1 year service in medical emergencies, the practitioners who had extra work lower than 192 hours and who had family problem during 4-6 weeks like death, divorce, and persons who had mental disorders were removed.

Tools for collecting data consist of demographic form included 14 questions and internal validity was used to determine the scientific validity and a self-designed questionnaire of occupational stress of nursing was prepared by DANESH, in study books and articles in which consisted of 46 questions in 4 physical, occupational, group and organizational dimensions and Likert 4 point scale was used for it that is minimum point (0) is for never response, [3] for more [16]. For recognizing occupational stress, statistical method of quartile ranking was used in which physical dimension score is [lower than 8 is low, between

8-13 is mean and higher than 13 is high] and occupational dimension score is [lower than 29 is low, between 29-46 is mean and higher than 46 is high]and group dimension score is [lower than 7 is low, between 7-14 is mean and higher than 14 is high] organizational dimension score is [lower than 18 is low, between 18-26 is mean and higher than 26 is high]and in Total level of occupational stress,[lower than 61 is low, between 61-94 is mean and higher than 94 is high].

Questionnaire of occupational stress was reliability and validity by Danesh at 2002-2003. It is worth to say since the said questionnaire was compiled for nurses who work in hospital, thus some of words are as equivalent and in 2003, for ensuring scientific, the said tool re tested. In which correlation factor was based on Pearson test that is 0/95 [16]. Whereas, in this research, Pearson correlation was 0/87 and also in validity research, based on Alpha Kronbach, internal validity was 71% for physical factors and 88% for occupational, 75% for group and 82% for organizational factors, in this research firstly, tools for collecting data were offered and then spss software version 16 was used. A t-test was applied for investigating the relation between occupational stress with demographic specifications to compare two groups and for other demographic aims which had more than two groups Anova test was used. If this test was significant, Tukey's test were used to compare subgroups.

Findings:

Age mean and deviation for persons studied was(34/36±7/56) years and mean service year and deviation for them was(8/52±5/94) from type of employment, (N=95)46/1% as short term contractual, (N=78)37/9% as permanent and(N=33) 16% were as long term contractual. From graduation point of view, 63/7% were Associate Degree and from relation between graduation and occupation,76/8% had pertain degrees (like nursing, operating room Technicians...) and 84% married and from abundance percent, majority of them had one child, 34/3%. 67/4% had housewife. 45/5% had monthly salary as 300 \$, 74/8% had complementary insurance and 57/7% had education during service. From second work, 23/3% in emergency and 57/8% worked in emergency as well as hospital. And also 17/5% worked in non hospital occupations.

Absolute and relative abundance distribution in terms of severity of total level of occupational stress showed that 23/9%(N= 37) had occupational stress higher and 51/6%(N= 80) had medium and24/5(N= 38) low stress and from dimensions,58/3%(N=116) in Physical dimensions,60/4%(N= 122) in group and 56%(N= 107)in organizational dimensions were measured in average job stress level.

The statistical indices showed that mean and deviation in physical dimension had point(10/44±3/43) and occupational factors(37/12±1/12) and group factors were(10/54±4/28)and organizational factors were(21/62±6/05) significant. In normal dimensions, every 4 dimensions were at average level. So that, , organizational dimension with average point of more than 100 (65/51) had the first rank and physical dimension with 58 and occupational dimension with 56.24 and group dimension with 50/19 points were in next rank respectively

Points abundance, mean and ranks obtained in organizational dimension showed that highest rank was pertaining to "shortage of salary and benefit"(2/44±0/82). And it was control and "continued supervision by managers"(1/49±0/9) were the least stress making factors in this dimension.

Table 1: Percent, Mean, and rank of points obtained in organizational dimension from sub indices occupational stress in pre -hospital emergency staff and medical emergency of Golestan province

Total rank	Rank in dimension	Mean	Deviation	Description	Row
39	11	1.47	0.84	Lacking observance regulations by other co workers	1
10	7	1.94	2.39	Lacing observance justice in work place	2
1	1	2.44	0.82	Shortage of salary and benefit	3
6	5	2.04	0.96	Shortage of position in graduation	4
38	10	1.49	0.9	Continued control and supervision by managers	5
15	8	1.85	0.92	High expectations of the authority	6
2	2	2.32	0.84	Not understand problems by management	7
7	6	2.02	0.92	Non reasonable critics	8
4	3	2.22	0.93	Lacking occupational safety	9
5	4	2.19	0.88	Shortage of positive feedback	10
30	9	1.63	0.79	Struggle personal insight with organization policies	11

In physical dimension that has the second rank, the sentence "danger to have disease or damages due to work"(2/3±0/8) was recognized as the first stress making factor while "shortage of recreation facility" was recognized as lowest stress factor with (1/52±1/02).

Table 2: Percent, Mean, and rank of points obtained in physical dimension from sub indices of occupational stress in pre- hospital emergency personnel and medical emergencies of Golestan province.

Total rank	Rank in dimensions	Mean	Deviation	Description	Row
20	2	1.76	0.88	Unsuitable physical situation in work place	1
33	5	1.58	0.96	Unsuitable service place	2
36	6	1.51	1.02	Shortage or absent recreation facility	3
29	3	1.64	0.96	Perform emergency cures in noisy environment	4
31	4	1.6	0.99	Shortage of facility for perform emergency cures	5
3	1	2.3	0.8	Expose disease or damages due to it	6

In occupational dimension that has third rank, sentence "having malignant patient in ambulance" had belonged the highest point (1/99±0/87) and "not having suffice skill in applying treatment equipment's "had the lowest rank (1/99±0/87).

Table 3: Percent, Mean and rank point obtained from sub indices of occupational stress of pre hospital emergency personnel and medical emergencies of Golestan.

Total rank	Rank in dimensions	Mean	Deviation	Description	Row
22	10	1.74	0.96	See patient who suffers	1
13	4	1.91	0.88	See death of patient	2
14	5	1.87	0.93	Confront to emergency cases, CPR	3
8	1	1.99	0.87	Having malignant patient	4
37	18	1.5	0.85	Perform painful treatment methods	5
40	19	1.39	0.97	Not having unsuitable medical studies	6
44	22	1.27	0.99	Not having unsuitable skills in applying treatment tools	7
41	20	1.38	0.95	Fear of mistake in cure	8
28	15	1.65	0.97	High shift in cure	9
35	17	1.51	0.95	Compulsion in perform emergency cure	10
25	12	1.69	0.94	Much work in ambulance, clinical services	11
16	6	1.85	0.94	Shortage of personnel for offering better services	12
21	9	1.74	0.99	Non experiences nurses about cure	13
32	16	1.59	0.79	Unsuitable coordination between scientific elements	14
17	7	1.79	0.99	Perform non clinical duties and office works	15
27	14	1.66	0.99	Long term shift	16
43	21	1.28	1.04	Turning shift	17
26	13	1.68	0.95	Extra work	18

19	8	1.77	0.97	Non clarity of responsibilities and duties	19
24	11	1.7	0.95	Unsuitable division	20
12	3	1.91	0.9	Insufficient rest and watchful	21
9	2	1.97	1.02	Difficulty is using leave or hour pass in required cases	22

In group dimension, that is the last dimension of it, "verbal conflict to the patient's companions ($1/92 \pm 0/95$) had the highest rank and "insufficient support by family, parents, spouse or children" ($1/1 \pm 1/12$) had the lowest stress factors.

Table 4: Percent, Mean and ranks point obtained in group dimensions from sub indices of occupational stress in pre- hospital emergency and medical emergency of Golestan.

Total rank	Rank in dimensions	Mean	Deviation	Description	Row
23	3	1.72	1	Dispute to doctor in relation to treatment methods	1
18	2	1.77	1.06	Non access doctor in emergency cases	2
34	4	1.57	0.83	non cooperation between patient for medications	3
11	1	1.92	0.95	verbal conflict with patient companions t	4
46	7	1.12	1.01	Insufficient patronage by family, children, parents and wife	5
45	6	1.17	0.86	Communication problems with coworkers	6
42	5	1.29	0.89	Non cooperation by other emergency team	7

In relation between occupational stress dimension to demographic specifications, between group dimension and age groups, there was significant difference ($P < 0/02$) as if self-designed questionnaire test showed that this difference between age group 40-44 years ($10/08 \pm 4/07$) and age lower than 25 years ($9 \pm 4/5$) equal to ($p < 0/016$) and this difference with age group 25-29 years ($10/06 \pm 4/18$) equal to ($p < 0/019$) and it is ($p > 0.017$) in age group of 30-34. ($9/7 \pm 4/17$)

In relation to occupational dimension of occupational stress subscales to type of employment, there was significant difference. ($P = 0/048$) and Tukey test showed that this difference was significant between permanent ($39/48 \pm 11/14$) and short term contractual ($34/91 \pm 11/36$) Personnel ($p = 0/039$) and the findings showed that there was not significant difference between dimensions of occupational stress, type of employment, work service, graduation, economical statuses, education during service and second work.

Discussion:

Patients who needful was with domain of stress for personnel as if the findings showed that many research domains experienced occupational stress in medium level and from 206, 75/5% experienced medium to high stress.

In relation study of Motee [17] and Mahbobi [18] in which performed on pre hospital emergency personnel, mean of stressful tensions were 51/76% and 63/3% respectively. In other study by Seyedjavadi, occupational stress of 103 personnel was recognized and some of them 77 (74/8%) had stress points between 150-250 (medium) [19], in which three said studies showed that percent of persons who expose stress is medium, as if the results will be investigated, in Nourian and et al study [20], and Zeighami [21], occupational stress was 73/47 % and 86/7% in medium and in study of Rahmani, occupational stress was high level. (86/7%) [1]. In Barzideh study majority of nurses had occupational stress in high level [22]. also Aoki and et al performed study in Thailand and concluded that 26/2% of persons expose to sever stress in which [23] three current studies not conform to us. It seems that work place situation of pre hospital emergency personnel is to different stress that negative influence on body, mind, performance and organization efficiency thus its reduction need attention and interventions like classes against stress, occupational patronage, and staff participation in decision, which make mutual relation between supervisor and enhance self esteem, responsibility, confidence and control. Statistical indices showed that organizational (management) dimension had obtain the highest mean score compared with other occupational stressors.

as if in Torshizi study about nurses, management factors with mean 2/64 (2) and in study by Motee on recovery personnel of emergency, these factors with mean 3/53 had the most stressful effects [17]. Study of Danesh instead of our study, organizational factors had the lowest effects on occupational stress [16].

These results showed that the most effective factors on occupational stress is management or organizational factors as if in senior rank, managers play a vital role in reduction stress [25].

The highest mean point in organizational dimension as one of the subscales of occupational stress which has the first rank in the group and Questionnaire total was the term "shortage of salary and benefit" and term "feeling control and continued supervision by manager" were the least stress making factor in the related dimension.

As if in results derived from Torshizi [22] and Razhbam [23], "shortage of salary and benefit" had the highest point between management factors and in study by Danesh, term "shortage of salary and benefit" was the most effective factor in job stress and "feeling control and continued supervision of managers" were lowest stress making factor in the mentioned dimension. the term of "shortage of salary and benefit" was the most important factor in the questionnaire [16].

The highest mean in physical dimension in which had second rank is "danger expose to disease or damages due to work" and "shortage or lacking recreational facility" was recognized as the lowest rank.

Whereas, in Danesh study about physical dimension, "danger exposé to disease or damages due to work" is recognized as first factor and "unsuitability of work place" had the lowest rank. [16]

One of the most important stress factors for personnel in physical dimension, is "danger to expose disease or damages due to work" so that pre hospital personnel face to first treatment group on clinical bed of patient without having lab tests and it is possible to widespread disease like hepatitis, aid and so on and in study of Motee and et al, "touch topolluted things" had first rank of stress where as in Torshizi and et al studies, "danger of transmission infectious diseases" had fifth rank of stressful factors for curing patient and "danger of expose to other disease "had fifth rank between 28 stressful factors [22] which is about pre hospital emergency personnel who perform their task without knowing about it and damages due to transfer malignant diseases like backache, neck which emerged. As if Hensen and et al concluded that scale of skeleton pains is more than work personnel (42% to 29%) 24

The highest mean point in occupational dimension as one of the sub indexes of occupational stress and had third rank, is "having malignant patient" and "not suffices skill in applying treatment had the lowest stress factor in this dimension".

In study by Motee and et al, "cure malignant patients" is as important factor in occupational tension in emergency personnel [17]. Also, in study by Danesh, "having malignant patient" is second factor in occupational dimension. [16]

The highest mean point in group dimension is regard as sub indices of occupational stress, is "verbal conflict with patient companions" [16], whereas ,term "scant patronage from family, parents, children and wife" had the lowest factor.

Danesh showed that " verbal conflict with patient companions " had the most factors which conform to our study. As if, "communication problems with coworkers" are regarded as the lowest factor in group dimension [16], which don't conform to our study.

Similarly, in study by Motee and et al [17], "disrespect of patient and companion is regarded as the highest rank of tension and conforms to our study.

In total ranking of stressful factors, there are 5 factors important: 1- shortage of salary and benefit 2- not understand personnel problems-3 expose to disease or damages due to it 4- lacking occupational safety 5- shortage of enhancement or positive feedback

Popa and et al cited stressful factors as shortage of personnel, high work pressure and lacking management that conforms to our study. [25]

Motee and et al considered stressful factors in personnel of emergency and presented 5 factor for it: 1- not having suitable opportunity for rest 2- shortage of facility 3- not having suitable place for rest 4- lacking perfect evaluation 5- shortage of technician.[17] which show effects of management factors.

There were different studies in hospital nurses that are 5 factors as stressful factors are: 1- shortage of salary and benefit 2- see patient who suffers 3- not understand personnel problems by management 4- lacking cooperation by other nurse team 5- expose to disease or damages due it. [16] which conform to our study.

Similarly Jacoba and et al experienced following stresses that is derived from lacking patronage by organization 1- shortage of personnel 2- scant salary 3- shortage of personnel for high work pressure 4- lacking cooperation and their stimulation [26] which conforms to our study considering insufficient salary. In study by Tyson and et al, occupational stress is derived from shortage of organizational patronage and complexity by nurses [27]. and at sum; some of these factors are different between nurses.

Nurses' international council cited main factors of stress like ,confront to mortality, struggle to coworkers, lacking preparation for expose to patients and their family needs, shortage of patronage, work load and insufficient treatment program. [28]

In relation between occupational stress to age group, there was Significant relation between them that is ($p < 0/02$) and Tukey test showed that this difference between age group 40-44years, is lower than 25.,25- 29, 30-34, In study by Bahrami and et al, the most occupational stress was pertaining to nurses 40-46 years and after that nurses who had 30-39 years in which with increasing age, this process will be worst but there was not Significant difference [30]. Results of some studies show that persons who had age higher, have low stress in which because of their preparation with stressful situations [31], instead of said study, the result was different as is ages higher than 35 years, had more occupational stress and ages between 35-39 years exposed to it more.

Based on data, there was Significant relation between occupational stress and type of employment and Tukey test showed the difference between permanent and long term contractual personnel,(table 5), in study by Bahrami and et al long term contractual personnel with(170±25/8) score had the highest stress and after that permanent personnel with(164/5±28/7)and the lowest point was about long term contractual personnel with(150/6±25/4) in which statistical difference was in terms of employment statues.($P = 0/001$)(34) in which conform to current research. Whereas in study by Motee and et al which was performed in pre hospital emergency personnel, there was significant difference between part time with long term contractual and

permanent employment, ($p=0/000$) as if part time employment had more stress than permanent and long term contractual employment (17) and did not conform to current research.

Table 5: Mean occupational stress and its sub indices in terms of demographic specifications of pre-hospital emergency and disaster and Emergency Medical Management Center of Golestan.

P<0.05	Max	Min	Deviation	Mean	Number	Age group	Occupational stress
(p=0.02)	18	2	4.5	9	15	<25	Group factors
	19	3	4.18	10.06	49	25-29	
	18	0	4.17	9.7	42	30-34	
	19	2	4.09	11.14	48	35-39	
	20	3	4.07	10.08	23	40-44	
	19	4	4.37	10.32	25	≥ 45	
	20	0	4.28	10.54	202	total	
P<0.05	Max	Min	Deviation	Mean	Number	Type of employment	Occupational stress
p=0.048	60	16	11.14	39.48	62	permanent	Occupational factors
	58	18	10.39	38.17	29	long term contractual	
	60	10	11.36	34.91	80	short term contractual	
	60	10	11.26	37.12	171	Total	

Concluding:

As for inevitable some of occupational stressful factors and know stressful factors in pre hospital emergency personnel especially in organizational discussion and reduce work hours by enhance efficiency law, apply education confront with stress are approaches that can help reduce stress in said personnel.

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