Military Staff's Knowledge and Attitude about Health Related Measures in Emergencies: Case of Malik Ashtar Garrison, Arak

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Introduction: Health related measures in emergencies are of the issues that, if taken properly, can reduce damages of a disaster effectively. To have this situation happened; knowledge of health personnel, crisis staff, and military and other related groups has to improve. This study aimed to determine military staffs' attitude and knowledge about health measures in emergencies.

Methods: This descriptive and cross-sectional study was conducted through a self-administrated questionnaire. Validity and reliability of the questionnaire was previously proven. The questionnaire included items on personal information and knowledge and attitude about health measures in emergencies. Using a multi-stage sampling, 190 soldiers of Malek Ashtar Military Garrison in Arak were selected. ANOVA, Kruskal- Wallis, Chi Square, Spearman rho's coefficient correlation and T-test were used to analyze that data.

Results: Findings showed that 43 percent of soldiers had good knowledge of health measures in emergencies. About 11 percent of staff had poor knowledge. Half of staff had an average attitude toward emergency health measures. Concerning the degree of knowledge, no significant difference was observed between soldiers with different levels of education. Regarding knowledge and attitude, there was no statistically significant difference between different age groups.

Conclusion: Having a basic knowledge of health measures in emergencies is of salient importance. Considering lack of such basic knowledge among some military staff, provision of training on health related measures for those staff is recommended.

Keywords: knowledge, attitude, health measures, military staff, crisis

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Introduction

Our country has constantly been exposed to various crises owing to its geographical and political position. Every year we witness heavy floods, destructive earthquakes, violent storms, and other types of disasters whose financial and spiritual damages are incalculable and to a large extent irreparable. Such events entail negative consequences, many of which are inevitable. [1]

Crises, from technical-economic, individual, and social-organizational dimensions can be divided into four categories: (a) internal technical-economic crises (reduction in the rate of production or services, industrial defects or accidents, failure of machines and computers, insufficiency of Management Information Systems, bankruptcy, depreciation of information and technical resources), (b) external technical-economic crises like (national, state and international crises, natural disasters, massive environmental destruction, failure of large and extensive systems, bankruptcy of main and original organizations, the advent of modern techs in markets), (c) internal social-organizational crises such as (failure to have conformity with changes, deliberate destruction (vandalism) of machines and computers by staffs, spreading gossip, vilifying the organization, slandering and making vulgar jokes in the organization) , (d) external social-organizational crises like (symbolic generalization, deliberate destruction of systems by foreign forces, holding managers hostage and taking bribes from the organization, counterfeiting products by rivals, strike, prohibition, and killing for obtaining illegal rights) [2]. An emergency situation refers to a condition caused by a natural disaster in which man have no role or to a great disaster which may take place accidentally by man. Critical condition leads to serious disruption of part of society, massive human, financial and environmental damages, which society with its normal health services is incapable of responding, and hence local, national, international resources must be called for [3, 4]. Many people may be subjected to adverse environmental effects. One of the initial requirements is to provide immediate facilities improvement to control the environment health as far as the condition and resources allow [3]. Measures recommended for critical situations are the same as normal situations which are made simpler. Health measures which can be taken by the health staff are as follows:

Supervising the shelter provision for the casualties, sufficient safe-and-drinking water supply, safe food supply, safe wastewater, garbage and human waste disposal, fighting the vectors, evaluating the danger of epidemics following the disasters, and etc. [7,5,6]. Of the 41 natural

disasters occurring worldwide, 31 have happened in Iran. Natural disasters with high frequency are: earthquake, flood, landslide, desertification, deforestation, storms, etc. In the last 90 years earthquake has claimed more than 180,000 lives. In the recent earthquake of 5.6 on the Richter scale struck Bam, 30000 people were killed and over 10,000 people were injured [8,3]. It is obvious that one of the main requirements needed in relief operations is the immediate supply of the most suitable sanitation facilities and monitoring environmental health as far as the facilities and resources allow [7, 3, and 6]. In case of water shortage or power supply, it is very difficult to keep food safe. In the wake of event sewage disposal would burst, and its failure may lead to the leaking of wastewater into the drinking water. Bacterium and pathogen in wastewater are factors whose detrimental effects have been proven about a century ago [9, 5, and 10]. Letting the wastewater flow into open channels and rivers makes an unsanitary environment which compounds the problem [11]. Failure in wastewater collection system more than two or three weeks in any countries entails a great deal of problems (9). An increase in the number of mice, flies and other vectors is the inevitable aftermath of garbage pile-up. 22 kinds of human illnesses are said to be associated with poor waste management which indicates the significance of waste management in crisis [13,12,14] .Pathogens exist both in surface and underground water living on for months. To supply safe drinking water it is necessary to remove or destroy organisms [15]. 1 out of 15 children dies from diseases related to untreated water and poor sanitation [16]. It is advisable to use safely bottled, boiled or treated water as long as the drinking water distribution system is recovered [9]. Safe drinking water supply is vital, since unsafe drinking water is the main factor of transmission of such diseases as cholera, bacterial diarrhea, parasitic diseases which help to make the diseases epidemic through the disaster-stricken community [17]. Malaria has always posed threat for societies against which long-term use of pesticide is not recommended due to the fact that it makes mosquitoes resistance against it. By sanitizing the environment like improving system of drainage and filling the holes mosquitoes can be destroyed. Leveling the grounds and constructing drainage system are some of most prevalent measures for clearing stagnant waters [18, 6]. Another environmental health measure is to provide proper shelter for the casualties. The camp site must be far off from the mosquito-breeding centers and garbage pile, and has a quick and easy access to road. Putting up tents is one of the most usual and convenient ways of sheltering in crisis, ventilated naturally, not needing extra equipment. Smaller tents should be used so as to fewer people can be

accommodated in each tent [9, 5]. Over 200 million people live in countries affected by critically complicated conditions, not only the refugees and the displaced people but also the whole country is entangled in it. Since natural disasters have their own complexities, confronting them demands high social awareness and cooperation of different expertise. Main interventions of health education, environmental awareness, social requirements and budget increase are necessary to prevent the outbreak of prevalent diseases in camps [20, 19, and 5]. In a study carried out by Imanifar, it was specified that teachers' awareness of environmental health was 27% [21]. Rezayi's research in 2000 on studying the level of Araki citizens' information in facing the natural disasters reveals that 47/3% had very little information and 4/3% had satisfactory information [22]. There was no significant difference between men and women's awareness and attitude in our study. In another study conducted by Mesdaghinya and his colleagues, it turns out that women's awareness of environmental health was more acceptable than men. Although natural disasters occur out of man's control, its consequences are considerable controllable. Improving awareness of authorities and people can prevent disease outbreaks to some extent. In recent years, according to studies carried out either among the health students or the health center staffs and the Red-cross, it is found that they had low awareness concerning taking health measures in crisis. Training garrisons is one of the training centers for soldier in Iran, and thus Training Garrison of Malik Ashtar, which has not be studied before, is selected for our research to see the level of its staff's awareness and attitude to health measures in crisis.

Methods:

We used a two-stage sampling, firstly a cross-sectional sampling by a proportional assignment and then a simple random sampling. The data were statistically analyzed using the SPSS16 software. The population consist of 300 samples, which were defined by using the calculation of sample number formula $n= (z2pq)/d2$ and previous experiences a=5%, d=5%. Data was collected through a questionnaire. Descriptive statistics were used to describe the respondent's attitude and awareness. The degree of awareness was evaluated by calculating the total score for each sample, in which each right answer has 1 score, each wrong answer -1, and each unanswered question no score. Thus, the total score for awareness questionnaire can range from zero to 10. The respondent's attitudes were obtained by summing up the scores of attitude questions for each questionnaire. After aligning the effect of agreement and disagreement with the respondents' attitude towards the questions, the scores were assigned between 1 to 5 for

each question, in a way that the score 5 demonstrated the most positive attitude for each question, and hence the total score of each questionnaire can range from 10 to 50. For an average comparison of questions of awareness and attitude among different age groups, firstly the normalized variables hypothesis was investigated by using the Kolomogorov-Smirnov test and it was observed that this hypothesis was rejected for the awareness variable: (p-value = 0.002). Therefore, the Kruskal-Wallis nonparametric test was used for the comparison of groups. This hypothesis was accepted for the attitude variable, however, in the next stage the symmetric variation in the group was investigated using the Levene test which was also rejected: (p-value = 0.226), and thus the one-sided variant analysis of ANOVA was used for the average comparison of this variable among age groups. Moreover, for defining the existence of correlation between awareness and attitude scores we used the Spearman's nonparametric correlation coefficient test. p□0.05 is defined for indicating the significance level of the statistics. No ethical observation is made in the study.

Results:

The volume of the studied samples ran to 190. Their average age was 24.72 with SD = 2.01 (range = 21-29). Also, 36 of them (18.7%) had associate degree, 111 (57.5%) BA degree, and 43 (22.3%) MA or PhD. Results of samples' awareness are given in table 1.

Table 1- Results of samples' awareness

Question No.	1	2	3	4	5	6	7	8	9	10
Answer (%)	0.31 %	0.38 %	0.54 %	0.69 %	0.66 %	0.84 %	0.65 %	0.42 %	0.54 %	0.21 %
Standard deviation	0.464	0.488	0.5	0.462	0.474	0.37	0.477	0.495	0.5	0.405
p-value	0.000	0.001	0.246	0.000	0.000	0.000	0.000	0.30	0.31	0.000

According to the table, the percentage of responses to questions 1, 2, 8 and 10 is less than 0.5. By conducting the test and with respect to the p-value, it is observed that the percent of the samples' awareness on these questions is significantly low. Also it is worth noting that question 10 has the lowest score indicating samples' lack of awareness. The percent of correct responses to the rest of the questions is more than 50%, and after carrying out the chi-square test it was shown that the percent of correct responses to questions 4, 5 and 6 is significantly more than 0. 5, indicating that more than 50% of the samples have sufficient knowledge. Yet, concerning questions 3 and 9 with the standard deviation of 0.5 there is no significant difference. It is noteworthy that among these 6 questions the highest percent of correct responses belongs to Q.6 with 84%. The average of the total awareness questions equaled to $\mu = 5.25$ with a standard deviation of SD=1.55.

Table2 –frequency of responses for awareness questions

Question number	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
Question	prevention	epidemic	Hygienic place	Food properties	Solid waste disposal	safe drinking water	Method for disinfecting water	Fighting against mosquitos	Place of health inspector	Disposal system
awareness	58	72	110	131	125	159	124	80	103	30
unawareness	131	118	80	59	75	31	76	110	87	150

In assessing samples' attitude, the average score for all questions except Q.10 was calculated over 3. For Q.3 the average was $\mu = 2.75$, showing that people's attitude tend to be negative in this case. For comparing the average attitude with the numerical value of 3, we used one sample t-test and it was seen that, except Q.7 whose average score did not differ significantly from the value 3, the hypothesis of equality to value 3 was rejected in a way that for Q.10 we can definitely state that the samples' attitude was negative while for the rest of the questions it was positive. The average of the total

scores for attitude equals to μ = 35/64, with a standard deviation of SD = 4/41. Results of samples' attitude are presented in Table 3.

Table 3-results of samples' attitude

question	1	2	3	4	5	6	7	8	9	10
average	4.06	3.82	3.29	3.32	3.47	4.03	3.13	3.51	4.28	2.75
Standard deviation	1.18	1	1.15	1.3	1.19	1.01	1.1	1.25	1.11	1.22
p-value	0.00	0.0	0.001	0.001	0.000	0.000	0.117	0.000	0.000	0.006

As it is shown in tables 4 and 5, the average awareness and attitude for three age groups are very close. The nonparametric Kruskal-Wallis test was used to compare the average awareness of different age groups, demonstrating that there is no significant difference: p-value = 0.311. The one-sided variant analysis test of (ANOVA) was employed for comparing the average attitude among different age groups, indicating that there is no significant statistical difference: p-value = 0.786.

Table 4- Descriptive statistics for attitude scores

descriptive statistics for the rate of attitude								
Age groups	Numbers	average	Standard deviation	Standard error	Assurance distance for average 95%		minimum	maximum
					Lower bound	Upper bound		
(=<23) First	55	35.38	3.7	0.05	34.97	36.99	29	44
(26 – 24) Second	96	35.46	5.05	0.51	34.44	36.49	14	45
(>=27) Third	39	35.58	3.5	0.57	34.42	36.75	30	42
Total	190	35.64	4.14	0.32	35.01	36.27	14	45

Table 5- Descriptive statistics for the level of awareness

descriptive statistics for the rate of awareness								
Age groups	Number	average	Standard deviation	Standard error	Assurance distance for average 95%		minimum	maximum
					Lower bound	Upper bound		
(=<23) First	55	5.20	1.54	0.20	4.47	5.61	2	8
(26 – 24) Second	96	5.37	1.52	0.15	5.07	5.69	1	8
(>=27) Third	39	4.97	1.63	0.26	4.44	5.50	1	8
Total	190	5.24	1.55	0.11	5.02	5.46	1	8

Finally, the correlation between samples' awareness and attitude as a hypothesis was tested to see whether samples' higher knowledge about all questions requires a more positive attitude or conversely for which the Spearman's rank correlation coefficient was used. The result was r_s=0.133 showing that there is a small positive correlation between two variables which was not significant: (p-value = 0.11).

Table 6- Percent of the staff's awareness

	Low knowledge	medium knowledge	High knowledge
frequency	21	88	81
percentage	11.1	46.3	42.6

Table 7- Percent of the staff's attitude

	Negative attitude	normal attitude	Positive attitude
frequency	43	94	53
percentage	22.6	49.5	29.9

Conclusion:

This study aimed to investigate the level of awareness and attitude of the staff of Malek Ashtar Garrison, in Arak, concerning health measures and safety of food supply in crisis. Results showed that less than 50 percent of the staff had a good awareness and attitude towards health actions at times of crisis. While a study by Asl Hashemi demonstrated that when

intervention is taken in the form of teaching health measures, respectively 12/97 and 57/87 percent improvement is achieved in level of awareness and attitude, our study did not evince a statistically significant difference in awareness and attitude [24]. A study by Vosoughi and his colleagues on level of awareness and attitude of students of Medical Science towards health actions in emergencies showed that 11.2% of students had excellent awareness, 66% medium, 22.1% poor, and 76.4 % had an average attitude towards health actions in emergencies [25]. A study by Mansoori in 2001 on the level of awareness of the health staff of the center of Kermanshah province on natural disasters and its aftermaths indicates that the average awareness of the staff was 10 +-5/60 out of 100 and the lowest level of awareness concerning methods of safe storage, sanitation and preserving the water supply after natural disaster was 6/22+-2/47, and the highest level of awareness regarding recognition and aftermath of natural disasters was 14+-69. The average men and women's score was, respectively, 5/9+-2/62, 9+-9/58. The environment health staff had the highest score of 5/8+-2/67 and paramedics (social workers) ranked the lowest with a 10+-1/58 [6]. In the present research more than 50% samples had sufficient awareness of food properties, solid waste disposal, and safe water drinking. They had poor awareness concerning prevention, disease epidemics, fight against the vectors, and waste disposal system in emergencies. The highest awareness of 84% was associated with safe drinking water which can be due to people's daily involvement with water and improvement of people's awareness through mass media. Results showed that samples had positive attitude towards all indexes except for water sanitation. Also, the average awareness and attitude of the three groups in the statistical population was very close to each other and no significant difference was observed between them. According to the gained results, it is vital to take such measures as providing necessary educations for improving the level of awareness and attitude of the staff.

On the basis of results, some recommendations can be offered:

1: Educational programs should be formulated for military soldiers and staff about health actions in emergencies.

2: Co-operation of garrisons with organizations like the Red-cross, Mass Media and Health Centers to help increase military staff, soldiers and people's awareness.

3: Providing and distributing educational pamphlets among military staff, soldiers and people.

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