

Assessment Knowledge and Attitude of Hospitals Managers about Disaster Preparedness in Lorestan Province in 2021

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Original Article

Abstract

INTRODUCTION: Disasters are unavoidable situations that lead to financial and human losses. Iran is prone to natural and man-made disasters due to its special situation. Since hospitals face many injuries during disasters, managers must be prepared to deal with these conditions. Accordingly, this study aims to determine the knowledge and attitude of public hospitals managers in Lorestan province about disaster preparedness.

METHODS: In this cross-sectional study, 158 senior managers of public hospitals in Lorestan province were selected by census method. The disaster preparedness knowledge and attitude questionnaire was completed by the respondents after the approval of the ethics committee and obtaining the necessary permits. Finally, data was analyzed with SPSS-25, the significance level was $P < 0.05$.

FINDINGS: According to the findings, mean score for knowledge of managers was 12.26 out of 25, and the mean attitude score was 66.18 out of 80. Among the studied variables, there was a significant relationship between age, disaster experience and knowledge. A significant relationship was also seen between the attitude and disaster experience. There was no significant relationship between knowledge, attitude and levels of management. There was also no significant correlation between knowledge score and attitude.

CONCLUSION: The results showed that the knowledge of managers was moderate, and their attitude was good. Due to the important role of hospital managers during disasters, it is recommended that hold training courses in disaster preparedness, especially for young managers, to increase the knowledge of healthcare managers, and trainings be held more practically.

Keywords: Knowledge; Attitude; Hospital Managers; Disaster preparedness.

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Introduction

Disasters are unavoidable, sudden, and intermittent situations, the destructive effects of which cause the inability of society to meet the needs and provide healthcare, and given the severity and importance, lead to financial and life injuries (1). Iran is prone to natural and man-made disasters; 31 known disasters worldwide occur in Iran, and it is considered one of the ten most catastrophic countries in the world (2&3). Annual accidents and disasters lead to at least 3,500,000 deaths worldwide (4). An average of 5,000 deaths and

injuries of thousands of people, and financial losses of over 100 billion tomans occurs annually due to natural disasters in Iran (5). Severe damages due to disasters, the lack of awareness, insufficient knowledge of managers of the organizations responsible for disasters, and lack of facilities increase the demand for healthcare at the time of disasters. Therefore, one of the critical issues is to be prepared for disasters (4). Preparedness is one of the practices in crisis management that make it possible for the related organizations to respond efficiently and quickly

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before disasters. Hospital preparedness also refers to the preparation of hospital managers in order to identify the risks and increase the ability to deal with accidents and crises (6). During disasters, the role of hospitals and healthcare centers is very critical because they are among the first centers whose optimal and fast service plays a vital role in decreasing mortality and increasing the number of survivors, reducing the complications, disabilities, and relieving physical and mental pain. However, hospitals had suffered devastation and adverse effects during the crisis, affecting the quality and quantity of healthcare services (7, 8).

The lack of knowledge and preparedness of managers for disasters at different levels and taking different decisions can lead to the waste of resources (9). Therefore, there is a need for knowledgeable managers and a precise plan to deal with unexpected emergencies (10). However, the results of various studies in Iran have not reported preparedness for disasters at an acceptable level; so that, Parsaei et al. reported low preparedness of Urmia hospitals (11). Also, Jahani et al. declared the level of preparedness of managers and hospitals of medical sciences universities in Sistan and Baluchistan and Kerman provinces is moderate (6).

Lack of planning and organization to deal with incidents, hospital unpreparedness, and inadequate knowledge and attitude of managers to control the crisis can cause irreparable damage to the country's healthcare system and the people. Thus, hospital managers must be adequately prepared before disasters to take the necessary measures and reactions. Therefore, given the high incidence of various types of disasters in Lorestan province, including the occurrence of devastating floods in April 2019 and several earthquakes, and failure to assess managers' preparedness level in Lorestan province so far, this study aimed to determine the knowledge and attitude of public hospitals managers in the Lorestan province about disaster preparedness.

Methods

This analytical cross-sectional study was conducted from February to November 2021. The statistical population includes all managers of public hospitals of Lorestan University of Medical Sciences including chairman, manager, administrative manager, financial manager, service manager, nursing manager, head nurse, and head of the hospital accidents and disasters

committee. Participants were selected by census method among 255 hospital managers based on the inclusion criteria such as willingness to participate in the study, and having the responsibility for at least 6 months. Data were collected using a questionnaire which includes personal characteristics, knowledge about disaster preparedness, and attitudes about disaster preparedness. The knowledge, attitude, and disasters performance questionnaire, developed by Ghanbari et al., was used in order to assess the knowledge and attitudes about disaster preparedness. This questionnaire includes 27 questions in the knowledge section, 20 questions in the attitude section, and 25 questions in the performance section. The knowledge, attitude, and performance scores are 0- 27, 20- 80, and 20- 25, respectively. After coordination with the author, the main questionnaire was received to conduct the research, and the questions related to the knowledge and attitude sections were used. The validity of the questionnaire reported by Ghanbari et al. as 0.86 and Cronbach's alpha coefficient was determined 0.87 (12).

In order to evaluate the face validity, the questionnaire was made available to 10 university professors, and corrective comments were applied. Also, the Content Validity Ratio (CVR) and Content Validity Index (CVI) were used to check the content validity (13&14).

The results showed desirable scores in all questions in the knowledge section except for 2 questions which were removed from the section. The reliability of tool was measured by the retest method in such a way that questionnaire was completed by 40 managers who had the research conditions. After two weeks, these managers completed the questionnaire again. The results showed that the correlation was 0.87 in the knowledge section, 0.95 in the attitude section, and 0.85 in total. Based on the results, Cronbach's alpha coefficient was 0.707 in the knowledge section, 0.947 in the attitude section, and 0.846 in total. It should be noted that the researchers used this questionnaire because it examines the general information about disaster preparedness and also consider the diversity of the participants (medical and non-medical managers) of this study.

After modification and approval, the questionnaire, the informed consent form, full explanations on how to complete the questionnaire, the way to send responses to

researchers, and the ethics committee confirmation form were sent to the heads of hospitals through university information management system. According to the request of the participants, the questionnaire's online form and the link were also sent. Since completing the questionnaires coincided with the COVID-19 pandemic, and most participants were involved in this crisis, the questionnaires were provided to them in person at their request. The normality of the distribution of quantitative data was assessed with the Kolmogorov-Smirnov test with a significant coefficient less than 0.05. Descriptive statistics, ANOVA, independent t-test, and Pearson correlation were used to analyze data using SPSS-25 software.

Findings

In this study, out of 255 hospital managers, 158 people participated. The mean age of participants was 40.71 years, and 60.1% were male. Also, 88% of the participants were married. Most of the samples (62%) had a bachelor's degree. The mean work experience of the participants was 12.39 years. Only 19.6% of participants had completed disaster management training, and 80.4% had not received any training course (Table 1).

The present study results showed that the mean knowledge score of hospital managers was 12.26 out of 25, and the mean attitude score was 66.18 out of 80 (Table 2).

In the knowledge questions, the lowest correct answer (32.3%) was the duties of crisis team members during disasters, and the highest correct answer (64.6%) was the concept of disasters (Table 3). Also, among the attitude questions, the lowest answer (77.2%) was the necessity of train people who will be responsible for clean-up and rescuing people after an earthquake, and the highest answer (93.7%) was the necessity of presence of managers in the hospital's disaster committee (Table 4).

The results related to the association of demographic variables with the level of knowledge of hospitals managers about disaster preparedness showed that there was a significant relationship between age and knowledge scores ($p=0.013$) due to the results of ANOVA test. In addition, there was a significant relationship between disaster experience and the knowledge score of managers ($p=0.001$) based on the results of the independent t-test. Furthermore, there was no significant association between other demographic variables and the knowledge score (Table 5).

Table 1. Demographic variables of hospital managers

| Parameter | | Number | Present |
|-------------------------------|----------|--------|---------|
| Gender | Female | 63 | 39.9 |
| | Male | 95 | 60.1 |
| Age (year) | 27-33 | 23 | 14.6 |
| | 34-40 | 63 | 39.9 |
| | 41-47 | 42 | 26.6 |
| | 48-54 | 30 | 19 |
| Education | Bachelor | 98 | 62 |
| | Masters | 52 | 32.9 |
| | Other | 8 | 5.1 |
| Management experience | < 5 | 127 | 80.4 |
| | 5-10 | 22 | 13.9 |
| | >5 | 9 | 5.7 |
| Job experience | < 12 | 98 | 62 |
| | =>12 | 60 | 38 |
| Disaster experience | Yes | 57 | 36.1 |
| | No | 101 | 63.9 |
| History of disaster education | Yes | 31 | 19.6 |
| | No | 127 | 80.4 |

Table 2: Mean and SD of hospital managers' knowledge and attitude about disaster preparedness

| Variable | Number | Mean | Minimum | Maximum | SD |
|-----------|--------|-------|---------|---------|-------|
| Knowledge | 158 | 12.26 | 4 | 25 | 4.17 |
| Attitude | 158 | 66.18 | 10 | 80 | 14.01 |

The Independent t-test showed a significant correlation was between the attitude scores and disaster experience. The attitude score did not have a significant correlation with the other variables studied (Table 6). Table 7 shows the frequency and relationship between management levels and the scores of knowledge and attitude of hospitals managers about disaster preparedness. The ANOVA test showed no significant

correlation between knowledge ($p=0.380$), attitude ($p = 0.954$), and management levels. In addition, the results of the Pearson correlation test showed no significant correlation between the mean scores of knowledge and attitude ($r=0.126$, $n=158$, $P=0.114$). As a consequence, the two variables of knowledge and attitude did not have a correlation.

Table 3: Knowledge of hospital managers about disaster preparedness

| Parameter | Yes | | No | |
|--|-----|------|-----|------|
| | N | % | N | % |
| Respondents know the concept of disasters | 102 | 64.6 | 56 | 35.4 |
| Respondents know the most essential factor of an effective disaster management plan | 76 | 48.1 | 82 | 51.9 |
| Respondents know the most important obstacle in providing health services during disasters | 100 | 63.3 | 58 | 36.7 |
| Respondents know about the cause of most financial damage caused by disasters in Iran | 90 | 57 | 68 | 43 |
| Respondents know the direct effects of disasters | 70 | 44.3 | 88 | 55.7 |
| Respondents know the indirect effects of disasters | 89 | 56.3 | 69 | 43.7 |
| Respondents know the stages of the crisis management cycle in order | 78 | 49.4 | 80 | 50.6 |
| Respondents know the measures of the disaster prevention stage | 72 | 45.6 | 86 | 54.4 |
| Respondents know the concept of disaster preparedness | 69 | 43.7 | 89 | 56.3 |
| Respondents are aware of the measures taken to mitigate the effects of disasters | 64 | 40.5 | 94 | 59.5 |
| Respondents know the actions of disaster preparedness | 90 | 57 | 68 | 43 |
| Respondents know the concept of disaster response | 93 | 58.9 | 65 | 41.1 |
| Responders are aware of when to design effective disaster response plans | 97 | 61.4 | 61 | 38.6 |
| Respondents know the application of the alert phase | 85 | 53.8 | 73 | 46.2 |
| Respondents know the main points of an effective plan to deal with hospital disasters | 78 | 49.4 | 80 | 50.6 |
| Respondents know the significant items in the disaster program | 79 | 50 | 79 | 50 |
| Respondents know how to plan for disasters in Iran | 74 | 46.8 | 84 | 53.2 |
| Respondents are knowledgeable about the process of planning in the field of dealing with unpredictable disasters | 85 | 53.8 | 73 | 46.2 |
| Respondents know the objectives of earthquake prevention exercises | 91 | 57.6 | 67 | 42.4 |
| Respondents recognize the organizations cooperating with the hospital's crisis committee during disasters | 62 | 39.2 | 96 | 60.8 |
| Respondents are aware of the duties of the crisis management organization | 64 | 40.5 | 94 | 59.5 |
| Respondents are aware of the individuals in the hospital's crisis command team | 65 | 41.1 | 93 | 58.9 |
| Respondents know the duties of managers during disasters | 73 | 46.2 | 85 | 53.8 |
| Respondents know the tasks of managers during the disaster response stage | 64 | 40.5 | 94 | 59.5 |
| Respondents know the duties of crisis team members during disasters | 51 | 32.3 | 107 | 67.7 |

Table 4: Attitude of hospital managers about disaster preparedness

| Parameter | Number | P-value |
|-------------------------------|----------|--------------|
| Gender | Female | 0.177 |
| | Male | 4.25 ± 63.12 |
| Age (year) | 27-33 | 0.013 |
| | 34-40 | 4.16 ± 12.12 |
| | 41-47 | 4.13 ± 13 |
| | 48-54 | 4.54 ± 13.33 |
| Education | Bachelor | 0.367 |
| | Masters | 3.89 ± 12.11 |
| | Other | 1.59 ± 1.37 |
| Management experience | < 5 | 0.310 |
| | 5-10 | 11 ± 2.65 |
| | > 5 | 12.55 ± 2.65 |
| Job experience | < 12 | 0.874 |
| | ⇒ 12 | 4.72 ± 13.05 |
| Disaster experience | Yes | 0.001 |
| | No | 12.55 ± 2.65 |
| History of disaster education | Yes | 0.059 |
| | No | 4.44 ± 12.57 |

Table 5: Relationship between hospital managers' knowledge with demographic variables

| Parameter | Agree or strongly agree | |
|---|-------------------------|------|
| | N | % |
| Disaster preparedness training is necessary for employees of various professions, especially for health system personnel. | 126 | 79.7 |
| Implementation of disaster preparedness plans is necessary for hospital managers. | 128 | 81.1 |
| The knowledge of hospital managers about disaster planning and response is important. | 134 | 84.8 |
| The plan to deal with unexpected disasters is essential to respond to disasters. | 136 | 86.1 |
| It is mandatory to prepare a checklist to assess the level of disaster preparedness for hospital departments. | 130 | 82.3 |
| It is necessary to appoint a person in charge of organizing a checklist to evaluate different departments of a hospital in order to prepare for unexpected disasters. | 134 | 84.8 |
| Periodic assessment of disaster preparedness (once every 3 months) using the prepared checklist is mandatory. | 127 | 80.4 |
| It is mandatory to describe the duties of the personnel before the disaster by the hospital managers. | 126 | 79.7 |
| It is important to carry out exercises and maneuver for disaster preparedness "every six months" by the hospital's disaster committee. | 141 | 89.2 |
| The presence of managers in the special sub-committees of the hospital's disaster committee is necessity. | 148 | 93.7 |
| Creation and control of a disaster command system in hospitals is mandatory. | 141 | 89.2 |
| It is mandatory to identify volunteer groups before disasters occur. | 128 | 81.1 |
| It is necessary to train people who will be responsible for clean-up and rescuing people after an earthquake. | 122 | 77.2 |
| Determining the means of cleaning each part of the hospital according to the hazard of materials and equipment is necessary before disasters occur. | 143 | 90.6 |
| It is necessary to create a system to document the number of employees, working hours, and the work done. | 137 | 86.8 |
| It is mandatory to pay attention to mental health programs in the disaster preparedness plan. | 142 | 89.9 |
| Accurate assessment of structural damage is necessary for the immediate evacuation of patients from the hospital immediately after a disaster. | 136 | 86.1 |
| In order to deal with disasters, it is necessary to plan and create an emergency command center to disaster effects. | 127 | 80.4 |
| Determining the location for accommodation of patients is mandatory in the event of a hospital evacuation. | 143 | 90.6 |
| It is necessary to review the planning of dealing with disasters in the hospital due to the change in physical facilities and the external environment. | 134 | 84.8 |

Table 6: Relationship between hospital managers' attitude with demographic variables

| Parameter | Attitude | P-value |
|-------------------------------|----------|--------------|
| Gender | Female | 13.22 ±65.77 |
| | Male | 14.57 ±66.46 |
| Age (year) | 27-33 | 10.62 ±67.86 |
| | 34-40 | 15.09 ±63.07 |
| | 41-47 | 14.21 ±67.45 |
| | 48-54 | 12.88 ±69.66 |
| Education | Bachelor | 14.18 ±67.45 |
| | Masters | 14.04 ±63.26 |
| | Other | 8.76 ±69.62 |
| Management experience | < 5 | 66.28±14.85 |
| | 5-10 | 63.81±11.08 |
| | >5 | 70.66±5.07 |
| Job experience | < 12 | 14.59 ±65.36 |
| | ⇒12 | 13.01 ±67.53 |
| Disaster experience | Yes | 62.40±14.06 |
| | No | 68.32±13.58 |
| History of disaster education | Yes | 14.01±63.45 |
| | No | 13.98 ±66.85 |

Table 7: Relationship between hospitals managers' knowledge and attitude with management levels

| Level of Management | N (%) | Knowledge | P-value | Attitude | P-value |
|---------------------|----------|-------------|---------|--------------|---------|
| Senior managers | 42(26.6) | 11.80 ±3.47 | 0.380 | 66.14 ±12.57 | 0.954 |
| Middle managers | 25(15.8) | 11.60 ±4 | | 65.44 ±15.91 | |
| Line managers | 91(57.6) | 12.65 ±4.50 | | 66.41 ±14.23 | |

Discussion and Conclusion

The present research was conducted to assess the knowledge and attitude of public hospitals managers in the Lorestan province about disaster preparedness.

The result showed that hospitals managers' knowledge was moderate. The study findings of Soltani et al. (15) and Farajzadeh et al. (16) showed the nurses' knowledge regarding disasters was moderate, which is consistent with the present study results. However, the study results of Arab et al. (7) reported managers' knowledge at a low level, which is not consistent with the results of our study. The observed difference may be due to related to participant differences or measurement tools.

In our study, 80.4% of participants had not seen any training courses about disaster management. Thus, it can be expected that the individuals' level of knowledge would not high because acquiring knowledge required proper training.

In addition, the results of our study showed that managers had high knowledge about the concept of disaster and low knowledge about the role of emergency team members in disasters. Abbasabadi-Arab et al. (17) also presents the lack of crisis management in hospitals as one of the challenges of disaster risk in Iranian hospitals. In Pascal study (18), one of the knowledge questions with highest scored was awareness of the concept of disasters. These results were consistent with our study. Another finding of this study was the significant relationship between hospitals managers' knowledge and age, so that with increasing the participants' age, their knowledge increased, too.

The study of Farajzadeh et al. (16) showed a relationship between nurses' knowledge about disaster and age; which is consistent with our finding. But this relationship was not seen in the study of Imani et al. (19) and Soltani et al. (15). The reason may be the high mean age of our participants compared to the mentioned studies. Because with age, people's experiences increase can increase their knowledge. Our study showed a significant relationship between managers' knowledge and disaster experience. The experience of being present and serving in a crisis causes people to face obstacles, limitations, and conditions closely. As a result, it leads to an increase in people's knowledge and preparation.

There was no significant relationship between managers' knowledge about disasters and other variables (gender, level of education, work experience, disaster education history) in this study.

These results were similar to the study of Farajzadeh et al. (16). Also, in the study of Soltani et al. (15), no association was observed between nurses' knowledge and the two variables of education level and gender (demographic variables of study). However, the study results of Imani et al. (19) indicated a significant association between nurses' knowledge and the variables of educational level, participation in crisis courses, and membership in the crisis committee. Since in our study, unlike other studies, the knowledge of all hospital managers (therapeutic and non-therapeutic) had been investigated, and also most managers had low or moderate knowledge scores. Hence, the mentioned variables were not able to cause a significant difference in the knowledge scores of the participants.

According to the results of the present study, hospitals managers had good attitudes. The study results of Soltani et al. (15), Farajzadeh et al. (16), Habte et al. (20) and Jourvand et al. (21), which examined attitudes toward disaster management among nurses and other healthcare staff, also are consistent with this finding. Another result of this study showed the high attitude of the managers regarding the necessity of the presence of managers in the special sub-committees of the hospital's disaster committee, and the low attitude regarding the necessity of training people who will be responsible for clean-up and rescuing people after earthquake. The study results of Pascal (18) are not consistent with the results of our study. This finding is probably due to differences in the questionnaires and the study participants.

Our study showed a significant relationship between managers' attitude and disaster experience. In fact, experience by increasing managers' problem-solving skills can improve their attitude. Also, in our study, there was no significant relationship between managers' attitudes about disasters and other demographic variables. Soltani et al. (15) reported no significant association between nurses' attitudes and the studied variables. The study of Jourvand et al. (19) also showed that the variables of age, gender, and education had no significant

association with nurses' attitudes about disasters, which is consistent with the results of our study. Therefore, regardless of different variables, the attitudes of hospitals managers participating in the present study seemed positive. However, the study of Farajzadeh et al. (16) showed that among the studied variables, marital status had a significant association with attitude, which could be due to the differences in the single to married ratio in the mentioned study and our study.

Our findings showed no relationship between the knowledge scores and hospitals managers' attitudes. This result was consistent with the study of Soltani et al. (15). Accordingly, since most of our participants had not received proper training, despite the positive attitudes about disaster preparedness, they did not have high knowledge.

One of the limitations of this study was the possibility of participants' dishonesty in filling out the questionnaire; therefore, the necessary explanations were provided to the individuals regarding the confidentiality of information to control this limitation. There was also the possibility of individuals' different interpretations of the questionnaire; to eliminate this limitation, we provide the opportunity of access to one of the researchers to remove any ambiguity.

This study showed that hospitals managers' knowledge about disaster preparedness was moderate, and their attitudes were good and positive. Due to the fact that Lorestan is one of the provinces that experience various types of natural disasters, including floods and earthquakes, and according to this study, young managers, despite having a favorable attitude towards disaster preparedness, had less knowledge. Thus, the need for training in disaster preparedness to increase their knowledge is very important. Also, since according to the results of this study, the experience of attending disasters has positive effects in increasing the knowledge and attitude of managers, so it is recommended that trainings be held more practically. Therefore, it is suggested by the authorities to pay more attention to in-service training courses and disaster management maneuvers for hospital managers. Also, paying attention to holding regular meetings of disaster committees in hospitals can help increase the coordination and knowledge of managers in this regard.

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Conflict of Interests

The authors declare no conflict of interest.

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