Development and Psychometric of "Public Awareness on Emergency Response in the Workplace Questionnaire"

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Abstract

Aims: Increasing staff awareness in the workplace can reduce the damage caused by natural disasters and emergencies. The aim of this study was developing a valid and reliable tool to measure the level of the public awareness on emergency response and assess this in Iran dairy industry. **Materials and Methods:** The awareness level was assessed by constructing a researcher-made questionnaire. A 62-item questionnaire was provided. After face validation, content validity was assessed using content validity ratio and content validity index method and finally 56 final questions were prepared. The construct validity of the questionnaire was assessed using Kaiser-Meyer-Olkin (KMO) index test and Bartlett's sphericity test. To assess the reliability of the questionnaire, it was investigated on 425 Iran Dairy industry staff using Richardson Kouder 20 test. Principal factors were extracted using exploratory factor analysis by analysis of variance method by SPSS version 22. **Results:** The KMO index was 0.331, so factor analysis was not possible. Bartlett's sphericity test also showed $P < 0.001$, and confirmation was successful. The reliability coefficient of the questionnaire by using Richardson's Kouder 20 test was 0.711. The public awareness on emergency response in Iran dairy industry staff was evaluated as moderate to optimal. **Conclusion:** The public awareness on emergency response in the workplace questionnaire which has been designed has appropriate validity and reliability and can be used to assess public awareness on emergency response in the workplace.

Keywords: Awareness, emergency response, questionnaire, workplace

Introduction

Emergency is a situation created by nature (without human intervention) or by humans intentionally or inadvertently causing enormous human, material, and environmental damage.[1] Emergencies are sometimes referred to as crises, all natural events such as tornadoes, tsunamis, hurricanes, snowstorms, volcanic activity, explosions, fires, and floods called external assistance needs.[2] Crises are divided into three categories: natural, technological, and terrorism.[3] Emergencies are identified as an unpredictable situation, threatening companies, workers and society and disrupting or stopping operations.[4] Every year, 200 million people get involved in unexpected events and hundreds of thousands die. The number of natural disasters has doubled in recent years.[5] Disaster-prone countries suffer an average of about 3% of their gross domestic product annually, which indicates the importance of awareness and planning in dealing with these disasters.[6] Climate change, human manipulation of nature, and the rapid growth of technology have increased the vulnerability of people and the occurrence of events. Studies show that Iran is a disaster-prone country and one of the most susceptible countries in the world for disasters. In general, Iran is one of the 10 disaster-prone countries and 90% of its population is exposed to flood and earthquake hazards.[7]

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Apart from being known as the most deadly earthquake in the world,[8] other disasters and accidents also account for a significant proportion of deaths. In other words, Iran is the fourth country in Asia after India, China, and Bangladesh, and the sixth largest in the world in casualties, indicating the importance and awareness of how to deal with emergencies.[7] In addition to natural disasters accidents such as fires and fires are known as disasters caused by human activity. Fire and explosion accidents in small and large industries cause many financial, environmental and environmental damages to different communities each year.[9] Even today, radiation accidents are significant disasters, with the dangers of ever fearing the possibility of a terrorist attack on power plants and reactors and unintentional incidents within power plants, including explosions and leaks of radioactive materials and radiation accidents in parts. It is medical therapy.[10] Since emergencies are rarely occurring and the timing of their occurrence is unclear, it is therefore necessary to coordinate with them beforehand so identifying potentials and maintaining preparedness to respond to emergencies can to minimize the damage caused by such events.[4] Although most disasters are out of human control, the damages and damages caused by it can be substantially controlled.[11] Raising awareness among officials and the public can be helpful and prevent the spread of disabilities and communicable diseases.[12] There are always two main behaviors when responding to emergencies: law-based behavior and knowledge-based behavior.[13] Knowledge-based behavior is the awareness[14] that is background of preparedness. Preparedness is a collection of natural disaster management capabilities. Preparedness includes a collection of activities and proceedings before the event of natural disasters to foretaste, warning, release people and finance from threats, and effective response to critical situations.[15] Extensive research has so far been undertaken to assess the awareness and preparedness of organizations and communities for disasters and disasters. The tools used in these studies have each been used to measure disaster awareness or preparedness.

In a research by Masoud *et al.*, the preparedness of Tabriz hospitals for emergencies was evaluated.[6] Hospital readiness was assessed by a checklist that examined only the level of logistical readiness and management and did not include the readiness of individuals. In addition, only unexpected events were investigated. In another research from Vosoughi Nayeri *et al.*, they examined the knowledge of health students of Tehran University of Medical Sciences about emergencies.[11] Researchers developed a 20-item questionnaire to measure people's awareness of health issues and emergencies. In another research from Ghafari *et al.*, it examined the preparedness of hospitals affiliated to the University of Social Welfare and Rehabilitation Sciences for unexpected events.[16] Based on the researcher-made questionnaire, hospital readiness for unexpected events was assessed. In another research from Hayati *et al.*, they examined the preparedness of Bandar Abbas hospitals for

natural disasters.[17] Using a researcher-made checklist of 220 questions with yes and no answers, hospital readiness was simply measured. In another research from Kihila, in which fire preparedness and situational analysis were examined in Tanzanian higher education institutions,[18] this research was conducted using a researcher-made questionnaire that just measure fire preparedness. A research by the Banister Institute, which examined household preparedness for emergencies and disasters, used a 20-item questionnaire.[19] In another study by Glauberman and Qureshi that examined citizen readiness of high-rise buildings,[20] the research used a researcher-made questionnaire to measure fire accident preparedness.

According to the researches, so far, a questionnaire with validity and reliability has not been developed to measure the level of awareness of people in the face of emergencies and disasters in the workplace. Therefore, this study will be conducted in order to developing and psychometrically measure the public awareness about coping with emergencies in the workplace.

MATERIALS AND METHODS

This research is a descriptive study aimed at development and psychometric of questionnaire measuring the public awareness emergencies response in the workplace. Studied population in this research to assess face validity and content validity of the questionnaire, was 15 health, safety, environment (HSE) experts, occupational health, environmental health, safety, disaster and emergency health management, and disaster management with minimum master's degree. Studied population to evaluate the reliability of the questionnaire was 425 employees of one of the subsidiaries of Iran dairy industries.

For carrying out the present research, the following steps were taken:

1. Studying internal and external books and articles and reviewing effective information on emergency response
2. Providing an initial framework using the results of the studies
3. Identify effective factors on awareness of emergency response
4. Prepare a questionnaire bank
5. Check the face validity and content validity of the initial questionnaire
6. Check the reliability of the final questionnaire.

The questions were categorized into three categories including preemergency, during emergency, and postemergency. This classification was according to Table 1.

The questions were mult choice question (four selection format) with one correct answer.

The initial questionnaire was sent to two HSE experts to apply their opinions by studying the questionnaire. After receiving the comments of the experts, modified questions for content validity were presented.

The content validity of the questionnaire was assessed using the opinions of 15 experts through the method of Lawshe. In this method, criteria of necessity are calculated using relative content validity ratio (CVR) and criteria of proportionality using content validity index (CVI).[21]

Table 2 shows Lawshe's decision to calculate the CVR.

In the present study, according to the experts, questions with CVR score higher than 0.49 were accepted and questions with CVR score less than 0.49 were removed in questions bank. (Based on the Lawshe's table). Questions with a CVI score higher than 0.7 were accepted and <0.7 were reviewed. After confirming the content validity, the original questionnaire was distributed among the studied sample (425 persons), and after completing the questionnaires, the data were analyzed by SPSS ver 16 (SPSS Co, Chicago, ILL, USA).

After collecting data, to investigate the construct validity of questionnaire, because the answers to the questions were scored true and false, the Kouder–Richardson 20 (Kr20) internal consistency method was selected and used.[22] In this method, the test was performed only once, but all test factors were analyzed. If the index is more than 0.7, the questionnaire is valid. Kr20 equation is:

$$r_1 = \frac{n}{n-1}\left(1 - \frac{\sum pq}{S^2}\right).$$

Note: n is number of questions – p is ratio of correct answers – q is ratio of wrong answers – S^2 is variance of total scores.

Construct reliability was assessed using Kaiser–Meyer–Olkin (KMO) test and Bartlett's sphericity test. These are part of factor analysis tests.[23]

Table 1: Distribution of basic questions based on time

Number of basic questions	Time	*n*
14	Pre-emergencies	1
26	During emergencies	2
22	Postemergencies	3

Table 2: The Lawshe's decision table for calculating the content validity ratio

Minimum validity	Number of experts' panel members
0.99	5
0.99	6
0.99	7
0.85	8
0.78	9
0.62	10
0.49	15
0.42	20
0.37	25
0.33	30
0.29	40

Descriptive analysis was performed on the scores of awareness of emergency response and others variables based on analysis of variance (ANOVA).

RESULTS

After completing the initial bank of questions containing 62 questions, the face validity was assessed. Content validity was assessed after face validation. Finally, the final number of questions was reduced from 62 questions to 56 questions and questionnaire was distributed among the sample population. Table 3 shows the CVI of the questionnaire for preemergency phase, Table 4 shows the CVI of the questionnaire for during emergency phase, and Table 5 shows the CVI the questionnaire for postemergency phase of this research.

According to the Kr20, the validity coefficient of the questionnaire was 0.711.

$$r_1 = \frac{56}{55}\left(1 - \frac{8.97}{29.737}\right) = 0.711.$$

According to KMO test, factor analyzing was not possible (KMO = 0.331), but Bartlett's of spheriity test showed factor analyzing is possible ($P < 0.001$).

The following quantitative results were obtained from this research.

83.5% of the study population were men and 16.5% women. The highest age group was 30–40 years old (41%). The highest level of education was in university education (71%). Most of the work experience was related to people with 5–10 years' work experience (50%).

Table 6 shows the mean and standard deviation scores of the study population in terms of emergency response according to the demographic characteristics of the study population.

Table 7 shows the mean and standard deviation of the scores of the study population awareness of emergency response according to the occupational characteristics of the study population.

Table 8 shows the correlation between the scores of the study population awareness of emergency response and variables, using ANOVA analysis.

There were significant correlation between emergency response score of the study population with gender, educational level, work experience and work unit ($P < 0.05$). However, there was not significant correlation between awareness emergencies response scores in the study sample and age ($P > 0.05$ and $P = 0.336$).

Since the mean scores received (35.36 = 63%) were higher than the mean of the total scores (28 = 50%), the scores of emergency response awareness were evaluated as appropriate and desirable.

Table 3: Content validity index of the questionnaire for questions related to pre-emergency awareness

Question number	Necessity			Appropriate			Clarity			Simplicity		
	>49%	Essential and useful	Total	>70%	Score 3 and 4	Total	>70%	Score 3 and 4	Total	>70%	Score 3 and 4	Total
1	100.00	15	15	100.00	15	15	100.00	15	15	100.00	15	15
2	73.33	13	15	100.00	15	15	86.67	13	15	86.67	15	15
3	86.67	14	15	86.67	13	15	86.67	13	15	86.67	13	15
4	60.00	12	15	80.00	12	15	93.33	14	15	93.33	14	15
5	86.67	14	15	93.33	14	15	93.33	14	15	93.33	14	15
6	100.00	15	15	100.00	15	15	100.00	15	15	100.00	15	15
7	100.00	15	15	100.00	15	15	100.00	15	15	100.00	15	15
8	73.33	13	15	100.00	15	15	100.00	15	15	100.00	15	15
9	46.67	11	15	100.00	15	15	100.00	15	15	100.00	15	15
10	73.33	13	15	100.00	15	15	100.00	15	15	100.00	15	15
11	86.67	14	15	100.00	15	15	100.00	15	15	100.00	15	15
12	100.00	15	15	100.00	15	15	100.00	15	15	100.00	15	15
13	73.33	13	15	100.00	15	15	86.67	13	15	86.67	13	15
14	73.33	13	15	100.00	15	15	86.67	13	15	86.67	13	15

Table 4: Content validity index of the questionnaire for questions related to the level of awareness during emergencies

Question number	Necessity			Appropriate			Clarity			Simplicity		
	>49%	Essential and Useful	Total	>70%	Score 3 and 4	Total	>70%	Score 3 and 4	Total	>70%	Score 3 and 4	Total
15	46.67	11	15	66.67	10	15	66.67	10	15	66.67	10	15
16	46.67	11	15	73.33	11	15	86.67	13	15	86.67	13	15
17	73.33	13	15	100.00	15	15	100.00	15	15	100.00	15	15
18	73.33	13	15	100.00	15	15	100.00	15	15	100.00	15	15
19	100.00	15	15	100.00	15	15	100.00	15	15	100.00	15	15
20	73.33	13	15	86.67	13	15	86.67	13	15	86.67	13	15
21	73.33	13	15	86.67	13	15	86.67	13	15	100.00	15	15
22	73.33	13	15	100.00	15	15	100.00	15	15	100.00	15	15
23	100.00	15	15	86.67	13	15	100.00	15	15	100.00	15	15
24	86.67	14	15	93.33	14	15	93.33	14	15	93.33	14	15
25	33.33	10	15	80.00	12	15	80.00	12	15	80.00	12	15
26	86.67	14	15	93.33	14	15	93.33	14	15	93.33	14	15
27	86.67	14	15	93.33	14	15	93.33	14	15	93.33	14	15
28	100.00	15	15	100.00	15	15	100.00	15	15	100.00	15	15
29	86.67	14	15	93.33	14	15	93.33	14	15	93.33	14	15
30	86.67	14	15	93.33	14	15	93.33	14	15	93.33	14	15
31	100.00	15	15	100.00	15	15	100.00	15	15	100.00	15	15
32	86.67	14	15	93.33	14	15	93.33	14	15	93.33	14	15
33	86.67	14	15	93.33	14	15	93.33	14	15	93.33	14	15
34	73.33	13	15	100.00	15	15	86.67	13	15	86.67	13	15
35	33.33	10	15	80.00	12	15	80.00	12	15	80.00	12	15
36	46.67	11	15	73.33	11	15	73.33	11	15	73.33	11	15
37	73.33	13	15	100.00	15	15	100.00	15	15	100.00	15	15
38	86.67	14	15	93.33	14	15	93.33	14	15	93.33	14	15
39	6.67	8	15	80.00	12	15	80.00	12	15	80.00	12	15
40	86.67	14	15	93.33	14	15	93.33	14	15	93.33	14	15

Given the mean received scores were higher the mean of the total scores of, awareness emergency response scores in the study sample was rated as appropriate to desirable.

DISCUSSION

In this research, a questionnaire of 56 questions with appropriate validity and reliability was prepared that can be

Table 5: Content validity index of the questionnaire for questions related to post-emergent awareness assessment

Question number	Necessity			Appropriate			Clarity			Simplicity		
	>49%	Essential and useful	Total	>70%	Score 3 and 4	Total	>70%	Score 3 and 4	Total	>70%	Score 3 and 4	Total
41	33.33	10	15	80.00	12	15	80.00	12	15	80.00	12	15
42	60.00	12	15	80.00	12	15	80.00	12	15	80.00	12	15
43	100.00	15	15	100.00	15	15	100.00	15	15	100.00	15	15
44	100.00	15	15	86.67	13	15	100.00	15	15	100.00	15	15
45	46.67	11	15	100.00	15	15	100.00	15	15	100.00	15	15
46	100.00	15	15	100.00	15	15	100.00	15	15	100.00	15	15
47	86.67	14	15	93.33	14	15	93.33	14	15	93.33	14	15
48	86.67	14	15	93.33	14	15	93.33	14	15	93.33	14	15
49	86.67	14	15	93.33	14	15	93.33	14	15	93.33	14	15
50	73.33	13	15	100.00	15	15	100.00	15	15	100.00	15	15
51	73.33	13	15	100.00	15	15	100.00	15	15	100.00	15	15
52	73.33	13	15	86.67	13	15	86.67	13	15	86.67	13	15
53	60.00	12	15	80.00	12	15	93.33	14	15	93.33	14	15
54	60.00	12	15	80.00	12	15	93.33	14	15	93.33	14	15
55	86.67	14	15	93.33	14	15	93.33	14	15	93.33	14	15
56	60.00	12	15	93.33	14	15	93.33	14	15	93.33	14	15
57	60.00	12	15	93.33	14	15	93.33	14	15	93.33	14	15
58	86.67	14	15	93.33	14	15	93.33	14	15	93.33	14	15
59	60.00	12	15	80.00	12	15	80.00	12	15	80.00	12	15
60	60.00	12	15	80.00	12	15	80.00	12	15	80.00	12	15
61	100.00	15	15	100.00	15	15	100.00	15	15	100.00	15	15
62	33.33	10	15	80.00	12	15	93.33	14	15	93.33	14	15

Table 6: Mean and standard deviation of emergencies response scores in study population based on demographic characteristics

Variable	Description	*n*	Score average	Score percentage	SD	Minimum	Maximum
Sex	Man	355	34.93	62.37	5.65	14	46
	Female	70	37.57	67.1	3.56	32	43
Education	High school	25	33.00	58.9	6.35	23	40
	Diploma	95	34.84	62.2	6.04	22	46
	College education	305	35.72	63.7	5.13	14	46
Age	20-30	130	35.61	63.6	5.693	14	43
	30-40	215	35.53	63.4	5.461	22	46
	40-50	60	34.83	62.2	3.49	29	39
	Up to 50	20	33.50	59.8	8.03	23	42
Total		425	35.36	63.1	5.45	14	46

SD: Standard deviation

used for measurement emergency response awareness in many communities and workplaces.

To date, low questionnaires have been developed to measure people's emergency response awareness. In most studies, the preparedness of units and operational organizations has been investigated or the focus has been on natural disasters.

In this research, emergency response awareness score was obtained 68% that show public awareness in sample population on emergency and disaster situation is appropriate and desirable. According to Jahangiri *et al.*'s study (2005), 31.4% of the people has moderate of earthquake response awareness and 37.2% has acceptable, which is consistent

with the results of the present research.[24] Jahangiri *et al.* in a research by title "preparedness, awareness, and risk perception, in staff at Shiraz University of Medical Sciences against earthquake in 2013" found that their preparedness, awareness, and risk perception were at moderate level,[25] which is consistent with recent research results. However, in the research of Jokar *et al.* (2018), 8.5% of Arak hospital staff had basilar information about the appropriate response to nuclear events, and 6.45% had not nothing information.[26] According to the research by Vosoughi Nayeri *et al.*, only 11.2% of medical university students had a significant level of awareness about health issues at emergency. This was indicative of the low level of awareness of the participants

Table 7: Mean and standard deviation of emergencies response scores in study population based on occupational characteristics

Variable	Description	*n*	Score average	Score percentage	SD	Minimum	Maximum
Work experience (year)	Lower to 5	95	37.42	66.8	4.83	89	46
	5-10	215	34.86	62.2	4.78	22	43
	10-20	85	36.47	65.1	4.26	29	45
	Upper to 20	30	29.33	52.3	8.97	14	42
Work unit	Production	145	33.48	59.8	4.69	22	43
	Engineering	65	37.31	66.6	4.51	32	45
	Storage	10	36.5	65.2	6.85	30	43
	Security	45	33.89	60.5	5.24	14	41
	Financial	70	35.07	62.6	4.23	23	43
	Quality	90	37.83	67.5	5.45	29	46
Total		425	35.36	63.1	5.45	14	46

SD: Standard deviation

Table 8: The correlation between emergencies response scores in study population and demographic variables

Variable	*F*	Significant
Sex	14.149	0.001
Education	3.479	0.032
Age	1.132	0.336
Work experience	21.154	0.001
Unit	10.672	0.001

in the study.[11] Furthermore, the results of Rakhshani *et al*. research showed that most households in Fars province had not awareness against earthquake response and they had high vulnerability to possible earthquake hazards.[27] According to studies by Kurita *et al*., more than 90% of Sri Lankan residents before the 2004 tsunami had not necessary awareness about the tsunami and its response.[28] Also, in a research by Rezaei *et al*. (2001), which Arak citizens surveyed about natural disasters reaction at the disasters time, 47.3% of surveyed people had very low information about natural disasters, and only 6.5% had appropriate information.[29] A study by Kihila, who surveyed fire response preparedness in Tanzanian higher education institutions, also assessed the preparedness at a low level.[18] However, according to a research by Glauberman and Qureshi, which surveyed qualitatively the preparedness among citizens of high-rise buildings, the preparedness of people was different.[20]

Therefore, it seems that according to the results of previous research, the awareness and preparedness for emergency and disasters is different, which it may be due to differences in measuring method (questionnaire).

For this reason, the questionnaire developed in this research is expected to cover an acceptable measure of Public Awareness on Emergency Response in the Workplace at pre emergency, during emergency and post emergency situation. As well as this questionnaire covering kinds of emergency such as earthquakes, fires, storms, chemical accidents, and droughts.

Conclusion

This questionnaire with acceptable construct validity and reliability can be used as a valid tool to measure the awareness of people to emergencies reactions in the workplace and other. It is suggested that the forgotten questions in this questionnaire be reviewed by other researchers developed and used in another questionnaire. It is recommended that to measure awareness of emergency response, a questionnaire has to be developed for each emergency situation such as flood, storm, and earthquake. It is recommended that the instrument should be used separately to measure the awareness of people to deal with humanitarian accidents such as traffic accidents, fires and explosions, and radioactive and nuclear accidents.

Conflicts of interest

There are no conflicts of interest.

References

1. Asl Hashemi A, Healh Actions in Emergencies, Tabriz: Medical Sciences of Tabriz University; 1994.
2. Koohestani H, Ibrahim fakhar H, Baghcheghi N. Pre Hospital Care of Trauma. Tehran: Jameenegar Publisher; 2011.
3. Heidarzadeh H, Hassankhani H, Dadashzadeh A, Fathi-Azar E, Moghadasian S, Haririan H. Pre-hospital triage: Knowledge, readiness and performance of nursing students in dealing with unexpected accidents. Iranian Journal of Emergency Care (IJEC) 2017;1;46-55.
4. T. Technical Committee of Environmental Research Institute of Tehran University of Medical Sciences, Environmental Health Operations Guide in Emergencies and Disasters. Tehran: Occupational Health and Work Center; 2011.
5. Hojat M, Siratinayer M, Khaghani zadeh M, Karimi zarchi M. Assessment of preparedness of hospitals affiliated to medicine sciences

university against unexpected events. J Shahed Univ Daneshvar 2008;11:1-10.
6. Masoud A, Vali L, Beyrami JH, Yaghoubian B. Assessment of Tabriz university of medical sciences hospitals' readiness for unexpected accidents. J Health Develop 2014;36:2-70.
7. Zamani N, Mirzaei F, Kakaei H, Farasati F. Investigation on the safety status and preparedness of Ilam's hospitals against disasters in 2012. Sci Res J Ilam Med Sci Univ 2014;22:14-23.
8. Ghadiri M, Nasabi N. Analysis of the magnitude of earthquake preparedness of Shiraz neighborhood communities. Journal of Spatial Planning 2013;17:71-92.
9. Ahmadi S, Adl S, Mirzaei M, Zarei M. Determination of fire and explosion damage in a chemical industry by fire and explosion index method. Journal of Qazvin University of Medical Sciences 2011;15:68-76.
10. Baniyaghoobi F, Aliyari S, Sharififar F, Pishgooei A. Radiation accidents and how to deal with it. Journal of Military Caring Sciences 2014;1:43-51.
11. Vosoughi Nayeri M, Jahed G, Asgari M, Dargahi G, Golstani far H, Prastar S. Assessment of knowledge and attitude of students of Tehran university of medical sciences about health measures in emergency situations. Quarterly Sci J Res Relief 2012;4:43-51.
12. Mahvi A, Isalo M. Environmental Health Engineering in the Tropics. Tehran: Jihad Daneshgahi Medical of Sciences of Tehran University; 1992.
13. Sapateiro C, Antunes P. An Emergency Response Model Toward Situational Awareness Improvement. Gothenburg, Sweden: Proceedings of the 6th International ISCRAM Conference – Gothenburg, Sweden, May 2009.
14. Kirk R. Zombies and Consciousness, London: Oxford University Press; 2005.
15. Lalehpour M, Soltanzadeh R. Analysis of Household Disaster Preparedness in Varzegan. Journal of Spatial Planning 2019;23:147-74.
16. Ghafari S, Khankeh H, Ghanbari H, Ranjbar M. Assessment of preparedness of hospitals affiliated to university of social welfare and rehabilitation sciences against unexpected events in 2011. Quarterly Sci J Res Relief 2010;4:21-34.
17. Hayati R, Sobhani G, Khammarnia M, Ravangard R, Heydari A, Heydarvand S. Investigation of the preparedness level of the hospitals against disasters in Bandar Abbas, Iran, in 2012. J Pak Med Assoc 2012;64:506-9.
18. Kihila JM. Fire disaster preparedness and situational analysis in higher learning institutions of Tanzania. J Disaster Risk Stud 2017;9:1-9.
19. Emergency Management and Preparedness Survey Draft Report. Banister Research and Consulting Inc.; 2016.
20. Glauberman G, Qureshi K. Exploratory Qualitative Study of Fire Preparedness Among High-rise Building Residents. PLoS Currents Disaster 2018;1:1-15.
21. Amir tash A. Reliability and objectivity for measuring instruments in physical education and exercise. Res Sport Sci J 2005;3:11-29.
22. Haji zadeh E, Asghari M. Statistical Methods and Analyzes with a Look at Biomedical Research Methods, Tehran: Academic Jihad Publications; 2012.
23. Yousefi N, Shibagi N, Salehi S. A survey of factor and structural analysis of attitude to research and its relationship with self-efficacy and self-efficacy among masters students. Educational Measurement Journal 2012;3:19-42.
24. Jahangiri K, Azin A, Kazem M, Rahimi foroushani A. Knowledge, attitude and performance of Tehran people in earthquake preparedness. Hakim Health Systems research journal 2005;13:155-64.
25. Jahangiri M, Honarbakhsh M, Asgarpour-N AA, Rajabi A. An evaluation of the level of preparedness, knowledge, and risk perception regarding earthquake among the personnel of Shiraz University of Medical Sciences, Iran in 2013. Journal of Health System Research 2016;12:125-31.
26. Jokar A, Jokar F, Amirshah F, Harorani M. Assessing knowledge and preparedness of medical staff toward potential nuclear injuries: A cross-sectional study in Arak, Iran-2015. Journal of Military Medicine 2018;20:342-7.
27. Rakhshani T, Ebrahimi M, Abbasi S, Travatmanesh S. Investigating the preparedness status of households against earthquake in fars province in 2013; A cross sectional study. Iran Emerg Med J 2016;3:66-72.
28. Kurita T, Nakamura A, Kodama M. Tsunami public awareness and the disaster management system of Sri Lanka. Disaster Prevention and Managemen 2006;15:92-110.
29. Rezaee A. Details of Arak Citizens in Dealing with in the Event of Natural Disasters, 6nd National conference on environmental health, Tehran, 2001.