

# Research Paper: Awareness of Medical Students of Gonabad University About Nutrition & Food Preservation in Disasters



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## ABSTRACT

**Background:** Healthy and hygienic foods should be available for healthy life of humans in all circumstances. This issue will be more important when a disaster occurs. Iran is among high risk natural disaster countries, that should be always prepared. The present study aimed to evaluate the awareness of Gonabad University Medical students about nutrition and food preservation at times of disaster.

**Materials and Methods:** This cross-sectional and descriptive study was conducted on 360 students out of 1800 Medical Sciences students of Gonabad University who were selected by stratified random sampling method in 2016. A self-designed questionnaire consisting of 10 questions with acceptable validity and reliability was used with Cronbach alpha coefficient of 0.8. Finally, the data were analyzed by 1-sample t-test and Mann -Whitney test through SPSS 16.

**Results:** The results showed that 39%, 35.5%, and 25.5% of the participants had a good, moderate, and low level of awareness about nutrition and preservation in disasters, respectively. No significant difference was observed between genders ( $P>0.05$ ), and fields of study with regard to their awareness ( $P=0.002$ ).

**Conclusion:** It was found that the students' awareness about nutrition and food preservation at times of disaster was poor. Thus, to achieve a successful disaster management, it is recommended that an appropriate instruction manual of nutrition and food preservation be prepared by disaster response agencies and be taught for the guidance of students.

## Keywords:

Awareness, Nutrition, Food preservation, Disaster, Gonabad

## 1. Introduction

A

vailability of the healthy and hygienic foods is imperative for healthy life of humans in all circumstances [1]. This

issue will be more important when a disaster occurs. Various phenomena like earthquakes, landslides, volcanic eruptions, floods, hurricanes, tornadoes, blizzards, tsunamis, cyclones, fires, transport accidents, industrial accidents, oil spills, and nuclear explosions/

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radiation are all natural or man-made disasters that could kill thousands of people [2]. Some consequences of these disasters include deserting the residential areas, shortage of food, transport system shut down, and collapse of social structure. There are several parameters associated with food crises, involving extreme weather, natural disasters, economic problems, prolonged wars, fire, water shortage, and sometimes a combination of these factors [1]. Since it is predicted that disasters will continue to happen, governments should plan relief programs in advance by establishing national organizations [3]. Thus, it is very important to be ready and confront possible events (disasters).

The tasks of disaster and famine relief organizations are divided into before crisis and during crisis [4]. Since 1980, the food crises have apparently increased as the whole world suffers annually from 50 to 80 food crises after 2000. Population health is directly related to food safety during the disasters, as it might cause serious problems such as variety of food-borne diseases [5]. At these moments, countless people can become sick or even die as a result of unhygienic food consumption; this indicates the need for an increased focus on food safety. Adequate planning, preparation, and anticipation like preparing safe food and water, are the main duties of relevant organizations to control such crises and their consequences [6].

In such disasters, the preventive actions can affect the nutritional status of people, duration and extent of the disaster, and the capacity of food production in the affected regions. Therefore, some major responsibilities of states in response to disasters are the empowerment of afflicted subjects by preparing, supporting, and rebuilding food supplies [7]. Quality of crisis prevention and management is largely associated with organizational factors [8]. Crisis management requires the use of health care professionals who have enough knowledge about these situations in various fields. One of the pivotal elements to minimize the damages caused by improper food supply in regions affected by the crises is the level of preparation and knowledge of such experts [9].

In other words, training courses on how to response the crises should be held to raise awareness among experts and officials. In this regard, students should take some courses in the field of crisis management to meet the mentioned needs within their curriculum. Therefore, this study aimed at studying the awareness of Gonabad University Medical students about nutrition and food preservation at times of disaster.

## 2. Materials and Methods

This cross-sectional and descriptive study was conducted on 360 students (43 students more to reduce the risk of loss of response to the questionnaires, computed based on minimum sample size required by Cronbach alpha value as 317 students) out of 1800 Medical sciences students at Gonabad University in 2016. The sampling was done by stratified random sampling method from different genders and fields of study, i.e. six groups of health fields according to previous studies. Students enrolled in this study were studying for 2-4 years at Gonabad university. The data collection tool was a self-designed questionnaire consisting of 10 questions. The validity of the questionnaire as the content validity was confirmed by the experts and its reliability using internal consistency method (Cronbach alpha coefficient of 0.80). The questionnaire was designed in two sections; a demographic section (age, gender, educational level, and field of study) and 10 questions about the students' awareness on nutrition and food preservation at times of disaster. With regard to the level of awareness, each correct answer would score "1" and wrong answer "0." The general context of the questions was about the type of food, food safety recommendation, main foods supply, nutritional needs, preparing hygienic food and vegetables, food storage and food expiration date, or contamination. Finally, the data were analyzed by Kruskal-Wallis test through SPSS version 16.

## 3. Results

Female and male students constituted equally (50.50%) in the sample. The selected students were from faculties of Health (23.25%), Medicine (18.31%), Nursing (17.73%), Midwifery (14.53%), Laboratory Sciences (15.98%), and Radiology (10.17%). A total of 344 students answered to questionnaires and at the following results have been reported. Table 1 presents the respondents' answers to the questions about nutrition and how to store food in crises. With regard to the questions about level of awareness, standard deviation (SD) and rate of the response were calculated. Question No.7 (food stuff after settlement of the victims) had the lowest rate of response (39.5%) and question No. 11 (the main side-effects of storing food stuff in unhealthy condition) had the highest rate of respondents (80.3%) (Table 2). Afterward, a specific ratio was compared with a constant number and it was assumed that the ratios were equal to 0.5 (the expected response rate in the case of random answering or an equal ratio of the individuals who were aware or not aware). It was found that this hypothesis

**Table 1.** Mean score of awareness level of nutrition and how to store food stuff in crises based on gender

Variable	Gender		Sig.
	Women	Men	
Awareness	179.95	164.05	0.325

Health in  
Emergencies and Disasters Quarterly**Table 2.** Frequency rate of awareness level of nutrition and how to store food stuff in crises

Variable	No.	%
Low (0-4)	94	27.4
Moderate (4-6)	100	29
High (6-11)	150	43.6

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was not supported and, therefore, the respondents had enough knowledge to answer all the questions. In addition, the results showed that students' mean awareness score, SD, and variation range about nutrition and storing food stuff in crisis were 5.87, 2.02, and 1-11 respectively. Taking into account that total awareness score  $\geq 6$  was considered as the level of acceptable awareness, respondents' awareness about nutrition and the way of storing food stuff in critical condition was a little less than this level. Mann-Whitney test showed that there was no significant difference between male and female students with regard to their awareness ( $P=0.667$ ).

In addition, with respect to the awareness level, the students were categorized in two groups of above the fourth year and below the fourth year of the program. Moreover, Kruskal-Wallis test indicted a significant difference between the faculties regarding their level of awareness. So that the level of awareness was highest in the Faculty of Hygiene and lowest in the Faculty of Radiology.

Eventually, level of awareness was examined based on sex of the participants and no significant difference was observed ( $P>0.05$ ).

#### 4. Discussion

According to the results obtained from the present study, good awareness on nutrition and food stuff storage in crisis was observed among less than 39% of the students (Tables 3 & 4). Concerning emergencies, Ghahfarokhi et al. in 2012 conducted a study (with emphasis on a flood occurred in Shahrekord) about the level of awareness in the experts of environment health-food hygiene. They found that the participants had significant difference in awareness before and after training courses. Also education level, work place and awareness level of foodstuff showed a significant association. Moreover, there were no significant relationships between the awareness level and age and work experience in clinics [9]. Dargahi et al. carried out a research on the students

**Table 3.** Mean score of awareness level of nutrition and how to store food stuff in crises in relation to the faculties

Faculties	No.	Awareness Level	Sig.
Medical	63	172.99	0.002
Midwifery	50	161.68	
Nursing	61	184.24	
Hygiene	80	210.95	
Laboratory sciences	55	143.90	
Radiology	35	115.31	

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**Table 4.** Students' awareness level of nutrition and how to store food stuff in crisis (1-sample t-test)

Questions	Awareness	No-Awareness	%	SD	Sig.
What type of food would you recommend during the early hours of crisis?	174	170	50.5	0.502	0.002
Which one of the following recommendations is suitable in crisis?	191	153	55.5	0.497	0.002
Which one of the following recommendations is not suitable in crisis?	204	140	59.3	0.493	0.002
Which are the main foods supply the nutritional needs of the survivals in crisis afflicted regions?	225	119	65.4	0.477	0.002
How long (minutes) the food must be boiled to ensure it is safe for eating?	124	220	36.0	0.684	0.002
How long (minutes) vegetables should remain in solution before eating?	143	205	41.5	0.492	0.002
After settling the displaced population, which food stuff should be supplied on weekly bases?	133	211	38.6	0.490	0.002
What do we mean by dry food stuff during crises?	180	164	52.3	0.499	0.002
Should the sterilized milk with six months longevity be consumed immediately after opening its package?	159	185	46.2	0.501	0.002
Is sterilize milk a good replacement for pasteurized milk given that it can be stored in ambient temperature?	211	133	61.3	0.487	0.002
Is decay of food stuff a major consequence of storing food in unhygienic situation?	277	67	80.5	0.399	0.002

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in Kermanshah to evaluate their levels of awareness and attitudes toward food hygiene and safety. Their results indicated good awareness for 46%, moderate awareness for 48% and low awareness for 4.5% of the students. They did not found any significant correlations between some factors such as age, education level, gender, and faculty with awareness and attitudes of the students on food hygiene and safety [10]. The participants from high school students in the USA and students at University of Missouri had acceptable awareness toward food-borne diseases [11]. Imani et al. (2011) performed a descriptive and cross-sectional study on 250 nurses entitled "Nurses' awareness about crisis management and the pertinent factors." According to their results, very good awareness of crises management was found only among 3.2%, good awareness in 16.6%, moderate awareness in 52.3% and low awareness in 27.9% of nurses. They demonstrated a positive correlation between the level of awareness with type of work shift, membership in crisis committee, the role in crisis and education level [12]. In 2012, in a similar research entitled "surveying readiness of obligatory service soldiers regarding health measures in crisis in Malek Ashter Military Base, Arak, Iran," by Vosoughi Nayari

on 190 soldiers, it was revealed that 43% of soldiers had good awareness, 46% moderate awareness, 11% low awareness. Also, 50 had neutral attitudes toward health issues in crises. No significant difference was seen between readiness and awareness on crises and education level and age among the subjects ( $P=0.05$ ) [13].

The analyses of the questionnaire demonstrated that the highest (80.4%) and the lowest (36.8%) levels of awareness were related to adverse effects of foodstuff storage in unhygienic condition and the time required for boiling canned foods, respectively. It can be concluded that one of the strategies to manage health problems and control the transmission of diseases is the promotion of knowledge on nutrition and food hygiene in crises. As well, regarding the results, good to moderate levels of awareness were found among 73% of the subjects; this rate is a good level of awareness of the population under study. In summary, the insertion of educational programs in different forms (such as pamphlets, formal credits, etc.) within curriculum seems to be necessary for increasing the awareness levels and achieving higher quality services [14].

## 5. Conclusion

It is necessary to promote awareness of people, especially Medical and Paramedical students as health staff in disasters about nutrition and food preservation, that results in prevention of food-borne diseases and preservation of food and environment against contamination. The study result indicate that students' awareness about nutrition and food preservation at times of disaster is poor and training is recommended to achieve a successful disaster management. It is recommended that an appropriate instruction manual of nutrition and food preservation should be prepared for the guidance of students by disaster response agencies.

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## Conflict of Interest

The authors declared no conflicts of interest.

## References

- [1] Rostami R, Nafez AH, Falahi H, Mohammadi MM, Jamshidi Kh, Lotfi S, et al. [Surveying awareness of the students of Kermanshah university of medical sciences about nutrition and storing food stuff in crises (2016) (Persian)]. *Research Journal of Applied Sciences*. 2016; 11(7):563-6. doi: 10.3923/rjasci.2016.563.566
- [2] Farrokhi M, Dolatabadi ZA, Pakjouei S, Pouyesh V. [Review paper: Approaches to post-disaster environmental recovery (Persian)]. *Health in Emergencies and Disasters*. 2016; 1(2):65-70.
- [3] Brown BJ. Disaster preparedness and the United Nations: Advance planning for disaster relief. Geneva: United Nations Institute for Training and Research; 2013.
- [4] Kumar S, Havey T. Before and after disaster strikes: A relief supply chain decision support framework. *International Journal of Production Economics*. 2013; 145(2):613-29. doi: 10.1016/j.jipe.2013.05.016
- [5] Azizi SA, Eskandari S, Bavandpour E, Veisi N, Mohammadi MM, Lotfi S, et al. Evaluation of Kermanshah university of medical sciences students' knowledge and attitudes regarding health measures in emergency situations (2016). *International Journal of Pharmacy & Technology*. 2016; 8(3):18941-9.
- [6] Victoria LP. Community-based disaster management in the Philippines: Making a difference in people's lives. Metro Manila: Center for Disaster Preparedness; 2011.
- [7] Farajzadeh D, Soofiabadi Gh. [Surveying nutritional problems in Sepah during the war (Persian)]. Paper presented at: The Military Health Conference. 18-19 May 2002; Tehran, Iran.
- [8] Vosoughi Naieri M, Askari M, Jahed Gh, Dargahi Gh, Golestanifar H, Parastar S. [Surveying awareness level and attitude of the students of Tehran university of medical science about health measures in emergencies (Persian)]. *Journal of Rescue and Relief*. 2012; 4(2):43-52.
- [9] Banaie Ghahfarokhi B, Jazayeri R, Pishkar AR, Khalili M, Karami MH, Kolahi M. [Surveying awareness of environment hygiene health about food stuff hygiene in crises with emphasis on Shahrekord Flood in 2012 (Persian)]. Paper presented at: the 16<sup>th</sup> National Conference of Environment Health. 1-3 October 2013; Tabriz, Iran.
- [10] Dargahi A, Asadi F, Hashemian AH, Sharafi K, Amirian T, Mohammadi M. [Awareness and attitude of the students of Kermanshah university of medical science about food stuff hygiene (A cross-section study) (Persian)]. *Nasim-e Tandorosti*. 2014; 2(3):1-8.
- [11] Unklesbay N, Sneed J, Toma R. College students' attitudes, practices, and knowledge of food safety. *Journal of Food Protection*. 1998; 61(9):1175-80. doi: 10.4315/0362-028x-61.9.1175
- [12] Imani E, Hosseini Teshnizi S, Tafrihi M, Alavi A, Jafari A, Badri S, et al. [Nurses' knowledge about crisis management and its related factors (Persian)]. *Journal of Health and Care*. 2011; 13(4):10-8.
- [13] Vosoughi Nayeri A, Vosoughi Nayeri M, Golestanifar H, Pahlavanzadeh B, Savadpour MT. [Investigation of army soldiers readiness about health actions in critical circumstances. Case study: Malek Ashtar Military Garrison's (Persian)]. *Health in Emergencies and Disasters*. 2013; 1(1):77-87.
- [14] Miri A, Poursadeghiyan M, Baneshi MM, Biglari H, Yari AR, Khammar A. Study on attitudes of students of Islamic Azad University Tehran Medical Branch toward food safety, 2016. *Electronic physician*. 2017; 9(5):4289-95. doi: 10.19082/4289

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