

# Research Paper: Study on the Awareness of the Students of Azad University of Medical Sciences About Nutrition and Food Storing Stuff During Crisis



Ali Miri<sup>1</sup>, Mahsa Hami<sup>2</sup>, Abdollah Dargahi<sup>3</sup>, Mohsen Poursadeghiyan<sup>4</sup>, Mehrdad Farrokhi<sup>4\*</sup>, Reyhaneh Ivanbagha<sup>5</sup>, Mohammad Masood Khalesi<sup>6</sup>

1. Department of Nutrition, School of Health, Zabol University of Medical Sciences, Zabol, Iran.
2. Department of Economic Development and Planning, Firoozkuh Branch, Islamic Azad University, Firuzkuh, Iran.
3. Department of Environmental Health Engineering, School of Health, Hamadan University of Medical Sciences, Hamadan, Iran.
4. Research Center in Emergency and Disaster Health, University of Social Welfare and Rehabilitation Sciences, Tehran, Iran.
5. Department of Midwifery, School of Nursing and Midwifery, Ardebil University of Medical Sciences, Khalkhal, Iran.
6. Department of Basic Sciences, School of Rehabilitation Sciences, Iran University of Medical Sciences, Tehran, Iran.



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## ABSTRACT

**Background:** Consumption of healthy and hygienic foods is imperative to live a healthy life. This issue is of greater importance when obtaining foodstuff is relatively tough. The countries prone to natural disasters should always be prepared for a crisis. The present study aims to investigate awareness among the students in Azad University of Medical Sciences regarding nutrition and storing foodstuff in case of crisis.

**Materials and Methods:** A descriptive-analytical method was used in the present study. The study participants included 1350 students in Azad University of Medical Science which were selected randomly from all students in the academic year 2015-2016. Experts confirmed the validity of the questionnaire and it was distributed among the students. The collected data was analyzed through SPSS version 16.

**Results:** Given the results of the study, only 35% of the participants had a good level of awareness, 38.5% had moderate awareness, and 26.5% had low level of awareness about nutrition and how to store food during crisis. No significant gender and age ( $\alpha=0.05$ ) difference was observed.

**Conclusion:** Health experts and authorities should be aware of nutrition safety and sampling risky foods. This process can be helpful in case of a crisis, especially during early hours of the crisis and after the settlement of the displaced population are essential. To that end, training the experts and authorities responsible for such situations can be helpful. Therefore, holding training courses and teaching for related authorities on how to prevent waterborne and foodborne disease can prevent from food poisoning outbreaks and high mortality rate.

## \* Corresponding Author:

Mehrdad Farrokhi, PhD

Address: Research Center in Emergency and Disaster Health, University of Social Welfare and Rehabilitation Sciences, Tehran, Iran.

E-mail: [me.farrokhi@uswr.ac.ir](mailto:me.farrokhi@uswr.ac.ir)

## 1. Introduction

**F**ood hygiene is considered as an essential principle in preventing human inflammation, infections, and diseases. Millions of people all over the world suffer from foodborne illnesses every year. This issue is known as a common problem across the globe. Food-borne illnesses are indicative of the spread of public health problems, both in developed and developing countries. However, these issues have a more significant impact on health and economics in developing countries [1]. The World Health Organization views diseases caused by food contamination as one of the most critical health problems in the contemporary world [2]. Factors commonly associated with the epidemic of foodborne diseases include improper food storage, contamination of tools, food from unhealthy resources, poor personal hygiene, and inadequate cooking [3], especially in times of crisis and disasters, these factors should be considered carefully.

Food hygiene is an issue in almost all natural and human-made emergencies; since people in such situations tend to leave their homes, food products are spoiled, transportation system halts, and social structure of the society collapses. The emergence of food crisis is caused by factors such as bad climate, natural disasters, economic crisis, long-term wars, fire, lack of water, and a mixture of all these elements. The rate of the outbreak of such crises has increased since the 1980s; so that every year after 2000 the world has been faced with 50-80 food crises. Foodstuff hygiene during emergencies has a direct relationship with people's health. Diseases that are transferred by food can lead to destructive outcomes for public health. Using unhygienic food might cause death and illness of millions; therefore, hygiene (safety) of food needs particular attention [4-6].

One of the primary responsibility of the authorities is to plan, prepare, and predict the needs in the case of a crisis and further consequences. Supplying hygienic food and water for the people afflicted by disasters is one of the leading measures. Such preventive measures are highly efficient on nutrition condition of the public after outbreak of a crisis, term and extent of the crisis, and food production capacity in the afflicted area. Preventing, preparing for, and dealing with crisis and also supporting and rebuilding food supplies and empowering the population afflicted by the crisis is part of the responsibilities of states [7].

Human force and organizational factors determine how well an emergency crisis can be prevented or managed

[8]. Managing crises entails using health expert in different fields who have enough knowledge about working in such situations. The extent of preparation and awareness of these experts is a determinant factor in reducing the damages sustained due to improperly distributed food in the areas afflicted by the crisis [9]. To this end, the experts and authorities need to attend training courses on how to deal with the crisis.

Studies have demonstrated that educating people and increasing their awareness level plays a significant role in improving nutritional status [10]. A study by Unklesbay et al. reported that students who have passed food-related curricula have a very high level of awareness and attitude than other students, and even perform well [11]. The present study is an attempt to survey awareness level of nutrition and how to store foodstuff during crisis in students of the Azad University of Medical Science.

## 2. Materials and Methods

This cross-sectional descriptive study was conducted on students of the Azad University of Medical Sciences in 2016. The number of samples needed for each field was determined in 1350 person in both the genders. The selected students were from faculty of medicine (n=317 people), Paramedicine (n=108), Nursing and Midwifery (n=270), Health (n=317), Dentistry (n=257), and Pharmacology (n=81).

The stratified random sampling method was performed about different genders and fields of study, i.e., six groups of health fields according to previous studies. The data collection tool was a researcher-designed questionnaire (with ten questions). The experts confirmed the content validity and reliability of the questionnaire and internal consistency method (Cronbach alpha coefficient of 0.80), respectively. The questionnaire comprised two sections; a demographic section (age, gender, educational level, and field of study) and another section with ten questions about the students' awareness on nutrition and food preservation during crisis. The questionnaire was designed in two sections; a-demographics and b-10 questions about the level of awareness. Regarding the level of awareness, the correct answer would score "1" and wrong answer would score "0". The collected data analyzed by SPSS version 21.0 (SPSS Inc., Chicago, IL), standard deviation, one-sample t-test, and Mann Whitney test were used.

## 3. Results

In this study, 1,350 (405 male and 945 female) students from the Azad University of Medical Sciences were

**Table 1.** Mean score of awareness level of nutrition and how to store foodstuff in crises based on age groups

Index	Age Group		Sig.
Awareness	19-23	24-29	0.325
	175.48	159.58	

studied. The selected students were from faculty of medicine 317 Person, faculty of paramedicine 108 Person, faculty of nursing and midwifery 270 people, and faculty of health 317 people, faculty of dentistry 257 people, and faculty of pharmacology 81 people. Table 1 lists the respondents' answers to the questions about nutrition and how to store food stuff during crisis.

With regard to the questions about the level of awareness, Standard Deviation (SD) and rate of the response were calculated. This rate for the questions 5, 5, 7, and 9 was less than 0.5, and this figure for the rest of the questionnaire was higher than 0.5. Question no.7 (foodstuff after the settlement of the victims) had the lowest rate of response (39.5%) and question no. 11 (The main side-effects of storing foodstuff in the unhealthy situation) had the highest rate of respondents (80.3) (Table 2). Afterward, a specific ratio was compared with a constant number, and it was speculated 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 observed that this hypothesis is not supported and, therefore, the respondents had enough knowledge to answer all the questions.

Additionally, the results demonstrated that mean awareness score, SD, and variation range in the students about nutrition and storing foodstuff 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. Based on this categorization, awareness of the respondents about nutrition and the way of storing foodstuff in critical condition was a little less than this level (Table 3).

Mann-Whitney U test showed that there was no significant difference between a male and female students

about their awareness ( $P=0.667$ ). Also, concerning the awareness level, the students were categorized into two groups of above the fourth year and below the fourth year of the program. Moreover, Kruskal-Wallis test indicated that there was a significant difference between the faculties regarding their level of awareness. Therefore, level of awareness was highest in the faculty of health and lowest in the faculty of pharmacology. Eventually, level of awareness was examined based on the age of the participants, and no significant difference was observed ( $\alpha=0.05$ ;  $P=0.324$ ). It is notable that mean score of awareness in the younger students was higher in comparison with elder students (Table 4).

#### 4. Discussion

The results demonstrated that less than 35% of the students had good awareness about nutrition and food-stuff storage during crisis. BanaieGhahfarokhi et al. survived awareness of the experts of environment health-food hygiene about emergency situations with emphasis on Shahrekord's flood in 2012. Their results showed a significant difference in awareness of the participants before and after the training. Also, there was a significant relationship between education level, place of work, and level of awareness about foodstuff. However, they found no significant relationship between the level of awareness and age and work experience in clinics [9].

A study by Dargahi et al. on awareness and attitudes of the students in Kermanshah about food hygiene and safety reported that 46% of the students had excellent awareness, 48% had moderate awareness, and 4.5% had low awareness. There was no significant relationship between the students' awareness and attitudes about food hygiene and safety and other parameters such as age, education level, gender, and faculty [1].

**Table 2.** Frequency rate of awareness level of nutrition and how to store foodstuff in crises

Variable	Frequency	Percent
Good (6-11)	472	35
Moderate (4-6)	520	38.5
Low (0-4)	358	26.5

**Table 3.** Mean score of awareness level of nutrition and how to store foodstuff during crisis based on the faculties

Faculties	N	Awareness Level	Sig.
Medicine	100	173.91	0.001
Paramedicine	150	162.23	
Nursing	250	179.31	
Health	500	216.89	
Dentistry	150	141.89	
Pharmacology	200	117.42	

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A study on high school students in the USA and students at the University of Missouri demonstrated that the participants had acceptable awareness about the transferable disease by food [12].

A descriptive and cross-sectional study by Imani et al. titled "Nurses' awareness about crisis management and the pertinent factors" on 250 nurses showed that only 3.2% of the participants had excellent awareness of crisis management, 16.6% had good awareness, 52.3% had moderate awareness, and 27.9% had low-level awareness. In addition, the level of awareness had a direct relationship with education level, type of work shift,

participation in crisis plays, and membership in crisis committee [13].

Another descriptive and cross-sectional study by Voughi Nayari on 190 of the soldiers reported that 43% of the participant had good awareness, 46% had moderate awareness, 11% had low awareness, and 50% had neutral attitudes toward health measures in crises. There was no significant difference among the participants regarding readiness and awareness about crises based education level and age ( $P=0.05$ ) [14]. Regarding the questionnaire, the highest level of awareness (80.4%) was obtained about the side-effects of storing foodstuff in unhygienic condition, and the lowest level of aware-

**Table 4.** Student's awareness level of nutrition and how to store foodstuff in crisis (one-sample t-test)

Questions	Awareness	No-Awareness	SD	Sig.
What type of food would you recommend during the early hours of crisis?	681	669	0.502	0.001
Which one of the following recommendations are not suitable in crisis?	711	639	0.497	0.001
Which one of the following recommendations are not suitable in crisis?	735	615	0.493	0.001
Which are the main foods supply the nutritional needs of the survivals in crisis afflicted regions?	749	601	0.477	0.001
How long (minutes) the food must be boiled to ensure it is safe for eating?	617	733	0.684	0.001
How long (minutes) vegetables should remain in solution before eating?	603	747	0.492	0.001
After settling the displaced population, which food stuff should be supplied on weekly bases?	614	736	0.490	0.001
What do we mean by dry food stuff during crises?	719	631	0.499	0.001
Should the sterilized milk with six months longevity be consumed immediately after opening its package?	627	723	0.501	0.001
Is sterilize milk a good replacement for pasteurized milk given that it can be stored in ambient temperature?	748	602	0.487	0.001
Decay of food stuff is a major consequence of storing food in unhygienic situation?	812	538	0.399	0.001

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ness (36.8%) was obtained about the time needed to boil canned foods. In general, being aware of nutrition and food hygiene matters in crisis is a way to preserve one's health and prevent the transfer of diseases. In short, 73% of the participants had good-moderate awareness levels, which can be construed as a good level of awareness of the population under study.

Biglari et al. reported that the highest level of awareness was in the field of hygiene and the least was related to the field of radiology and laboratory sciences. In this study, the total number of participants was 360. In the current study, the highest level of awareness of the faculty of health is consistent with the study of Biglari et al. [6].

## 5. Conclusion

The results demonstrated that the students at faculties of health and Nursing had the highest level of awareness and the students at faculties of Pharmacology and dentistry had the least awareness about nutrition and storing food stuff during crisis. Therefore, it is necessary to conduct training programs in the form of a workshop or the inclusion of a course in the curriculum regarding awareness about nutrition and storing food stuff during crisis.

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## Conflict of Interest

The authors declared no conflicts of interest.

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