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The Earthquake Preparedness Status of Kafkas University Faculty Members

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ABSTRACT

Objectives: Turkey is home to one of the world's most active seismic belts, the North Anatolian Fault Zone. Severe earthquakes occur in the region, and particularly in areas near the fault line. Education and the establishment of an attitude of earthquake awareness and preparedness can reduce the destructive effect of these natural disasters. The objective of the present study was to determine the earthquake preparedness level of instructors at Kafkas University.

Methods: Instructors from the Faculty of Medicine, Veterinary Medicine, Educational Sciences, Economics and Administrative Sciences, and Arts and Sciences at Kafkas University were included in this descriptive study. Two questionnaires were used to conduct this research: The first recorded demographic details of the respondents, and the second questionnaire was an Earthquake Preparedness Form based on the Revised and Translated Mulilis–Lippa Earthquake Preparedness Scale.

Results: The mean score of the instructors in the Faculty of Veterinary Medicine was 9.16±3.27, while it was 9.04±3.26 for members of the Faculty of Economics and Administrative Sciences, 7.76±3.33 for the Faculty of Arts and Sciences, 7.48±3.26 for the Faculty of Medicine, and 7.16±3.16 for the Faculty of Educational Sciences.

Conclusion: The survey revealed that even well-educated university faculty members are not ready for an earthquake. Additional efforts are needed to prepare the community for a natural disaster.

Keywords: Attitude of health personnel, earthquakes, health personnel, quality improvement, Turkey

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INTRODUCTION

Earthquake is a phenomenon in which the energy generated by the breaking of the earth's crust due to tectonic forces or volcanic activities shakes the earth and the environment it passes through spreading in the form of seismic waves. Disaster is a nature, technology, or man-made event causing physical, economic, and social losses for the whole or certain segments of the society, interrupting normal life and human activities, and in which the society's coping capacity is not sufficient.[1] In the history of humanity, earthquakes come first when big natural disasters are mentioned.[2] In Turkey, deaths resulting from natural disasters are 65% caused by earthquake, 15% landslide, 12% flood, 7% rockfall, and 1% avalanche. These proportions show that earthquakes are the leading natural disasters in Turkey.[3]

Turkey houses one of the world's most active seismic belts, the North Anatolian Fault Zone. Very severe and destructive earthquakes occur especially in areas near the fault line.[4] A to-

tal of 20.000 people were killed in the 1999 Kocaeli earthquake, and >300.000 people were left homeless.[5] Overall, 92% of the land in Turkey is in the earthquake zone, and 98% of the population live in these areas.[6]

The most important thing that should be planned and executed by different institutions and that can be classified in different stages, such as before, during, and after an earthquake, is the establishment of an earthquake consciousness that can prevent the transformation of earthquakes into disasters.[7, 8] The number of dead and wounded individuals from earthquakes is significantly lower in societies that know how to protect itself from earthquake risks and its possible harms.[9] Educating individuals who are conscious and sensitive about earthquakes is the most effective method.[7]

The aim of the present study was to determine the earthquake preparedness condition of the Kafkas University faculty members.

METHOD

Research type: Definitive.

Survey Universe

Faculty members in Kafkas University Medical, Veterinary, Educational Sciences, Economics and Administrative Sciences, and Science and Literature Faculties.

Rather than selecting a sample, it was intended to reach the whole universe. A total of 314 faculty members comprised the entire universe, with 87 (27.7%) members from the Faculty of Medicine, 67 (21.3%) from the Faculty of Veterinary Medicine, 53 (16,9%) from the Faculty of Education, 74 (23,5%) from the Faculty of Science and Literature, and 33 (10,6%) from the Faculty of Economics and Administrative Sciences. Verbal consent of faculty members was obtained before participating in the study.

Data Collection Tools

Data collection form and Earthquake Preparedness Form were used for data collection. In the data collection form, there are questions about the demographics, faculty affiliation, and titles related to the faculty members. The earthquake preparedness level form is prepared by revising the Revised and Translated Mulilis–Lippa California Scale (Earthquake Preparedness Scale).[10] It consists of 19 questions. The minimum score is 0, and the highest score is 19, provided that a score of 1 is given to participants indicating that they are prepared for each question and 0 for indicating that they are not prepared.

Data of the study were collected by five intern physicians between March 2018 and April 2018 by using a face-to-face interview technique.

RESULTS

In the departments that were visited, in the Faculty of Medicine, 52 (59.8%) people were reached, 17 (19.5%) people could not be reached, and 18 (20.7%) people declined to participate in the survey; in the Faculty of Veterinary Medicine, 45 (67.2%) people were reached, 18 (26.9%) people could not be reached, and 4 (5.9%) people declined to participate in the survey; in the Faculty of Education, 38 (71.7%) people were reached, 12 (22.6%) people could not be reached, and 3 (5.7%) people declined to participate in the survey; in the Faculty of Science and Literature, 45 (60.8%) people were reached, 27 (36.5%) people could not be reached, and 2 (2.7%) people declined to participate in the survey; and in the Faculty of Economics and Administrative Sciences, 27 (81.8%) people were reached, 4 (12.1%) people could not be reached, and 2 (6.1%) people declined to participate in the survey. A total of 207 (66.0%) people were reached, 78 (24.8%) people could not be reached, and 29 (9.2%) people declined to participate in the study.

Among the faculty members, the average male point was 8.41±3.32, and the average female point was 7.36±3.22. The average point of aged ≥38 years was 8.59±3.38, and the average point of aged ≤38 years was 7.53±3.19. The average point of those who are married was 8.53±3.37, and the average point of those who are single was 6.54±2.67. The average point of the households with ≥4 people was 9.09±3.49, and the average point for ≤3 people was 7.37±3.03. The average point of those with a residence time of ≤6 years in Kars was 7.76±3.18, and the average for those with ≥7 years was 8.32±3.43. With respect to the ownership of the house, the average point of those living in public housing was 8.67±3.17, the average of those who live in their own house was 8.41±3.58, and the average of those who rent the house was 7.04±2.99. With respect to the faculty affiliation, the average point of the faculty members in the Faculty of Veterinary Medicine was 9.16±3.27, the average of the faculty members in the Faculty of Economics and Administrative Sciences was 9.04±3.26, the average of the faculty members in the Faculty of Science and Literature was 7.76±3.33, the average of the faculty members in the Faculty of Medicine was 7.48±3.33, and the average of the faculty members in the Faculty of Educational Sciences was 7.16±3.16. With respect to the titles of the faculty members, the average point of the faculty member of doctors was 7.74±3.25, the average point of associate professors was 8.89±3.79, and the average point of professors was 8.53±2.93 (Table 1).

DISCUSSION

Taking some precautions before an earthquake is important with respect to decreasing the problems that people

Table 1. Faculty members' demographic, faculty affiliation, and title distributions

	Distribution Number (%)	Mean±SD
Gender		
Female	72 (34.8)	7.36±3.22
Male	135 (65.2)	8.41±3.32
Age		
38 years and under	106 (51.2)	7.53±3.19
39 years and above	101 (48.8)	8.59±3.38
Marital Status		
Single	50 (24.2)	6.54±2.67
Married	157 (75.8)	8.53±3.37
Number of households		
3 people and below	125 (60.4)	7.37±3.03
4.0 and above	82 (39.6)	9.09±3.49
Period of residence in Kars		
6 years and below	101 (48.8)	7.76±3.18
7 years and above	106 (51.2)	8.32±3.43
Ownership of the house		
Rental	68 (32.9)	7.04±2.99
Owner	69 (33.3)	8.41±3.58
Public housing	70 (33.8)	8.67±3.17
Department		
Educational sciences	38 (18.3)	7.16±3.16
Medicine	52 (25.1)	7.48±3.26
Science and literature	45 (21.8)	7.76±3.33
Economics and administrative sciences	27 (13.0)	9.04±3.26
Veterinary medicine	45 (21.8)	9.16±3.27
Title		
Faculty member Dr.	142 (68.6)	7.74±3.25
Associate Professor	35 (16.9)	8.89±3.79
Professor Dr.	30 (14.5)	8.53±2.93
Total	207 (100.0)	8.05±3.32

SD: Standard Deviation.

may face in a possible earthquake and solving the problems more easily. Studies on disasters can be discussed in five categories: loss reduction, preparation in advance, rescue and first aid, improvement, and reconstruction. Being prepared during and after a disaster is one of these dimensions. The stocking of materials, such as food, beverage, and clothing, among others, ensures that individuals are not in a difficult situation after a disaster. First aid, firefighting, gas–electric valves, and the acquisition of the necessary knowledge and skills related to search and rescue are another important dimensions. Making plans in advance to bring the family members together after an earthquake or to leave the building appropriately and effectively during an earthquake is also an important way of preparation.[11] In the present study in Kars, the information about the locations of water–natural gas valves and electrical switches is at a high level of 93%. The ratio of the meeting point after an earthquake is very low at 11.1%.

Currently, the importance given to disasters during education and training organized by non-profit organizations and schools and the importance given by in-service courses and public advertisements are not adequate to create a strong disaster awareness in all individuals in the society.[12] It is not surprising that the ratio of those who participated in the courses and seminars in Kars is 13.5%.

Compulsory earthquake insurance coverage ratio was 50% in a survey of 1064 people in Istanbul, Izmir, and Kocaeli, whereas this ratio was 59.9% in Kars.[13]

Again, in a survey conducted in Istanbul, Izmir, and Kocaeli, 33% of the respondents do not know whether earthquake resistance tests are performed to evaluate the resistance of buildings against earthquakes, 25% of the participants stated that this test was never performed, and 43% conducted earthquake resistance tests.[13] In the present study in Kars, 25.1% had their house durability control by authorities. The low rates may be due to the fact that Kars is considered to be a second-degree earthquake region, and the participants see this issue as insignificant.

In another study conducted in 44 provinces, 83 out of 100 respondents stated that their building was not inspected for earthquakes; 70 out of 100 respondents said that they have no preparation for an earthquake.[14] In Kars, 25.1% of the faculty members have their building's earthquake control made. The fact that the fixation rate of the goods, such as a cabinet and showcase, among others, against an earthquake is 30% indicates that the preparation rate for an earthquake is slightly higher. This high rate in Kars can be explained by the high level of education of the sample. It is also thought-provoking that the rate of fixing the objects to the wall (30%) is low compared with the rate of the earthquake resistance test of buildings (25.1%). Considering that the earthquake-related deaths in Turkey occur due to the collapse of the houses, the earthquake resistance test of the buildings should have been given more importance. In light of this data, the source of the high fixing rate of the objects on the wall should be sought in factors other than an earthquake.[15]

In the present study in Kars, the average point of married faculty members in preparation for an earthquake was

Table 2. The data of faculty members' earthquake preparedness level

No	Questions	Yes Number (%)	No Number (%)
	Putting materials in a place at the house where it can be used immediately after the earthquake		
1.	A working flashlight	109 (52.7)	98 (47.3)
2.	A working battery-powered radio	40 (19.3)	167 (80.7)
3.	Spare batteries for the radio and the flashlight	51 (24.6)	156 (75.4)
4.	First Aid Kit	92 (44.4)	115 (55.6)
5.	At least 10 liters of water in a plastic container	96 (46.4)	111 (53.6)
6.	Canned or dry food that will last for at least 4 days	70 (33.8)	137 (66.2)
7.	A full and working fire extinguisher	43 (20.8)	164 (79.2)
8.	Emergency telephone number list	53 (25.6)	154 (74.4)
	Knowing the place of the shutoff valve and switch		
9.	Water valve	192 (92.8)	15 (7.2)
10.	Natural gas valve	192 (92.8)	15 (7.2)
11.	Electrical fuses	199 (96.1)	8 (3.9)
	Fixing the large furniture in the houses towards the wall to prevent falling in the earthquake		
12.	Cabinets (showcases, wardrobe, shoes cabinet, etc.)	62 (30.0)	145 (70.0)
13.	Large objects hanging on walls (mirrors, paintings, etc.)	81 (39.1)	126 (60.9)
	Family emergency plan for during and after the earthquake		
14.	Determining the earthquake meeting place	23 (11.1)	184 (88.9)
15.	Determining a place to seek shelter at home during the earthquake	74 (35.7)	133 (64.3)
16.	Getting compulsory earthquake insurance	124 (59.9)	83 (40.1)
17.	Having the durability control of the house made by experts	52 (25.1)	155 (74.9)
	Taking precautions for earthquake preparation		
18.	Thinking that they have enough information about earthquake preparedness	85 (41.1)	122 (58.9)
19.	Participating in courses and seminars related to earthquake preparation	28 (13.5)	179 (86.5)

higher than that of single faculty members. In a study conducted in Kayseri, it is stated that married health workers are more knowledgeable than single health workers.[16] This difference may be related to the fact that married individuals are more responsible, their age is older, and with regard to this, they are more experienced.

In a study conducted in Kayseri,[16] there was no significant difference between men's knowledge level and women's knowledge level of an earthquake; in the study conducted in Izmir, men's knowledge level of an earthquake was significantly higher than women.[3] In the present study in Kars, the earthquake preparedness scores of males are higher than those of women, but the difference arises from the fact that men know the position of the water valve, natural gas valve, and electrical switch at higher rates. This condition can be explained by the social roles of men.

In the present study in Kars, participants aged ≥39 years tend to be more prepared than those aged ≤38 years according to the age variable. Again, in a study conducted in Kayseri, earthquake knowledge level adequacy increases as age progresses, but this increase is not significant.[16] The tendency to be prepared as age increases may be related to different factors, such as the frequency and severity of past disaster experiences and the fact that this age group has more stable living conditions.

CONCLUSION

Although the risk groups have been tried to be prioritized, in the present study conducted in Kars, it is observed that the participants were not prepared for a possible disaster before an earthquake. The average point of 8.05 out of 19 is one of the biggest indicators for this. The deplorable condition of the faculty members, who can be considered in the educated section of the society, further stimulates the concerns we had at the beginning of the present study. Fur-

ther and comprehensive studies in this field will contribute not only to increase the preparedness of the communities for disasters but also to increase the preparedness level of those who are responsible for preparing the society for disasters.

Disclosures

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Conflict of Interest: None declared.

Ethics Committee Approval: The study was approved by the Local Ethics Committee.

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