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Investigating Sanandaj University Students' Knowledge, Attitude, and Practice Regarding Preparation for Earthquake in 2013-2014.

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ABSTRACT

Earthquake is one of the most important natural disasters in Iran. The belt of this destructive disaster is almost widespread all over the country. The most important point to be made on such disasters and their consequences is that these disasters do not involve unfavorable consequences per se. What makes them disastrous is lack of preparation to deal with them and preventing their unfavorable effects on health, economic, and environmental elements. Since there has been no research on earthquake in university students' views, measuring and teaching this group of the society who will take the future of the country in different sections seem to be highly important. Therefore, the present study was aimed at investigating university students' knowledge, attitude, and practice of preparation for earthquake in Sanandaj, one of the Iran's cities located on earthquake belt. The present research was a descriptive-analytic cross-sectional study. Data collection was carried out through a valid questionnaire whose validity and reliability were confirmed using Delphi technique in three phases. Sampling was randomly conducted through some phases. Collected data were analyzed through SPSS 19.0. Participants included 400 students from Kurdistan University of Medical Sciences (200 students) and Islamic Azad University of Sanandaj (200 students). They were composed of 46.1% males and 53.9% females and aged 18-32 with a mean age of 21.75±91.1. Media were the mostly utilized sources to collect information on natural disasters like earthquake (47.6%). 51.1% of the participants had experienced slight earthquakes. In studied students' view, 56.2% of houses in their place of residence were not resistant against earthquake. 62.9% of the students believed that the likelihood of devastating earthquake in their place of residence was high. Analytic results of the study showed that 18.4% of the students had good knowledge, 38.4% had average knowledge, and 46.8% had low knowledge. Regarding their attitude, 49.23% of them had good attitude, 19.21% had average attitude, and 26.7% had bad attitude. Regarding their practice, 62.3% of them had low practice for earthquake, 38.8% had average practice, and 23.5% had good and appropriate practice. According to the results of the present study, students' knowledge, attitude, and practice regarding preparation for earthquake are not suitable. In this regard, interventional especially educational undertakings need to be figured out. There was a significant statistical relation between knowledge, attitude, and practice scores, such that students with higher knowledge, had better attitude and appropriate practice. Efficient management of health in disasters depends on predicting and identifying problems caused by the disaster and providing necessary facilities in appropriate place and time. Therefore, authorities need to take actions that enhance people's knowledge, change their attitude, and affect their practice in the face of this devastating disaster.

Keywords: knowledge; attitude; practice; earthquake; university students

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INTRODUCTION

Statement of the problem

The incidence of natural disasters is one of the oldest facts of human societies. Occurred natural disasters throughout the history and the way humans dealt with them are among issues that can be scientifically considered and analyzed. Throughout the history, natural disasters and man-made disasters have always caused thousands of deaths, irreparable disabilities, or loss of large amounts of national wealth [1].

Chronological study of natural disasters and ways to deal with them in the form of attempts before, during, and after their incidence conducted by scholars, politicians, planners, experts, and specialists so that casualties and financial damages can be analyzed and reduced [2].

Natural disasters are extreme geographical disruptions or emergency conditions that can have consequences like death, casualties, financial damages, and diseases and include a sequence of before, during, and after incidence. In terms of management, this sequence includes reduction of effect or prevention, caution and preparation, and response and recovery [3].

After most natural disasters, a lot of people become homeless and deprive from sufficient food, clothing, healthcare, and other necessities of life and finally cause them to expose to unfavorable climate conditions and diseases. All people and governments are responsible for providing the stricken people with healthcare and help them to get back to normal life [4].

Statistics shows that over 12800 individuals throughout the world die of natural disasters every year [5].

In the last decade, about 88% of the total deaths were caused by natural disasters and 83% of individuals died of natural disasters were Asian. Natural disasters cause an average annual damage of 87 billion dollars [6].

In UN charter, Iran has been ranked as one of the ten countries most prone to natural disasters. Due to its special geographical position and locating on Alp-Himalaya belt, Iran is considered as one of the countries that are prone to earthquake and 90% of its population are at the risk of floods and earthquakes. Iran is the fourth country in Asia and the sixth in the world in regard with occurrence of natural disasters [7].

According to conducted studies, 181 natural disasters occurred in Iran during 1900 to 2007, which caused 155.811 deaths and 168.217 casualties. Earthquake, flood, and drought are the most important disasters [8].

Earthquake and flood are considered as the most important natural disasters in Iran. The most important point to be made on such disasters and their consequences is that these disasters do not involve unfavorable consequences per se. What makes them

disastrous is lack of preparation to deal with them and preventing their unfavorable effects on health, economic, and environmental elements [9]. Humans cannot prevent natural disasters like earthquake from happening but by getting prepared they can efficiently decrease their bad effects [10]. In their study, McClure and Williams (1996) concluded that people ignore getting prepared for and resistant against earthquake because they believe that "earthquake is uncontrollable". However, if natural disasters such as earthquake are considered controllable, people's attitude regarding the effectiveness of prevention will change, which in turn results in positive behavior change [26]. Therefore, earthquake is a natural phenomenon whose occurrence does not necessarily bring about unfavorable and unpleasant consequences but damages and consequences caused by lack of preparation for dealing with this natural phenomenon are the reasons for labeling it "disaster" [12].

Therefore, earthquake is considered as the most devastating natural event which is an unpredictable phenomenon and in most cases occurs without prior caution. The belt of this destructive disaster is almost widespread in Iran [11].

When an earthquake occurs in a city, the city will be affected as a system. In other words, the components of the city are affected by not only the earthquake jolts but also other components of the city [13].

Efficient management of health in disasters depends on predicting and identifying problems caused by the disaster and providing necessary facilities in appropriate place and time [15].

Educating and training people are the key points to be considered in managing and controlling natural disasters [16]. Petal (2002) concluded that holding home training sessions can effectively reduce the effects of natural disasters and their unfavorable consequences and damages [22].

Therefore, in order to prevent the effects of natural disasters and reduce their unfavorable consequences and damages, different measures need to be taken. These measures include enhancing people's correct knowledge and awareness about unpredictable events and dangers imposed by their place of residence and educating them about safe methods for controlling such events [17].

It should be noted that providing people with scientific attitude to issues related to managing natural disasters like earthquake and specialized knowledge can be effective in reducing consequences and damages [18].

Measuring the individuals' knowledge, attitude, and practice (KAP) is necessary to provide required trainings that enhance individuals' knowledge and skill of how to live in a dangerous environments and equip them with capacity needed to deal with natural disasters so that damages and consequences of such disasters can be decreased [19]. The results of the study conducted by Yang *et al* (2010) also showed that people's knowledge on earthquake dangers was limited. They believed that educational centers like universities, schools, cyclic practices and maneuvers, and media can enhance knowledge, change attitude and positive practice in people [23].

Interpretation of such studies reveals strengths and weaknesses of help and knowledge provision systems and results in improving efficiency and performance of medical systems.

According to the abovementioned issues and necessity and importance of how to prevent earthquake in the future as an unpredictable situation, it is necessary for all people especially the youth to be given enough knowledge in this regard so that they can act well and reduce resulted damages.

Since there has been no research on earthquake in university students' views, measuring and teaching this group of the society who will take the future of the country in different sections seem to be highly important. Therefore, the present study was aimed at investigating university students' knowledge, attitude, and practice of preparation for earthquake in Sanandaj, one of the Iran's cities located on earthquake belt.

METHOD

The present research was conducted as a descriptive-analytic cross-sectional study in order to investigate Sanandaj university students' knowledge, attitude, and practice regarding preparation for earthquake. Data were collected over 3 months through a questionnaire distributed among 400 students of Sanandaj universities (200 individuals from University of Medical Sciences and 200 individuals from Islamic Azad University). Participants were randomly selected in some phases. Questionnaires were distributed among students in their classes and were collected after they filled them out. Data collection instrument was a 4-section questionnaire: demographics (12 items), knowledge questions (12 items), attitude questions (15 items), and practice questions (18 items). Validity and reliability were confirmed using Delphi technique in three phases by university professors. After gaining permission from the deans of the universities, the researchers provided the students with enough explanations and distributed the questionnaires.

After data were collected and encoded, they were analyzed through SPSS 19.0. Data analysis was conducted in two phases: descriptive phase (frequency tables, mean, variance, standard deviation) and analytical phase (Chi-square test, Fisher test, Pearson Correlation).

RESULTS

Participants included 400 students from Kurdistan University of Medical Sciences (200 students) and Islamic Azad University of Sanandaj (200 students). They were composed of 46.1% males and 53.9% females and aged 18-32 with a mean age of 21.75 ± 91.1 . In terms of gender, there was no significant difference between the two universities.

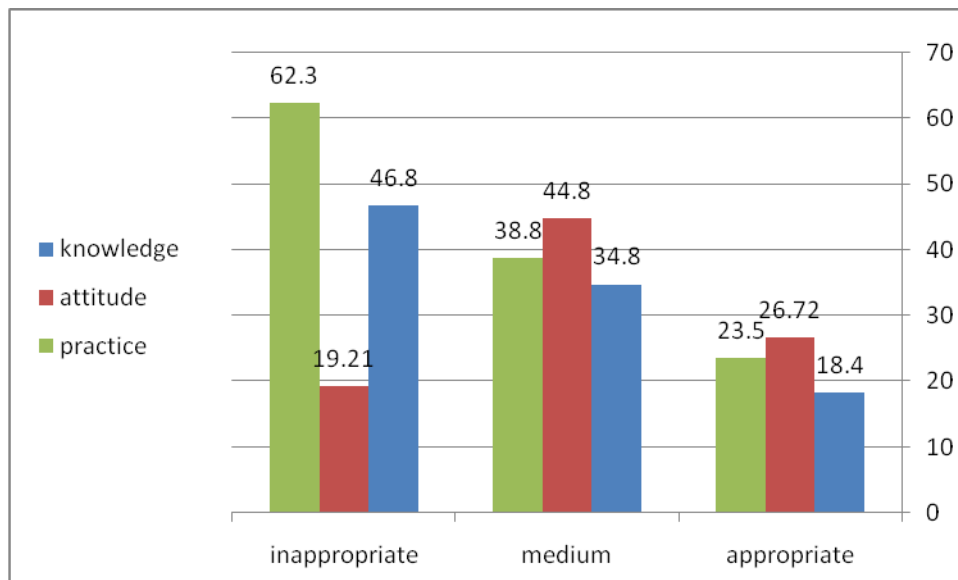
Regarding degree, 2% were A.A., 89.9% were B.A., 5% were M.A., and 6.7% were Ph.D. 84.2% of them were single, 13.2% were married, and 3.5% were divorced, widow/widower. Media were the mostly utilized sources to collect information on natural disasters like earthquake (47.6%) the second source was school (35.7%). 51.1% of the participants had experienced slight earthquakes and no one had experienced devastating earthquakes.

71.4% of the participants were living in city and the rest in suburbs or villages. In terms of economic situation, 9.9% of the students were very good, 43% were good, 42.1% were average, and 5.3% were bad. From the participants, 28.6% of them had house insurance, 40% did not have, and the rest were unaware of house insurance. 42.8% of the participants' houses had over 15-year-old construction and the rest were under 15 years. 83% had their own house and 14.9% were living in rental houses.

In the students' view, 56.2% of houses in their place of residence were not resistant against earthquake, 62.9% of them believed that the likelihood of devastating earthquake in their place of residence was high, 7.4% believed in likelihood of devastating flood, 20.3% believed in high occurrence likelihood of both, and 8.9% believed that the likelihood of both was low.

The analytical results of the present study showed that 18.4% of the students had good knowledge, 38.4% had average knowledge, and 46.8% had low knowledge. The level of good knowledge was significantly higher in the students of University of Medical Sciences compared to Islamic Azad University ($P < 0.000$). Regarding their attitude, 26.72% of them had good attitude, 44.8% had average attitude, and 19.21% had bad attitude. Regarding their practice, 62.3% of them had low practice for earthquake, 38.8% had average practice, and 23.5% had good and appropriate practice. There was no significant difference between the two universities regarding the students' attitude and practice.

Table 1: the level of knowledge, attitude, and practice regarding preparation for earthquake in Sanandaj university students'



Analyzing data related to the students' knowledge scores in terms of variables like university, marital status, place of residence, ownership of house, economic situation, and degree through chi-square test, no significant relation was observed. However there was a significant relation between knowledge and gender ($P < 0.04$), knowledge and experience of earthquake ($P < 0.01$), knowledge and information collection method ($P < 0.041$).

Moreover, chi-square test results showed that there was significant relation between the students' attitude score and economic situation ($P < 0.001$) and degree ($P < 0.003$). However, it did not have significant relation with other variables.

There was significant relation between the students' practice score and place of residence ($P < 0.001$), economic situation ($P < 0.043$), experience of earthquake and house ownership ($P < 0.04$). However, it did not have significant relation with other variables.

DISCUSSION

Most parts of Iran especially western regions (Edalati) are located on earthquake belt and incidence of harsh earthquakes like those struck Bam, Rudbar, and Manjil is not unlikely in distant future.

According to the reports of the national seismography center located in geophysics institution, Tehran University, there have been 6250 cases of earthquake from March to November, 2013. From these cases, 248 cases were as large as 4.0 internal waves scale (They were widespread in provinces of Hormozgan, Fars, Yazd, South Khorasan, and Bushehr). Most cases (1160 cases) occurred in March-April with [29]. In their study conducted in 2013, Edalati *et al* reviewed the history of earthquake incidence in Western Iran. According to the results of their review, accumulated strain diagrams in western regions of the country clearly showed remarkable changes in released strain during recent years. They stated that incidence of harsh earthquakes in the provinces of Kermanshah, Kurdistan, Ilam, Lorestan, Hamedan, Khuzestan, West and East Azarbaijan is not unlikely [30]. These reports highlight the importance of earthquake crisis and attention needs to be paid to prevention from natural disasters in Iran.

Despite of the importance and frequency of earthquake incidence, the results of the present study and those of other studies showed that people's knowledge, attitude, and practice level is low.

In the present study, 56.2% of the students believed that their houses had not been resistant enough against earthquake and 62.9% of the students believed that the likelihood of earthquake incidence in their place of residence was high.

In their study on students of 4 high schools in Bam who had the experience of earthquake in 2001, Morovati *et al* concluded that the best and the most effective method to decrease casualties and loss is to reinforce the buildings. They concluded that the mean score of the participants' knowledge, attitude, and practice was not appropriate. Students who had better attitude had performed better and there was a relation between knowledge increase and earthquake experience [31].

In the present study, there were 12 knowledge questions. Question 10 had the lowest frequency (Q10: If you encounter someone whose back and neck hurt severely during an earthquake, the best action is to take the patient away from the event place without paying attention to the seriousness of the damage). Only 16% of the students answered this question correctly. Percentage of correct answers given by University of

Medical Sciences students was significantly higher than that of Azad University students ($P < 0.003$). This difference was due to their majors.

The question related to the nature of earthquake had the highest frequency of correct answers and the question related to safety hints and knowledge about individual security and sheltering had the highest frequency of incorrect answers. Lack of this kind of knowledge shows that informing people about correct actions during earthquakes and sheltering was significant and necessary measures that were needed to be adopted. According to the results of Morovati's study conducted on Bam's students, only 9.56% had experienced participating in earthquake maneuvers and 3.5% of them were frightened and confused during an earthquake, 1.2% attempted to rush out of home, 13% sheltered in safe places, and 4% did not take any special action.

There were 15 attitude questions. Analyzing these questions showed that 76% of the students believed that earthquake incidence was imminent and 65.3% believed that earthquake is a natural event that includes most casualties and if everyone is ready to deal with such events, their damages decrease remarkably. And 31.3% of the students believed that earthquake results in extensive damage whether people are prepared or not and such disasters are uncontrollable. McClure and Williams stated that people believed that natural disasters are uncontrollable because they did not consider preparation for and resistance against earthquake as an important issue. They concluded that if people consider such events controllable, their attitude toward the effectiveness of preventive actions against earthquake will be positive and this positive attitude results in a change in their behavior and an increase in their knowledge [26].

The results of the present study showed that in answering the 18 questions of practice, the students showed low percentage for storage of water, canned foods, first aid kit, battery, etc., which was due to limited knowledge and negative attitude. The results of Pearson test showed that there was a significant relation between knowledge, attitude, and practice, such that students with good attitude and higher knowledge had better practice.

In the present study, there was a significant relation between knowledge and earthquake experience. Media and elementary schools were the mostly used methods to gain information on natural disasters like earthquake. In universities; however, such knowledge is not systematically provided. Therefore, assigning courses of managing natural disasters especially earthquake is effective in enhancing the knowledge of the students who will take control of the country in the future. The students' knowledge and skills can be utilized to educate other individuals of the society.

There was also a significant relation between earthquake experience and knowledge, which can be due to the experience that individual gained during the earthquake, notifications broadcast by the media, and paying attention to earthquake importance as an inevitable event. Hurnen *et al* introduced knowledge enhancement as a preventive factor to prevent natural disasters especially earthquake [25]. Based on the present study participants' views, 77.2% of them considered informing and educating people about earthquake necessary and 65.5% considered the performance of organizations like Red Crescent effective. Mahalati and Kaveh also showed that there was a positive relation

between enhancing people's knowledge and their contribution [27]. Moreover, Petal *et al* conducted a study on KAP in Turkish women regarding preparation for earthquake and believed that holding home sessions was an important factor in reducing the effects of natural disasters [22]. Yang *et al* considered enhancing people's knowledge through educational centers like universities, schools, maneuvers, and cyclic practices by authorities and the media effective in changing their attitude and creating positive behavior and practice [23]. In the present study, students with better economic situation had more positive attitude. It can be concluded that poverty and inappropriate economic situation are inhibitory factors preventing people from enhancing their knowledge and cause them to lose their hope to control critical situations. Those who had better economic situation had better practice. Good attitude is also necessary to have appropriate practice. Therefore, these three factors are not separate.

Moreover, students with higher degrees had better attitude, which can be due to an increase in confidence. There was a significant relation between the students' practice and their place of residence; those who lived in cities had better practice. Since building structure in rural regions and in villages is not proper, and media exist less there, more attention needs to be paid to them in regard with enhancing people's knowledge.

The results of the present study showed that individuals owning a house had better practice, which is due to their sense of responsibility and commitment. Individuals' earthquake experience was also effective in enhancing their practice. These people are more worried because they fear recurrence of the disasters.

CONCLUSION

According to the results of the study, students' knowledge, attitude, and practice regarding earthquake was not ideal and appropriate; therefore, interventional measures especially educational programs should be adopted.

Efficient management of health in disasters depends on predicting and identifying problems caused by the disaster and providing necessary facilities in appropriate place and time. Therefore, authorities need to take actions that enhance people's knowledge, change their attitude, and affect their practice in the face of this devastating disaster.

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