Disaster Response Awareness among Students in Their Preparatory Year at King Saud University

Safa Lubbad[1] MPH, Zohair Al Aseri[2] FRCPC
[1]Master of Public Health Program, Disaster Management and Epidemiology Track, College of Medicine, King Saud University, Riyadh, Saudi Arabia.
[2]Associate Professor, Departments of Emergency Medicine and Critical Care, College of Medicine, King Saud University, Riyadh, Saudi Arabia.

Abstract

Aims: *The main goal of the study was to discover the level of awareness among students in the preparatory year at King Saud University towards the concept of disaster response. Within this main goal, the researcher aimed to gain findings that could allow the development of recommendations in terms of how students could be prepared better for disaster response awareness.* ***Research Questions:*** *To complete this, three research questions were devised including 1) what level of disaster response awareness among students in their preparatory year at King Saud University. 2) How aware are the students of the presence of crucial safety measures and equipment that could be used in case of fire or chemical leakage? Moreover, 3) what are recommendations can be made based on these findings to help improve disaster response awareness for the students at the university.*

Main Method: *The researcher used primary research, devising a quantitative cross-sectional research methodology assessing 276 students regarding their disaster response awareness. The work used a descriptive questionnaire instrument with a random sampling technique.*

Key Findings: *The findings indicated that the participants had a self-confessed low level of disaster response awareness. Since, 97% of the students were unaware of the procedures put in place by the university and did not know how to respond specifically to fire or chemical leakage. The findings did present recommendations that could help to improve the knowledge of students at the university.*

Significance: *These recommendations included the use of an external body such as the Civil Defence or disaster management specialists to assess the procedures that existed, as well as the university's need to put on lectures and workshops for students with the aim of improving disaster response awareness for Preparatory Year students at King Saud University.*

Keywords: *Higher Institutions, King Saud University, Higher Institutions, Natural disasters, Saudi Arabia*

1. Introduction

The notion of disaster response awareness is a concept that has developed in society in recent years, mainly through the rise of both natural and manmade disasters that have occurred across the globe over the past few decades [1]. As the human development of land across both developed and developing nations expands, this has led to the rise of natural disasters influencing human developments, mainly because of the spread of urban centers and the natural growth of the world population. Combined with this are manmade disasters through both human error and the rise of terrorism in society that has ensured that many societies live in potential danger areas, particularly in the Middle East [2]. This is supported by Emery, Homer who has stated that 'because of an increasing world population, increased urbanization, increased hunger and an increasing threat from climate change, poor communities throughout the world are at risk of disaster' [3].

The assessment that the growth of disasters is influencing the global society (both at the local, national, regional and international level) has therefore led to the need for citizens to be prepared in terms of disaster response awareness. The same study evaluated that 'there is a defined need for cultural awareness to be at the forefront of any disaster response…there is the need for an acute cultural, political, transport, communication and social awareness of the issues that could impact a society during a disaster' [3]. Despite this, there seems to be a lack of research into the subject, hence the development of this work and the desire to gain knowledge as to how a specific population (students) understands their role and how to act in the event of a disaster occurring at their location (King Saud University). The study has been designed to be specific because it wishes to find out the knowledge of a particular group, thereby presenting recommendations to the university as to how improvements in disaster response can be made following the findings to help ensure that students are better prepared as we move on into the future.

1.1. Research Problem

The study itself has been developed because of the growth of natural and manmade disasters that have existed in the global society due to the rise in climate change as well as terrorist activity [3, 4]. However, this work does not want to present an analysis of a wide group in society but focus specifically on the level of knowledge held by students, in the hope that the findings will be able to help develop a program of knowledge and ability to improve their disaster response awareness, should the university experience a disaster in the future. The level of disaster response awareness among students at the King Saud University will be tested in the study, enabling the researcher to present real and useful findings that could be of use to the greater society. The completion of this task and its findings will enable the university to take necessary steps to improve the disaster response awareness of the students following a

natural or manmade disaster, thereby conducting a useful and proactive study in the university environment.

1.2. Research Significance

The study has a high level of significance in Saudi society, aiming to address a major issue that has been lacking, particularly within the university population in the country. The lack of awareness by the youth in today's society is worrying, given the position of the Middle East and the belief that the situation in the region is only likely to remain unstable as we move forwards into the future. This has led to the belief that the concept of disaster response awareness is a major issue at the current time in society. With the growth of natural and manmade disasters occurring across the globe, it is thought that populations all over the world need to be better prepared on how to cope with the possible occurrence of disasters. However, the assessment of the literature underlines that the overall knowledge of disaster response is low and this is a chief concern that exists in current societies [7]. This work aims to develop the knowledge of the level of disaster response awareness of students at King Saud University, with the results then being used to help improve this level of knowledge if necessary.

1.3. Research Questions

The creation of the research objectives also led to the development of fundamental research questions that need to be answered during this study. The completion of primary research will address these research questions, with students in their preparatory year at King Saud University used as participants for this purpose. The research questions include:

1- What level of disaster response awareness among students in their preparatory year at King Saud University?

2- How aware are the students of the presence of crucial safety measures and equipment that could be used in case of fire or chemical leakage?

3- What are recommendations can be made based on these findings to help improve disaster response awareness for the students at the university?

The completion of these research questions can help the researcher ensure that the objectives are met with this, in turn making sure that the overall major aim of the study can be completed.

1.4. Aim of Study

The main goal of the study is to discover the level of awareness among students in the preparatory year at King Saud University towards the concept of disaster response. Within this main goal, the researcher wishes to gain findings that will allow the development of recommendations in terms of how students can be prepared better for disaster response awareness. This underlines the proactive nature of this study and its high level of importance associated with the work.

1.5. Research Objectives

The study has developed a number of key research objectives, aiming to enable the researcher to focus more directly on a specific topic. The research objectives developed for this study include:

1- To assess the level of students awareness of the correct procedures to take in the event of a disaster regarding their response at Preparatory Year of King Saud University in March 2014.

2- To assure the presence of crucial safety measures and equipment that could be used in case of fire or chemical leakage at Preparatory Year of King Saud University.

2. Literature Review

This chapter presents the review of the literature that took place, aiming to provide a detailed understanding of knowledge concerning the subject of disaster response awareness, how humans react to disaster and possible recommendations for the improved knowledge and reaction of humans in society. Although this study focuses primarily on a specific population (students in their preparatory year at King Saud University), there is much to be learnt from the research for the wider global population. As well as this, it is known from the discussion in the literature that the focus on disaster response awareness is global and outlines that the level of public awareness is generally relatively low [4]. This review focuses on the lack of knowledge in the wider human society about how best to respond to disasters (both natural and manmade), as well as possible recommendations for improved knowledge in communities that face an increased risk of disaster in the foreseeable future.

First, it is important to assess the level of disaster response awareness in the global society, using studies that have assessed particular disasters and communities around the world. The literature has outlined, from a study concerning Hurricane Katrina in the United States, that the analysis of the recent hurricane disaster showed that 'much work is needed to get individuals to think about a disaster ahead of time and to prepare themselves for decisions. That will be required of them, the timeframes involved and the options that will and will not be available' [5]. This view was underlined because the majority of individuals warned about the hurricane did not attempt to leave their homes, even when receiving early information on emergency procedures' [6]. There have also been studies that state that it is not only the knowledge of local communities generally that has failed when disasters have influenced, but also key factors regarding resources and education of the population. A study by S Wilson has outlined that factors that lead to a low level of effective response to a disaster include a lack of preparedness, awareness, a lack of operational mandate, no resources to help manage, low levels of co-operations and that essentially, the disaster has come as a surprise to the entire population. The analysis of the research also underlines that in a global sense, there is a lack of preparedness and knowledge regarding disaster response for large percentages of national populations [7].

There needs to be an increased focus on accelerating the successful translation of research to public health practice and policy, and on taking existing practices through rigorous evaluation and research for sustainable improvements. As in all areas of public health, continued research and evaluation is central to improving the practice of public health, and in

no area is it more important than in promoting public health preparedness [8]. Universities are not fully prepared yet for disasters and need more efforts in this field [9]. This means that this proposed study can complete a detailed analysis of the subject and can present the university with information that could be valuable in the long-term in preparing students to learn effective and efficient disaster response. Especially, concerning the knowledge of first year students and how to help improve a potential disaster situation as we move forwards in society.

According to the previous researchers, there has been a dramatic increase in the frequency of natural disasters in the recent years around the globe. The major reason for such disasters involve the mal use of the natural resources. On the other hand, floods, storms, volcano explosions and earthquakes are inherited by the nature. The truth behind all such circumstances involve lots of loses, damages and injuries, since, these loses can be prevented or even lessen their extent if the people have disaster management skills. The most important part of this is the training of students so that they can act wisely towards disasters [5, 6]. However, the current study indicated that the education institutions should give training to them about their approach for handling disasters during and after the circumstances. The geographical location of Saudi Arabia and the mal use of natural resources, the country faces many disasters in every year [4]. In the twenty-first century, the country witnessed many issues that caused damage to human lives and properties.

In order to prevent from such circumstances, the higher education sector of the country needs to reform the policies and provide training to the students who can play an important role in contingency planning. Therefore, the research is considered important in order to determine the disaster preparation accountability of higher education institution regarding their students training for handling such kind of disasters [12, 13]. The researcher argued that studies were conducted but potential benefits were ignored that is the reason why serious measurements cannot be taken. In case of natural disasters, country loses economy benefits along with physical and mental damage. Further, the study supported that in order to avoid such conditions, around the globe many states should reform their strategies according to the activities related to the specific disaster preparedness activities within the campuses of universities [15, 16]. The emergency management department should assist institutions to increase the strength of their student against disasters.

According to the literature published in disaster management journals, the strategic reform should include the training given to the students in identification of the disasters, exploring mitigations against disasters, learning to develop plan for coping after the incidents and implementing drills and strategies for family education and community training as a whole [17, 18]. The current study raised an awareness that in many European states since, there is a promotion of building the culture of disaster preparedness that motivated the people to take their actions especially in the sector of healthcare, food supply, sanitary and water purification. In every institution, there should be a crises management unit, which must support the strategy of the institutions and fulfil their aims. This can be significant in terms of creating community level awareness through cooperative efforts via workshops and seminars. On the other hand, the current study indicated that without policies this could not be successful at the university level. The policies must incorporate coordinated approaches for supporting the current needs of disaster preparedness among the students in the form of facilities and ongoing partnerships between the communities and crises management unit [7, 8].

Regarding this, the researcher argued that effective training in managing the aftermaths of disaster could be of no importance if the vulnerable communities will not participate in such initiatives. The community-based initiatives should mix with contingency planning, preparedness for reformation, response based task force mechanism. This indicated that different issues are responsible for ineffective contingency planning consist of defected engineering services, supervision lacking among the management, architectural decencies and deficient awareness from the public for demanding such safety standards. An important point highlighted by the research study, indicated that people are also facing psychological issues due to disasters and develop symptoms of fear, anxiety, aggression, depression and some other issues [4, 6]. Therefore, young people can be the good source in order to become the part of the training phase and initiate project for preparing people to act wisely against disaster and increase the awareness among the common people through community initiatives. An important initiative is supported by the research study is the disaster preparedness is of importance that it should be the part of curriculum in which teachers and institution management may develop the special learning and training of students to build necessary skills of contingency planner having proper execution leadership skills.

3. Research Methodology

This third chapter outlines the methodological approach chosen by the researcher, following extensive analysis of similar studies and how the research has been conducted in the past. Through this analysis, the researcher found that the most appropriate methodology was to use a quantitative cross-sectional research methodology, gaining data using a questionnaire research instrument to assess the level of awareness of the students involved in this study. The primary research methodology focuses on assessing of the King Saud University students regarding their disaster response awareness.

In order to conduct this research methodology, the work proposed a descriptive questionnaire instrument is used with a random sampling technique. The study used statistical analysis to evaluate the findings and assess the level of knowledge towards disaster response. As the study has focused on the nature of participant`s knowledge regarding disaster response awareness, the researcher has based the

findings within the interpretive paradigm. This has been used because it allows for multiple truths and for subjects to be assessed using different perspectives [10]. The use of this research paradigm helped to raise the level of validity and reliability of this current study.

3.1. Research Design

The study used the data from the review of the literature to help create a research methodology that would be appropriate for this type of research. It was outlined that the most effective form of study would be a quantitative descriptive cross-sectional study [12]. This type of methodology is described and defined as one that is 'conducted to establish that a relationship exists between variables…these studies are useful for exploring associations between and among variables' [12]. The study uses a questionnaire to help assess the knowledge of the participants (independent variable) with regard to the concept of disaster response awareness (dependent variable). The study took place at the preparatory year campus at the King Saud University in Saudi Arabia. To enable the researcher to complete successfully this form of research methodology, the work used a descriptive and quantitative questionnaire instrument. The questionnaire was created and consisted of 35 closed end questions posed to the participant. The questionnaire provided closed questions to the 276 participants, with the instrument divided into three sections. The questionnaire first included a demographic information section and a discussion of past disaster experience. Following this, the final part is divided into three sub-sections, with questions relating to hazard knowledge and awareness of the participant, one section on the preparedness and behavior during a disaster and finally, a segment on the supportive resources, human safety protection programs and equipment. These three sections are divided and emphasized in the following results chapter, to ensure clarity when analysing the results.

3.2. Sampling Procedure

The study's sampling procedure was a two-stage process, with a pilot study initially conducted before the actual data collection for the selected sample. The pilot study involved 30 participants, assessing the level of disaster response awareness among students. Following the successful completion of the pilot study, this main research study was launched. The sample size of the study used 276 participants by using the estimated value of disaster response awareness level, which was not more than 20% according to previous study [13, 14].

Confidence interval $1-\alpha = 95\%$ $Za= 1.96$

Absolute precision required $d= 5\%$

$N= Za2\ P(1-p)/\ d2 = 276$

The research had inclusion criteria, with participants needing to be a student in their preparatory year. Exclusion criteria included the entire academic and administration staff and other students from different specialties. However, within these inclusion criteria, the sampling technique was that of random sampling [13].

4. Data Analysis

In terms of data analysis, the study used Microsoft Excel, helping to create data sets that the researcher used to examine the level of disaster awareness at the university and among the Preparatory Year students in particular. The data analysis was aided using specific and well-tested data methods to help assess this knowledge. The quantitative approach to the findings was thought to be able to assess successfully the level of knowledge towards disaster response [15]. Within the quantitative methodology, the researcher adopted the Likert scale. This was used to analyze the questionnaire`s items with score from 1-5 (strongly agree 5 - agree 4 - neutral 3 - disagree 2 - strongly disagree 1). Participants were provided with a number of statements through the entirety of the questionnaire. This method was used because it was viewed as simple, effective and would not unnecessarily confuse the participants in the procedure of questionnaire completion.

5. Ethical Considerations

The students were not given incentives to complete the study but were ensured complete anonymity and confidentiality. This was done to ensure that they provide their honest response and not be worried about potential impacts because of the nature of their results. Other studies have dealt effectively with sensitive research topics and how to cope with these types of pressure situations. Perhaps the most important factor is that of the need to ensure confidentiality and anonymity to those taking part in the study, so that they do not experience negative feedback from their responses [16, 17]. Participants may even provide incorrect information and opinions for different reasons. Therefore, this study ensures confidentiality and anonymity for the participants involved, so no personal information (first and last names, specific location) will be presented in the published version of this paper [18].

6. Results

The study created three main research questions within the wider research area of disaster response awareness. These research questions focused on getting data from the participants to help provide information and allow the researcher to present recommendations as to how students could develop their knowledge of disaster awareness in the university context in Saudi Arabia. The three research questions included 1) what level of disaster response awareness among students in their preparatory year at King Saud University. 2) How aware are the students of the presence of crucial safety measures and equipment that could be used in case of fire or chemical leakage? Moreover, 3) what are recommendations can be made based on these findings to help improve disaster response awareness for the students at the university. Using these three research questions, this chapter presents the results for the overall analysis, using both written and visual methods to help explain the findings to the reader. This results section presents the findings from the questions asked on the survey, with the findings divided into three sections. The first section

focused on the key demographic information that was taken from this study.

6.1 Demographic Information

The analysis and discussion of the results begins with a consideration of the demographic information that was gained by the researcher in this study. For the purposes of analysis, this study used 276 participants, although the participants were not forced to answer every question. Through this decision, many questions have a range of responses, from the vast majority to less than half. Despite this, the results were found to be informative and could help further the knowledge of disaster response awareness among Preparatory Year students at King Saud University. Since, 276 participants were therefore questioned regarding their knowledge of disaster response awareness. The average age of the student was 18 years old, with the youngest student aged 17 and the oldest aged 21 at the time of the questionnaire. The final second question in the demographic section aimed to identify the education track selected by each participant. This was important because the choice of a medical track for the majority of participants could have skewed the results in favor of a higher level of knowledge regarding disaster response awareness. The information for the education track selection is provided in the table below.

Table 1: Education Track Selected (Among students at Preparatory Year of King Saud University in March 2014).

Track:		
Answer Options	N	%
Medical	32	11.7%
Scientific	134	49.1%
Humanities	107	39.2%
N=		273

As can be seen from the table, only 12% of participants had selected a medical degree, while a further 49% had chosen a more general scientific course. A smaller minority of 39% had selected a course within the humanities section at the university. The analysis of the raw data for the course chosen and the average age of the student helped to underline that the participants were young adults, with a preference for scientific education.

6.2. Descriptive Statistics

The descriptive statistics indicated that the overall mean values of the responses were same and very slight variation was reported. This further indicated that most of the respondents shared the same thoughts in relation to the following mentioned disciplines as indicated in the given chart below.

Chart 1 : Descriptive Statistics of the Survey

Descriptive Statistics						
	N	Minimum	Maximum	Mean	Std. Deviation	Variance
The major cause of accidents at any university campus is chemical leakages	276	1.00	2.00	1.1993	.40018	.160
Your campus developed a hazard and disaster management strategy in the cases of fire or chemical leakages to cope with the emergency situations	276	1.00	2.00	1.2935	.45618	.208
Your university follows a specific syllabus for hazard management give to students	276	1.00	5.00	2.1848	1.33699	1.788
These sessions were useful	276	1.00	5.00	2.0217	1.24443	1.549
Should the department of education be responsible for regularly visiting your university for inspection regarding safety education	276	1.00	5.00	1.6522	1.12913	1.275
With regard to disaster and hazards management, do you	276	1.00	4.00	1.7210	.94872	.900

consider your university as protected						
A disaster management team at the campus well prepared to manage and secure the victims during any hazard	276	1.00	4.00	1.9348	1.09349	1.196
The students are aware of the emergency call number	276	1.00	2.00	1.1522	.35984	.129
Your university has enough staff and equipment to ensure safety in the campus	276	1.00	2.00	1.2464	.43168	.186
Assessment regarding disaster management and risk reduction awareness is important enough to be conducted at your university	276	1.00	2.00	1.2500	.43380	.188
A periodic evaluations and fire drills are conducted at your university yearly.	276	1.00	2.00	1.1739	.37972	.144
A periodic evaluations and fire drills are conducted at your university twice per year	276	1.00	2.00	1.1812	.38585	.149
Valid N (list-wise)	276					

6.3. Past Disaster Response Experience

The second part of the questionnaire aimed to discover whether participants had witnessed a case where a hazard or disaster had occurred, as well as analyzing the type of disaster that took place, whether the participant had been pre-warned about it, if people were injured and whether or not they were prepared for its occurrence. The information gathered here was useful in helping the researcher assess the prior knowledge of the participants, particularly with reference to how they coped with potential disaster. The results from this section help to indicate that overall, some participants have had past experience with disasters, but have lacked the knowledge of how to respond to them, with this being viewed as a serious issue by many in the study. When asked if they had ever witnessed a case of a hazard occurring or any disaster in the past, only 20% of participants had witnessed this type of event. This equated to 51 of the 276 participants (although 22 skipped the question entirely) (see Table 2).

Table 2: Experienced a Previous Disaster (Among students at Preparatory Year of King Saud University in March 2014).

Have you ever witnessed a case of hazard or any disaster in the past?		
Answer Options	N	%
Yes	51	20.1%
No (If not, then skip the General part of the questionnaire and please move to the part two of the questionnaire)	203	79.9%
N=	254	

The small minority of participants that had experienced a disaster provided data that helped the researcher divide the results by type of disaster. The most frequent type of disaster experienced by those participants was that of fire (42%), while electrical faults (25%) were also prevalent. The second largest response was that of ‘other’, with participants not asked to name specifically what this referred to the analysis. There were two other categories selected, with 11% reporting that they had experienced a natural disaster and approximately 5% stating that they had witnessed a chemical leakage (see Table 3).

Table 3: Type of Disaster

What went wrong?		
Answer Options	N	%

Fire	27	42.2%
Natural disaster	7	10.9%
Chemical leakage	3	4.7%
Electric faults	16	25.0%
Other	21	32.8%
N=	64	

The results from the question that asked if the participants were warned about the disaster prior to it occurring highlight that the lack of shared knowledge and poor communication are key issues involved in the lack of disaster response awareness. Since, 67 participants answered the question as to whether they were warned and only 22% stated that they were given warning. This means that an overwhelming majority of 78% were not warned, underlining the lack of communication and the sharing of key pieces of information that could have perhaps led to a different outcome (see Table 4). The analysis of the data in table 4 helps to provide understanding for the results in table 5. The participants were asked in question 9 if they felt that they were prepared for the disaster and the manner in which they could respond. The response reflected that of those in question six (Table 4) and indicated that there was a real lack of preparedness involved in these examples. Thus, 75% (three-quarters of all participants) were not prepared for the event, stressing that they were lucky to be alive, rather than any real sense that they had the knowledge to be proactive during the event. The other 25% felt prepared, with this underlining that some prior knowledge was transferred to them in the event of the disaster occurring.

Table 4: Warning about Disaster (Among students at Preparatory Year of King Saud University in March 2014).

Were you warned about it before?		
Answer Options	N	%
Yes	15	22.4%
No	52	77.6%
N=	67	

Table 5: Were Participants Prepared? (Among students at Preparatory Year of King Saud University in March 2014).

Were you prepared for it?		
Answer Options	N	%
No, but was lucky to survive	49	75.4%
Yes, somehow	16	24.6%
N=	65	

Furthering the knowledge regarding the participant's reaction to the disaster, question 7 asked participants as to the nature of their reaction during the event. Choices presented in the questionnaire included panic, self-controlled, frenzied, numb, shocked or 'other'. Since, 71 participants answered this question with the remaining 205 skipping it, as they had not experienced a disaster. The responses were generally negative reactions, with only the self-controlled response noted as a positive one. Further, 27% of participants reacted in a self-controlled manner, with the vast majority reacted negatively. However, 32% panicked, 17% reacted in a frenzied manner and 37% (the largest single response) were shocked. A much smaller minority (1.4%) were numb. 11% of participants responded in a different manner, but were not asked in this study to state what this reaction was. However, the results stated that it was clear that the majority of reactions were negative, as reflected in Table 6.

Table 6: Reaction of Past Disaster Experience (Among students at Preparatory Year of King Saud University in March 2014).

What was your reaction when you took notice of it?		
Answer Options	N	%
Panic	23	32.4%
Self-controlled	19	26.8%
Frenzied	12	16.9%
Numb	1	1.4%
Shocked	26	36.6%
Other	8	11.3%
N=	71	

The findings also indicated that in the experiences of the participants, there were only a small number of people that suffered from the disaster, underlining that the majority of the disasters experienced were not large or too destructive. Only one-fifth (20%) of the participants that responded actually stated that there were people that suffered, with the vast majority of the participants claiming that none suffered during the disaster (Table 7).

Table 7: Sufferers of the Disaster (Among students at Preparatory Year of King Saud University in March 2014).

Were there any sufferers of the disaster?		
Answer Options	N	%
Yes	13	20.0%
No	52	80.0%
N=	65	

The results from this section helped to provide important information regarding the level of preparedness that a small selection of the participants had experienced in prior disasters. The results should not be taken as a majority finding, because only approximately 70 participants responded to these questions in the first section. However, the results were conclusive and acknowledged that out of these participants, the vast majority were unprepared for a

disaster, reacted in a negative manner and felt themselves that they did not have any awareness of preparedness in any way prior to the occurrence of the disaster.

6.4. Disaster Response Awareness

The third section focuses on the nature of the disaster response awareness of the participants in a theoretical manner, asking questions regarding hazard knowledge and awareness, the type of behavior and level of preparedness during a disaster and the understanding of supportive resources, human safety protection programs and equipment that have been developed in wider society and by institutions to help deal with a disaster. In this section, the participant responses were used to help analyze their level of response awareness, as well as the response awareness made public to its students by the King Saud University.

6.5.Hazard Knowledge and Awareness

Table 8: Hazard Knowledge and Awareness (Among students at Preparatory Year of King Saud University in March 2014).

Part Two: Hazard knowledge and awareness:						
Answer Options	Strongly agree N (%)	Agree N (%)	Neutral N (%)	Disagree N (%)	Strongly disagree N (%)	N
The major cause of accidents at any university campus is Flammable gases	32 (11%)	108 (39%)	106 (38%)	26 (9%)	3 (1%)	275
The major cause of accidents at any university campus is fire	33 (12%)	115 (42%)	91 (33%)	32 (11%)	1 (0.3 %)	272
The major cause of accidents at any university campus is chemical leakages	19 (7%)	85 (32%)	112 (42%)	43 (11%)	4 (1%)	263
Every university should consider hazard protection scrutiny a fundamental part of scheduled procedures.	209 (76%)	49 (18%)	9 (3%)	5 (1%)	0	272
Your campus developed a hazard and disaster management strategy in the cases of fire or chemical leakages to cope with the emergency situations	37 (14%)	49 (18%)	114 (42%)	50 (18%)	17 (6%)	267
Faculty members/ staff and students taking part in the implementation of the disaster management strategy.	18(6%)	44(16%)	125(46%)	66(24%)	17(6%)	270
University employs a disaster management or risk reduction syllabus or well-written plan for teaching and training about hazard management.	8(3%)	52(19%)	127(47%)	59(21%)	24(8%)	270

Your university follows a specific syllabus for hazard management give to students.	8 (3%)	38 (14%)	99 (36%)	93 (34%)	33 (12%)	271
You have been skilled or educated for disaster preparedness in university.	16 (6%)	90 (33%)	93 (34%)	60 (22%)	10 (4%)	269
These sessions were useful	9 (3%)	26 (10%)	83 (30%)	101 (37%)	49 (18%)	268
Your university arranges frequent fire drills for training purposes.	6 (2%)	19 (7%)	113 (42%)	80 (30%)	46 (17%)	264
You abide attending drills training,	27 (10%)	47 (17%)	116 (43%)	52 (19%)	24 (9%)	266
Should campus supervision accountable for each student to be educated by this program.	15 (6%)	31 (11%)	125 (47%)	54 (20%)	40 (15%)	265
N=	275					

The results in the first sub-section, as seen in Table 8 above, highlight that the King Saud University has not taken appropriate precautions in terms of addressing the key types of disaster that could occur on the campus. Perhaps the most important finding was the fact that students in this study did not feel that the university followed a specific syllabus for hazard management and that it was not given to students. When presented with this statement, 33 students strongly disagreed, with a further 93 participants disagreeing. As well as this, 99 students responded with a neutral comment, rather than in a positive manner. Only 46 of the participants (less than 20%) responded that the university did follow a specific syllabus, indicating that the university did not have an official policy that it followed and which was given to students. This viewpoint was also supported by the belief that the participants did not feel that the university actually employed a syllabus at all or a plan for the teaching and training about hazard management. Since, 60 participants felt that this was true, but 83 disagreed, with a further 127 participants responding in a neutral manner. Although the two findings regarding positive and negative attitudes were similar, the high number (44%) of participants that responded neutrally meant that they were not sure, underlining that the university either did not have a plan, or that it was kept quiet and that students were not made aware of its existence.

In either situation, this was a negative finding and limited the knowledge and level of awareness of students on campus regarding how to react during a disaster. These results conflict with the findings from the participants that responded to whether, in theory, universities should offer hazard protection to its students. An overwhelming 209 participants strongly agreed with this statement, coupled with a further 49 that agreed, meaning that approximately 97% at least agreed with this view. Therefore, there was a dramatic difference between the practice of hazard protection and the development of safety planning and disaster response of King Saud University, when compared with the theoretical beliefs of the participants in this study. This lack of action by the university has led to a lack of knowledge held by the students in terms of their own response to disasters and their general awareness in this subject.

6.6.Preparedness and Behavior during Disaster

Table 9: Preparedness and Behaviour during Disaster (Among students at Preparatory Year of King Saud University in March 2014).

Part Three: Preparedness and behavior during disaster:						
Answer Options	Strongly agree N (%)	Agree N (%)	Neutral N (%)	Disagree N (%)	Strongly disagree N (%)	N
Should there be any outside disaster management inspection teams that visit the university to ensure safety.	187 (69%)	66 (24%)	15 (5%)	1 (0.3%)	0	269

Should the department of education be responsible for regularly visiting your university for inspection regarding safety education?	71 (26%)	65 (24%)	106 (39%)	14 (5%)	13 (5%)	269
You are attending labs sessions related to chemicals at your campus.	28 (10%)	59 (22%)	140 (52%)	24 (9%)	18 (7%)	269
You are aware of fire or chemical leakage protection equipment and course of action.	17 (6%)	67 (25%)	89 (33%)	74 (27%)	21 (7%)	268
You consider awareness of fire or chemical leakage protection gears and course of action as important.	17 (6%)	63 (23%)	92 (34%)	72 (26%)	24 (8%)	268
You consider that learning about those actions is by workshops.	42 (15%)	92 (33%)	93 (34%)	34 (12%)	10 (3%)	271
You consider that learning about those actions is by lectures.	33 (12%)	111 (41%)	79 (29%)	32 (11%)	14 (5%)	269
You consider that learning about those actions is by printed handouts.	36 (13%)	103 (37%)	79 (29%)	37 (13%)	17 (6%)	272
With regard to disaster and hazards management, do you consider your university as protected?	16 (6%)	48 (18%)	116 (43%)	50 (18%)	38 (14%)	268
The level of awareness of the students at your campus regarding risks associated to a disaster is high.	15 (5%)	33 (12%)	106 (39%)	73 (27%)	39 (14%)	266
The level of awareness of the students at your campus regarding risks associated to a disaster is medium.	21 (7%)	84 (31%)	108 (40%)	39 (14%)	17 (6%)	269
The level of	62 (23%)	78 (29%)	88 (33%)	24 (9%)	11 (4%)	263

awareness of the students at your campus regarding risks associated to a disaster is low.						
The student community prepared to take a safety course of action in case of any disaster and hazard.	24 (9%)	45 (17%)	99 (37%)	62 (23%)	34 (12%)	264
A disaster management team at the campus well prepared to manage and secure the victims during any hazard.	27 (10%)	50 (18%)	127 (47%)	41 (15%)	20 (7%)	265
The students are aware of the emergency exits at your campus.	17 (6%)	52 (19%)	89 (33%)	56 (20%)	53 (19%)	267
The students are aware of the emergency call number.	31 (11%)	70 (26%)	87 (32%)	48 (18%)	29 (10%)	265
You are working with any disaster management rescue team at your campus.	14 (5%)	30 (11%)	85 (32%)	88 (33%)	45 (17%)	262
You are aware of the use of fire extinguishers.	23 (8%)	48 (18%)	71 (26%)	72 (27%)	49 (18%)	263
N=						273

The second section in this final part of the presentation of the results focused on the nature of the preparedness and behavior during disasters of both the university staff, procedure and the participants themselves. The participants were keen to state that they thought that external evaluation was important to help increase awareness and the overall level of safety at the university. An overwhelming majority (253 out of 269 participants) either agreed or strongly agreed with this statement, perhaps underlining the lack of trust that the students had in the university's own official procedures when dealing with disasters. The participants also stated that this external responsibility should be held by the Department of Education within the national government.

There were a number of key findings in this section, mainly relating to the lack of awareness admitted by the participants, as well as potential recommendations as to how the university could improve the awareness of their students. The student participants in the questionnaire also acknowledged that they could learn from the university in terms of its procedures, with learning opportunities pointed out through lectures, workshops and the provision of handouts for students. However, perhaps the most important finding of the study focused on the admittance of the students as to the level of awareness of the entire student body was low. The students responded negatively to the statements regarding a high or medium level of awareness. When asked about whether the students had a low level of awareness, over half of the participants at least agreed with this statement, with a further 88 participants that were neutral. Finally, in this section, it was clear that even basic knowledge of disaster response awareness did not exist in the minds of the participants. When asked about if students were aware of the use of fire extinguishers, the results surprised the researcher with only 61 participants agreeing or strongly agreeing with the statement. The negative response (121 disagreed or strongly disagreed) highlighted that the students had a very low level of awareness of disaster awareness and management at the university.

6.7. Supportive Resources, Human Safety Protection Programs and Equipment

Table 10: Supportive Resources, Human Safety Protection Programs and Equipment (Among students at

Preparatory Year of King Saud University in March 2014).

Part Four: Supportive resources, human safety protection programs and equipment:						
Answer Options	Strongly agree N (%)	Agree N (%)	Neutral N (%)	Disagree N (%)	Strongly disagree N (%)	N
Safety/protection equipment related to fire or chemical leakages, important for any university to operate.	184 (67%)	54 (19%)	29 (10%)	3 (1%)	2 (0.7%)	272
Your university has enough staff and equipment to ensure safety in the campus.	20 (7%)	46 (20%)	141 (52%)	38 (14%)	24 (8%)	269
you or your campus ever become a part of any survey to investigate or assess the perception of people regarding any mishap associated to fire or chemical leakages	73 (26%)	93 (43%)	89 (32%)	11 (4%)	5 (2%)	271
Assessment regarding disaster management and risk reduction awareness is important enough to be conducted at your university	30 (11%)	61 (22%)	100 (36%)	59 (21%)	21 (7%)	271
A periodic evaluations and fire drills are conducted at your university yearly.	19 (7%)	32 (11%)	136 (50%)	44 (16%)	36 (13%)	267
A periodic evaluations and fire drills are conducted at your university twice per year.	31 (11%)	31 (11%)	127 (47%)	39 (14%)	41 (15%)	269
N=						272

7. Discussion

Research indicates that an important focus of improving collaboration success might lie within emphasizing leadership support, encouragement, and incentives for staff members who are creating or implementing joint efforts. Using current effective efforts as models to develop new collaborations may lead to greater and more successful collaborations between these organizations [10]. The literatures do produce specific guidance on how to help improve the level of disaster response related awareness knowledge in society, although as the review outlines in this section, there are problems associated with this.

Developing and maintaining situational awareness for disaster response is far more complex than many public safety providers realize, and this lack of understanding of the complexities causes some to dismiss or discount its importance. Therefore, with this view in mind, it is important that not only do the community population realize the importance and necessity of situational awareness and how to respond to disasters but also that this is integrated in the teaching and process created by those in charge of official public safety policy, whether it be at an organization, a public institution or the wider public sphere. The research does indicate that there is a need for increased education, with community-wide programs being developed in a number of global locations. This need for heightened public awareness is a major part of the reason as to why this study is taking place, and this is supported in the work of Stacey L Knobler. His study stated that 'in the event of a disaster, it is assumed that response resources will be stretched to the limits of their capacity or even exceed their capacity during the first few hours of the response' [11].

In this way, it is necessary for the institutions or organizations to produce education for the wider public to ensure that help is also given from this aspect of society, as

well as the provision from the official capacity. The knowledge and education provided to the public in this type of scenario could dramatically increase the nature of the success rate during the response to the physical disaster. The completion of this literature review has outlined that there is a general lack of disaster response awareness knowledge in society. Moreover, although there are problems with the capacity of society to deal with responses more widely through the access to official resources, the major issue is the lack of awareness of the public in how to deal effectively with this type of situation. The literature stated that there is a need for a greater effort to share knowledge and to communicate, especially with communities and societies that are prone to experience disasters. This was outlined to be the responsibility of public health officials in society, as well as the need for institutions and organization in the private and public spheres to take a lead and develop plans that give a heightened level of knowledge to the general public [4, 7].

When focusing on a combination of the results from both the literature review and primary data, it is apparent that the participants' perceptions were such that they highlighted a lack of knowledge regarding disaster response awareness at the university. The findings highlighted that there was a low level of awareness among the participants in this study regarding disaster response awareness. The lack of awareness was through the failure of the university to provide written plans, the absence of any education or procedures put in place by the university and its staff and a lack of education and knowledge provided by the wider society. A small minority of students did recognize specific procedures and assessed that they were aware of how to react during a disaster but the vast majority were not so well educated. Moreover, the experience of previous disasters also highlighted that this was a failure of the wider society, with the majority of those that had experienced a previous disaster citing that they reacted negatively to the event.

Students were aware that the potential causes of accidents at the university were fire, the exposure of flammable gases and the possibility of chemical leakage, with their opinion also citing that the university needed to provide hazard protection on these materials. Perhaps the most interesting finding in terms of the knowledge of the participants was their uncertainty in the existence of official procedures created and produced by the university regarding disaster response. This lack of knowledge outlined that the university either had procedures but that these were not made public to its students or that it did not have them at all. Either of these two options was a negative finding for the university or this uncertainty of the participants only heightened their lack of awareness. As well as this, students noted that they were not invited to take part in the implementation of the disaster management strategy that existed in the university, again underlining why their awareness was so low.

Moreover, the participants also stressed that in theory, the university should provide for external inspections of the university to occur to ensure the safety of its materials, and inherently the safety of its students. However, in practice, the students argued that they did not feel that their university was protected, with them stressing that although lectures, handouts and workshops could increase knowledge; these had not taken place at the university in their experience. This led to the overall conclusion that students at the university, when offered a chance to state if their level of awareness was high, medium or low, that they had a low level of awareness regarding disaster response. Finally, the lack of awareness extended to elements such as the knowledge of the location of emergency exits, the use of fire extinguishers and a large minority were unaware of the emergency call number. These findings were alarming and negative, highlighting that a great deal of work was needed by the university and the student body to help rectify this situation.

Finally, these findings found that the university was prepared in terms of the safety protection equipment that it had at the campus, but that students were not sure how to use them, did not feel that the university conducted fire drills on a frequent basis (the results were inconclusive on this matter), and that they were unsure of whether the university had enough staff that were knowledgeable in disaster response to conduct this response effectively.

8. Conclusion

The findings indicated that the participants had a self-confessed low level of disaster response awareness. Students were unaware of the procedures put in place by the university and did not know how to respond specifically to fire or chemical leakage. Overall, the study can conclude that the Preparatory Year students had a low level of knowledge of the existence of plans put in place by the university. The study also found that there were important recommendations that could be made regarding the improvement of this knowledge and awareness for the students, with these presented in the next section in this chapter.

9. Recommendations

The recommendations that emerge from this study focus on two different aspects that emerged from the study. First, this section discusses the recommendations that can be made to the King Saud University in terms of how to develop the awareness of their Preparatory Year students, as well as perhaps other students at the university that might have a similar perspective. However, the study aims to produce recommendations for further study in this area to help enhance the findings provided and to ensure that the research can gain greater awareness of the problems facing students in their level of disaster response awareness, with the hope of improving this knowledge in the long-term period.

There are important recommendations that can be made with regard to the improvement of awareness for the students in this study. The results outlined that although the university may have documents and official procedures in relation to disaster response and the awareness of how to react during a disaster; the students were unaware of their existence. This assures that there has been a lack of communication on behalf of the university, with their needing to be greater

education for students when they arrive at the university. Moreover, students assessed that they would learn effectively through handouts, lectures and workshops, providing the university officials with methods of the teaching process. However, there are also requirements that need to put in place by the student body. For example, the lack of knowledge and belief that the university should be the entity to act is one that could be naive and ended in tragedy. The student body needs to demand that safety precautions are taken and provided by the university. To achieve this, there should be an external and independent review of the procedures put in place by the university, with results focusing on how positive changes can be made to this to increase the awareness of Preparatory Year students at King Saud University.

Finally, there are recommendations that can be made in connection with further study. This current research work focused on gaining the knowledge of a select group (the Preparatory Year students) but did not gain the perspectives of those with a supposedly greater knowledge of the procedures put in place by the university. It is recommended that further study take place with assessment of the views of university staff, as well as other students from across the campuses. This would help to provide a more informed view of the university's procedures as well as draw attention to staff of the need to improve student knowledge of disaster response awareness at the King Saud University.

10. About the Authors

10.1. Meetings

This study has not been presented at a local, regional or international meeting.

10.2. Financial Support

This project has no financial support.

10.3. Conflicts of Interest

The authors have no conflicts of interest to declare.

10.4. Author Contributions

SL and ZA conceived the study, designed the trial, and obtained research approval. ZA supervised the conduct of the trial and data collection. SL recruited the participants and managed the data, including the quality control data. SL drafted the manuscript, and both authors contributed substantially to its revision.

11. References

[1]. Brandeau ML, McCoy JH, Hupert N, Holty J-E, Bravata DM. Recommendations for modelling disaster responses in public health and medicine: a position paper of the society for medical decision making. Medical decision-making: an international journal of the Society for Medical Decision Making. 2009; 29(no. 4):438–460.

[2]. Christian M. Salmon. Introduction to Natural and Man-Made Disasters and Their Effects on Buildings. Journal of Homeland Security and Emergency Management. Volume 1, Issue 3, ISSN (Online) 1547-7355.

[3]. Emery, Homer C. Disaster Nursing and Emergency Preparedness for Chemical, Biological and Radiological Terrorism and Other Hazards. Family & Community Health, October/December 2009 - Volume 32 - Issue 4 - p 359.

[4]. Jeyanth K. Newport, Godfrey G.P. Jawahar. "Community participation and public awareness in disaster mitigation", Disaster Prevention and Management: An International Journal, 2003, Vol. 12 Issue. 1. pp. 33 – 36.

[5]. Jacob B, Mawson A, Payon M, Guignard J. Disaster mythology and fact: Hurricane Katrina and social attachment. Public Health Reports, 2008; 123(5):555–566.

[6]. Brown S, Parton H, Driver C, Norman C. Evacuation during Hurricane Sandy: Data from a Rapid Community Assessment. PLOS Currents Disasters, 2016 Jan 29. Edition 1. Doi: 10.1371/currents.dis.692664b92af52a3b506483b8550d6368.

[7]. S Wilson, B Temple, M Milliron, C Vazquez, M Packard, B Rudy. The Lack of Disaster Preparedness by the Public and its Effect on Communities. The Internet Journal of Rescue and Disaster Medicine. 2007 Volume 7 Number 2.

[8]. Qari SH, Abramson DM, Kushma JA, Halverson PK. Preparedness and Emergency Response Research Centers: Early Returns on Investment in Evidence-Based Public Health Systems Research. Public Health Reports. 2014; 129 (Suppl 4):1-4.

[9]. Ahmad Jaradat, Hajdar Mziu, Jamaludin Ibrahim "Disaster Preparedness in Universities". International Journal of Computer Trends and Technology (IJCTT) V19 (1):1-4, Jan 2015.

[10]. Shoaf KI, Kelley MM, O'Keefe K, Arrington KD, Prelip ML. Enhancing emergency preparedness and response systems: correlates of collaboration between local health departments and school districts. Public Health Rep. 2014; 129 (Suppl 4):107–13.

[11]. Institute of Medicine (US) Forum on Emerging Infections; Knobler SL, Mahmoud AAF, Pray LA, editors. Biological Threats and Terrorism: Assessing the Science and Response Capabilities: Workshop Summary. Washington (DC): National Academies Press (US), 2002, 5, Assessing the Capacity of the Public Health Infrastructure. Available from: http://www.ncbi.nlm.nih.gov/books/NBK98395

[12]. Thiese MS. Observational and interventional study design types; an overview. Biochem Med. 2014; 24:199–210.

[13]. Baum F, MacDougall C, Smith D. Participatory action research. J Epidemiol Community Health.2006; 60:854–857.

[14]. Alkhalaileh, M., Bond, E. & Alasad, J. Jordanian nurses' perceptions of their preparedness for disaster management. Int Emerg Nurs., 2012 Jan; 20(1):14-23.
[15]. Ning Ning, Zheng Kang, Mingli Jiao, Yanhua Hao, Lijun Gao, Hong Sun, Qunhong Wu. Factors affecting emergency preparedness competency of public health inspectors: a cross-sectional study in northeastern China. BMJ Open 2014; 4:1.
[16]. Kaiser K. Protecting respondent confidentiality in qualitative research. Qual Health Res 2009; 19(11):1632–41.
[17]. Whittemore R, Chase S, Mandle C Pearls, pith, and provocation. Validity in qualitative research. Qual Health Res 2001; 11: 522–37.
[18]. Hollander J. The social contexts of focus groups. J Contemp Ethnogr 2004; 33:602–3.