

Original Research Article

Nurses Knowledge and Practices Regarding Disasters Management and Emergency Preparedness

Rehana Shabbir, Muhammad Afzal, Hajra Sarwer, Dr. Syed Amir Gilani, Ali Waqas
Lahore School of Nursing (LSN), Faculty of Allied Health Sciences, The University of Lahore

***Corresponding Author:**

Rehana Shabbir

Email: rehana640@gmail.com

Abstract: A disaster is an incident that can causes massive damage and destruction. Disasters are common worldwide event now a days. Nurses role are very important in disaster management and its recovery. The purpose of this study was to assess the nurses' knowledge and practices Regarding disaster management and emergency preparedness. The objectives of this study was To assess the knowledge and determined the current practices of nurses in the emergency department and to identify the hospital specific plans regarding the disasters management. The Quantitative cross sectional study design was used in this study. semi structure Questionnaire was used to collect the data. The questionnaires were administered by using convenient sampling. Data were statistically analyzed by descriptive criteria such as number, percentage, mean, median and standard deviation on SPSS version 21 and inferential statistics. Chi square test was used to check the relationship between the variable. The results of this study showed that Participant nurses have a good knowledge on disaster and its management. Overall good knowledge was 65.4%. However the practices were poor and overall poor practices were 83.3% so therefore it should be still need to do work on it. The conclusion of this study include that nurses knowledge about the disasters were good but practices were poor in the hospital setting. There is need to work on the practice and knowledge as well in these two hospital. The study revealed that hospitals currently have deficiencies in practices and management. Further, follow up research are necessary for maximizing nursing education and nursing quality.

Keywords: Disasters, role of nurses, knowledge, practices, emergency preparedness, disaster management

INTRODUCTION

A disaster is an incident that can causes massive damage and disruption. Disasters are common worldwide event now a day. These events can be dramatically impact on many people, to kill and injured them, damage and destroyed their houses, health system, and interrupted their lifeline. This is big loss of any county who face the disaster [5]. World Disasters Report 2015 reported 317 natural disasters worldwide in 2014, affecting 94 countries. About 48% of all disasters occurred in Asia in 2014. Asia had a region that mostly effected by the disasters estimated that 90.13% of worldwide disasters come across the Asia. [16].

Pakistan is a developing country and developing countries are more prone of disasters because lack of disasters preparedness [20]. Disasters can be owing to natural events (such as storms, drought, earthquakes, and disease epidemic), or technological events (such as explosions, structure collapse, and radiological accidents) or civil/political events (such as strikes, terrorism, and biological warfare) [16].

Unfortunately Pakistan is not only facing natural disasters but also under the influence of terrorism. During 2009-10, a total of 1,906 terror attacks were recorded, resulting in thousands of people dead and hundreds of thousands people injured. Terrorism is a major problem faced by the pakistan that affects the basic structure of the country and lives of the citizens [2].

Disasters are situation that disorganized the life and cause the many problems to resettle in the influenced area of community [13]. Management process is designed to manage the disasters and emergency situations and helps the people who are at the risk of disaster and to recovered after the situation has been accoured and help the effected people to come out from the bad impact of the disasters [16]. Nurses role are very important in disaster management and its recovery during disaster. These roles include preventing to, prepared for emergency, give responds and provide recovery from the emergency and after the disasters happened [13].

Florence nightingale showed the world that nurses play leading role in front line of the disasters, and public health. The public health nurses bring new skills and knowledge in each phase of disaster like preparedness, response and rehabilitation [6]. Nurses are the key person working in the hospital emergencies and any disasters and prepared a plan to prevent the hazards. During the disaster the first respondent are the nurses, who have enough knowledge and skill related to the disasters and disasters management.

Disaster preparedness is very much important for minimize the damaging effects of disasters and emergencies [12]. Emergency preparedness is defined as appropriate knowledge, skills and action which are required to respond and ready for threat which may be actual and suspicious [3].

Disaster preparedness for nurses is also focused by the International Nursing Coalition for Mass Casualty Education (INCMCE) (2003) that said that overall world wide the nurses' knowledge and skill should be maximum to deal with different emergency situations. It is said that the nurses who are prepared for emergencies can play better and efficient role in disasters [8]. Disaster preparedness has 4 stages which are precaution, preparedness, response and rehabilitation [1].

Disaster preparedness planning is a process in which the plan should be written and important elements should be emphasized like triage training, training of the nurses should be done regularly, and plan should be checked routinely and exercised daily. [15]. Nurses play very important role especially for the affected people during the disasters. Therefore nurses should be ready for facing the any emergency situation and after effects of unpleasant event like disasters [11]. The nurses' demand are greater than any other health care professional demands. The role of nurses include simply care of the sick and affected patient to include the preparedness, response, recovery and evaluation of the disasters [4].

Mentioned in this study that according to the World health organization (WHO) the health care worker especially nurses should be prepared for a disaster management whether the disaster occur often or infrequently. The competencies of nurses during the disaster can be gained through education and training program [7].

Crises management provides the resources and framework from prevention of disasters and reduces its harmful effects by using equipments to preparation at the time of disaster. Hospital should be prepared all the time for any kind of emergency either, natural disasters

and man-made disasters and hospital emergency itself [21].

The study of 1543 Canadian nurses in emergency departments and intensive care units showed that the nurses are need to much more training in the emergency department for emergency preparedness. According to the report that only 40% nurses know that hospital had a written emergency plan for disasters [17].

In 2009, the World Health Organization (WHO) and the International Council of Nurses (ICN) released the ICN Framework of Disaster Nursing abilities, which describes the basic skills and knowledge are necessary for the registered nurses to be think competent in disasters management [18].

Discuss in this study that there is need for further researches to determine the current knowledge of nurses regarding the emergency preparedness and should design the educational programs to enhance their knowledge and some educational program should be the part of their curriculum [9]. Nurses play very important role in the any disasters and emergency. The knowledge and practices of nurses are also play key role in managing the disasters and in the preparedness of emergency.

Problem Statement

Disasters happen frequently now a days especially in Asia. Pakistan is the most probably exposed to being attacked of disasters due to its atmosphere and environmental factors. According to record Pakistan experience 138 event of disasters from 1980 to 2010 in which 87,053 people died and 58,098,719 are under the influenced of disasters [20]. It is Observed through reading articles that there is limited preparedness and management plans in the government hospital. Nurses has insufficient knowledge and practices regarding the disaster management and emergency preparedness which is a weak point of the nurses. There are no educational programme to enhance their knowledge and as well as their practices.

The research question of this study is that what is the knowledge and practice of nurses who are working in the emergency department about the emergency preparedness and disaster management.

Aim of the study

The purpose of the study is to assess the level of nurses knowledge and practices regarding disasters and emergency preparedness in Children Hospital Lahore and General hospital Lahore.

The objectives of this study was: 1.To assess the knowledge of nurses in the emergency department regarding disaster management. 2.To determine the

current practices of nurses in emergency preparedness.3.To identify the hospital specific plans regarding the disasters management.

Significance of the Study

This study will helps to assesss the knowledge and practices of nurses in emergency and disasters preparedness. It will be identify the 2 aspects, deficiencies and competencies of the nurses in emergency preparedness. It will bring new findings for nurses working in emergency department. The findings will be shared with the participant nurses to improve their knowledge as well as their practices in the disasters and emergency preparedness. It will enable the nurses to gain a better understanding of the process of disaster preparedness in the health care setting in order to strengthen the competencies and proficiencies of hospitals in disaster and preparedness. The research finding of this study will be shared to the organization which will help the organization to arrange some educational and training program to enhance the nurse's knowledge regarding disasters and any emergency preparedness in the hospital and improve their practices according to the standard nursing care which is very essential for the patients. The nurses will come to know their role and importance in the disasters management.

METHODOLOGY

To conduct this study the Quantitative descriptive cross sectional study design was used.

The research is conducted in 2 hospitals. Children Hospital & Institute Of Child Health Lahore and General Hospital Lahore.

The target population for this study consists of 250 professional nurses working in Emergency departments and triage. Sample Size was calculated by using the Slovin,s formula and sample size was 156 which include head nurses and charge nurses in 2 hospital. Data was collected through questionnaire which was distribution among the 156 participants.

Inclusion Criteria

- Nurses and head nurses who are working in the emergency and triage.
- Available during the time of data collection.
- The participants who was willing to participate in the study.

Exclusion criteria

- Participant will not be included in this study who does not working in the emergency and triage.

- Sick and absent during the time of data collection.
- Participants that refused to fill questionnaire.
- Paramedical staff will be excluded.

Ethical Consideration

Purpose and nature of present study is to explain the study participant and appreciated the participant. Participants were provided with enough information of the research in order to gain full consent. It was achieved through the letter of consent. In addition, permission of the research was taken by the ethical review committee of the University of Lahore on a latter. To maintain the confidentiality and anonymity of the nurses were used in the questionnaire. Official permission was taken from the Nursing Superintendent and Medical director of these two hospitals.

The study tool was a semi-structured questionnaire developed by the study by modifying the questionnaire used by [15]. In a similar study in Johannesburg Hospital in Gauteng province, South Africa The questionnaire included 16 questions with both open and closed ended. There are 3 broad categories:

- Demographic information.
- Knowledge on disaster management plans and preparedness.
- Practices currently taking place.

The demographical data include age, gender, departments, and years of experience, level of nursing education, designation and marital status. And knowledge based questionnaire include 6 question covered about the disaster management and preparedness. The practices questionnaire included the questions about disasters drill done at hospital, what type of drill is done, ongoing training, how often, disasters plan update and how often developed.

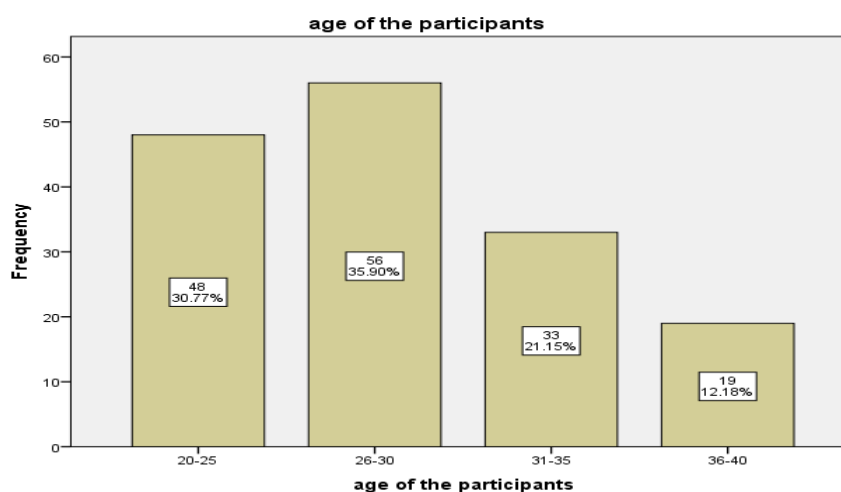
SPSS version 21 was used to analyze the data. Data was analyzed by descriptive criteria such as number, mean, median and standard deviation. Chi square was applied to measure the association of the variable.

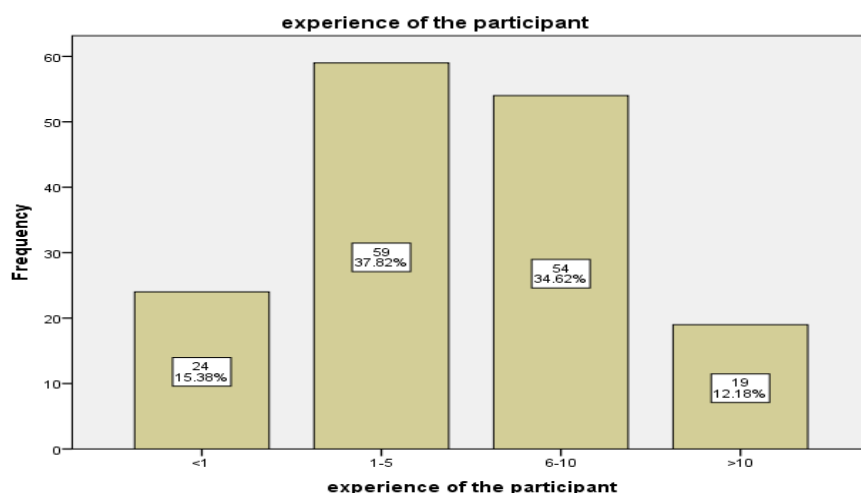
Data Analysis Results

In this research 156 questionnaire were delivered to the nurses. It includes the demographic data and knowledge and practices of the participant regarding the disaster management and emergency preparedness. Data were collected and putted on SPSS version 21 for analysis. Applied frequency test on different variable calculated and graphically portrayed in table and graphs.

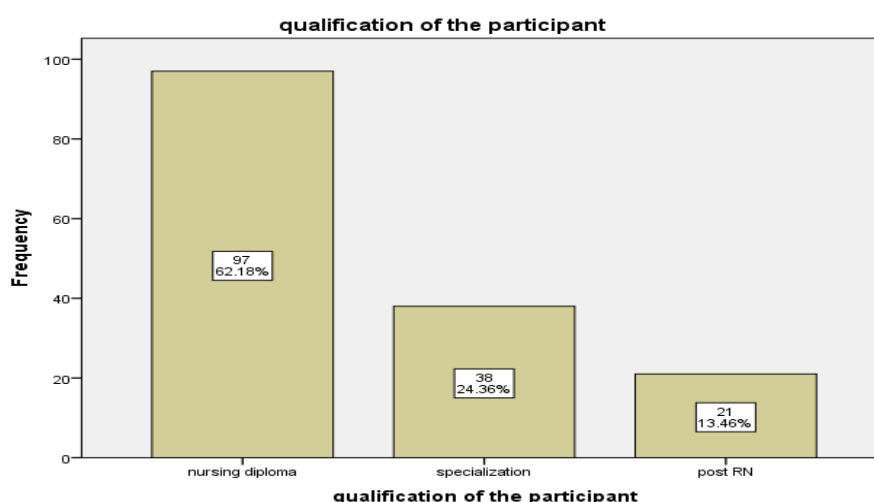
Table-1: Demographic Information of the Participants

S.N			Frequency	Percent	Mean	Std. deviation
1.1	Age	20-25	48	30.8%	2.15	.996
		26-30	56	35.9%		
		31-35	33	21.2%		
		36-40	19	12.2%		
		Total	156	100%		
1.2	Experience	<1	24	15.4%	2.44	.896
		1-5	59	37.8%		
		6-10	54	34.6%		
		>10	19	12.2%		
		Total	156	100%		
1.3	Marital status	Married	80	51.3%	1.49	.501
		Unmarried	76	48.7%		
		Total	156	100%		
1.4	Qualification	Nursing diploma	97	62.2%	1.51	.723
		Specialization	38	24.4%		
		Post RN	21	13.5%		
		Total	156	100%		
1.5	Department	Emergency	126	80.8%	1.19	.395
		Triage	30	19.2%		
		Total	156	100%		
1.6	Designation	Head Nurse	22	14.1%	1.86	.349
		Charge nurse	134	85.9%		
		Total	156	100%		
1.7	Organization	Children hospital	56	35.9%	1.64	.481
		General hospital	100	64.1%		
		Total	156	100%		
1.8	Gender	Female	156	100	2.00	.000


Graph-1: Age of the participants



Graph-2: Experience of the participants



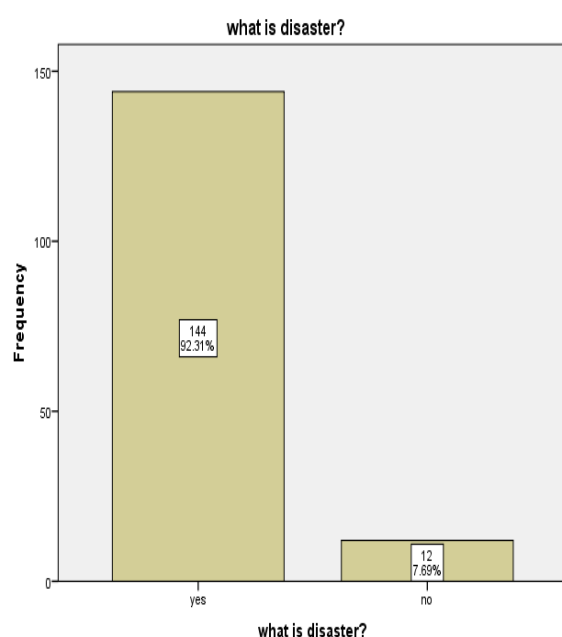
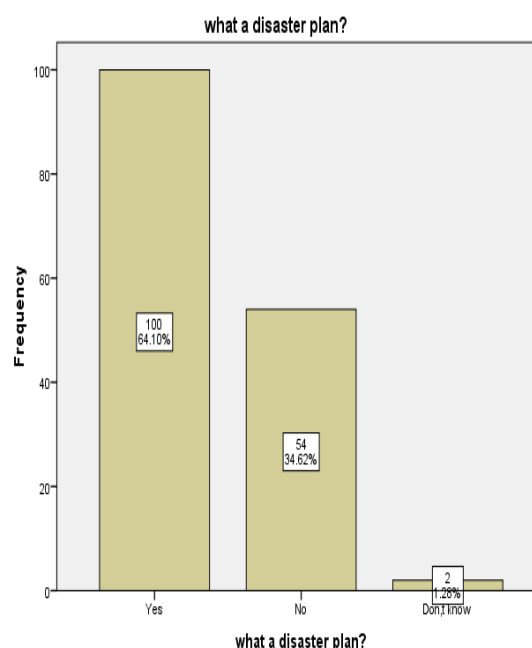
Graph-3: Qualification of the participants

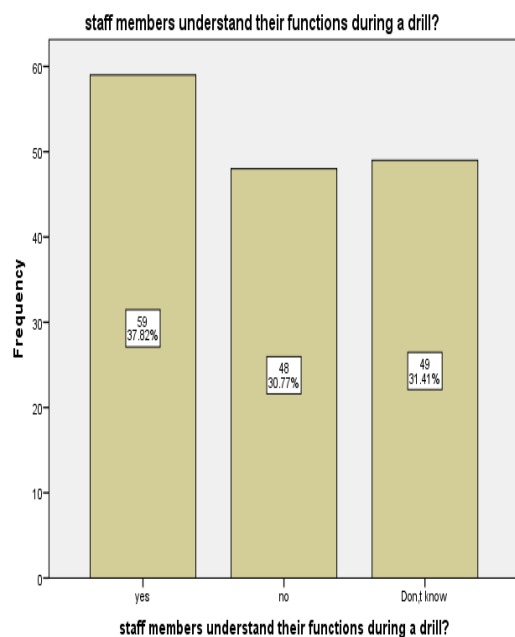
The overall demographic information of the participants as shown in the table#1. The results shows in percentages as that the participants of this study were head nurses and charge nurse. 14.1% was head nurses and 85.9 % were charge nurses who fill the questionnaire. Majority were charge nurses. The ages of the participants were ranges between (20-25) 30.8% most of the nurses who participate in this study was between the age of (26-30) 35.9% and (31-35) was 21.1% and the between the (36-40) was 12.2% as shown graph No.1. The experience of the participants are matter a lot to handle any kind of emergency and management. The experience of most of the participants were 37.8 % who was working in the hospital for a period of (1-5 years) followed by 34.6% who was working for the period of 6 to 10 years, then 5.4% who

was working for a period of less than 1 year and 12.2% were working for the period of more than 10 years as shown in the graph No.2. Most of the participants who take part in this study were married 51.3% and 48.7% were unmarried. The qualifications of the participants were 62.2% had nursing diploma 24.4% had specialization and remaining were 13.5% done post RN as shown as graph No.3. The participants including in this study were working in the emergency and triage. 80.0% participants from the emergency and 19.2% were from the triage department. The study was done from two tertiary care hospital of Lahore. (56)35.9% participants from children hospital and 64.1% participants from General hospital Lahore. The study participants were only female nurse's total (156)100% .

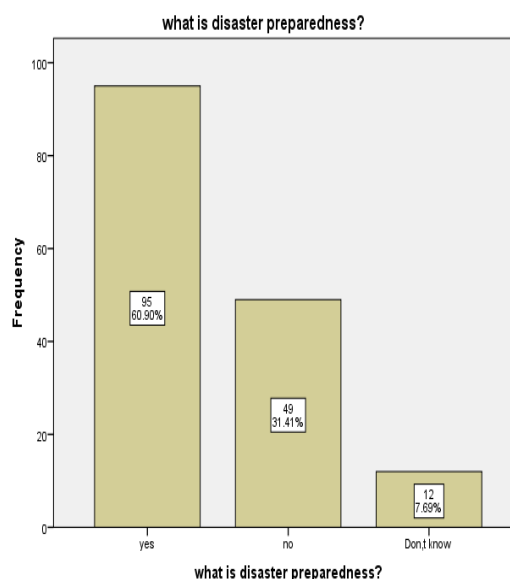
Table-2: knowledge Related to Disaster Management and emergency preparedness.

S.N	Knowledge question		Frequency	Percent	Mean	Std. deviation
2.1	What is disaster?	Yes	144	92.3%	1.08	.267
		No	12	7.7%		
		Total	156	100%		
2.2	What is disaster plan?	Yes	100	64.1%	1.37	.511
		No	54	34.6%		
		Don't know	2	1.3%		
		Total	156	100%		
2.3	Where to find the plan?	Yes	59	37.8%	1.76	.676
		No	76	48.7%		
		Don't know	21	13.5%		
		Total	156	100%		
2.4	What are drills?	Yes	72	46.2%	1.62	.627
		No	72	46.2%		
		Don't know	12	7.7%		
		Total	156	100%		
2.5	Staff member understand their functions during a drills?	Yes	59	37.8%	1.94	.832
		No	48	30.8%		
		Don't know	49	31.4%		
		Total	156	100%		
2.6	What is disaster Preparedness?	Yes	95	60.9%	1.47	.637
		No	49	31.4%		
		Don't know	12	7.7%		
		Total	156	100%		


Graph No.4

Graph No.5



Graph No.6



Graph No.7

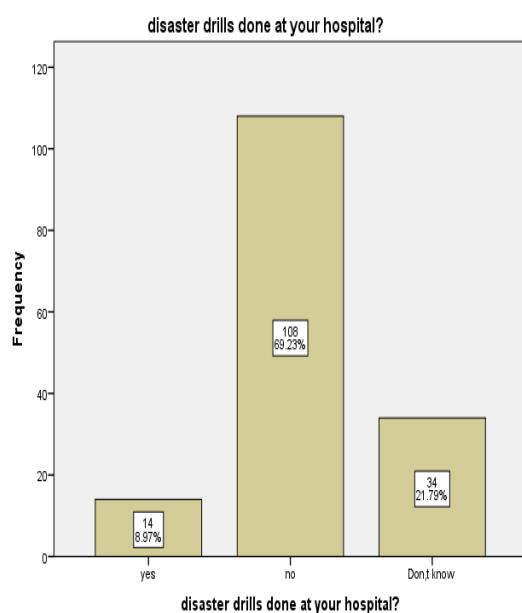
The knowledge of the participants was good as shown in the Table# 2. Results shows that 92.3% Participants were known that what disasters are and only 7.7% were didn't know about the disaster. 64.1% participants were responding positively that they know what disaster plan is. 34.6% didn't know about this. 37.8% participants were known about where to find the disaster plan. 48.7% were didn't know where to find

the plan. 46.2% participants were known what are the drills and 46.2% were didn't know what are the drills 37.8% knew their function during the drills and 62.2% didn't t know their function during drills as shown in graph No.6. The 60.9% participants were known what is disaster preparedness and 39.1% didn't know about it as shown in the graph No.7.

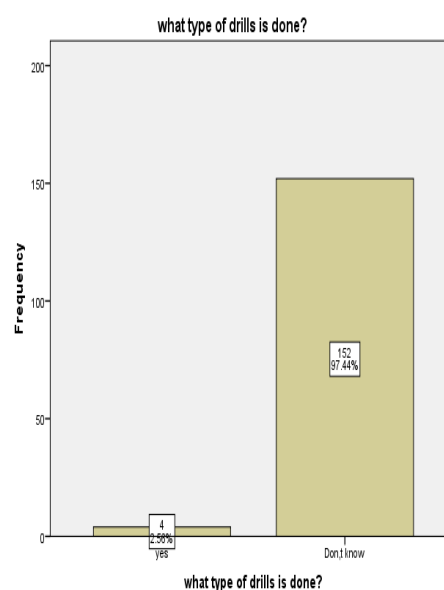
Table-3: Practices Regarding the Disaster Management and Emergency Preparedness.

S.No	Practice questions		Frequency	Percent	Mean	Std.d
3.1	Disaster drill done at your hospital?	Yes	14	9.0%	2.13	.541
		No	108	69.2%		
		Don't know	34	21.8%		
		Total	156	100%		
3.2	What type of drills is done?	Yes	4	2.6%	2.95	.317
		Don't know	152	97.4%		
		Total	156	100%		
3.3	Is there ongoing training?	Yes	7	4.5%	2.21	.504
		No	110	70.5%		
		Don't know	39	25.0%		
		Total	156	100%		
3.4	How often?	Yes	3	1.9%	2.96	.276
		Don't know	153	98.1%		
		Total	156	100%		
3.5	Disaster plan periodically updated?	Yes	18	11.5%	2.15	.599
		No	97	62.2		
		Don't know	41	26.3%		
		Total	156	100%		
3.6	How often?	Yes	7	4.5%	2.91	.415
		Don't know	149	95%		
		Total	156	100%		
3.7	Have you ever been faced any disaster?	Yes	60	38.5%	1.62	.488

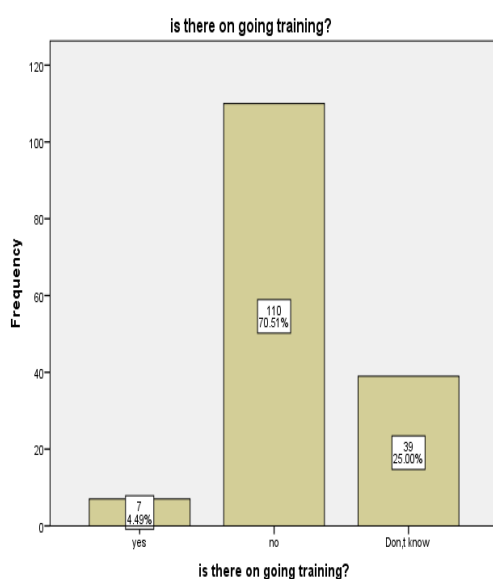
		No	96	61.5%		
		Total	156	100%		
3.8	Have you ever been a worker for disaster management team?	Yes	38	24.4	1.76	.431
		No	118	75.6		
		Total	156	100%		
3.9	Do you know about the latest Disaster in which your hospital involved?	Yes	51	32.7	1.99	.803
		No	56	35.9		
		Don't know	49	31.4		
		Total	156	100%		
3.10	Do you believe your practice for disaster preparedness is insufficient?	Yes	119	76.3	1.31	.610
		No	25	16.0		
		Don't know	12	7.7		
		Total	156	100%		



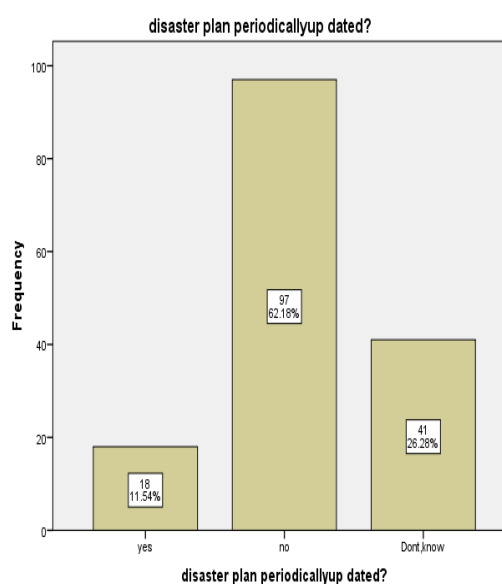
Graph No.8



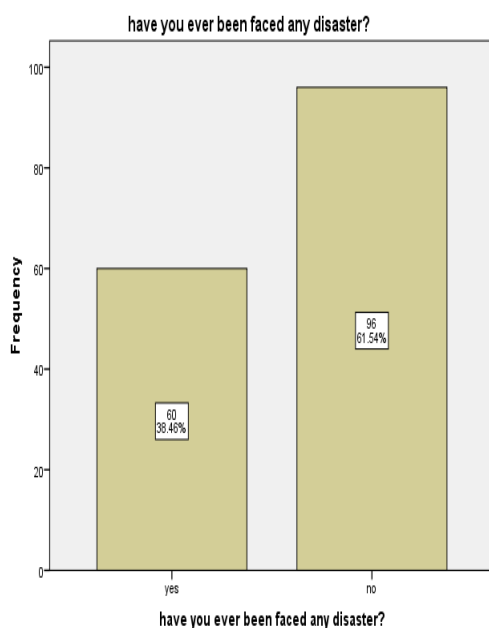
Graph No.9



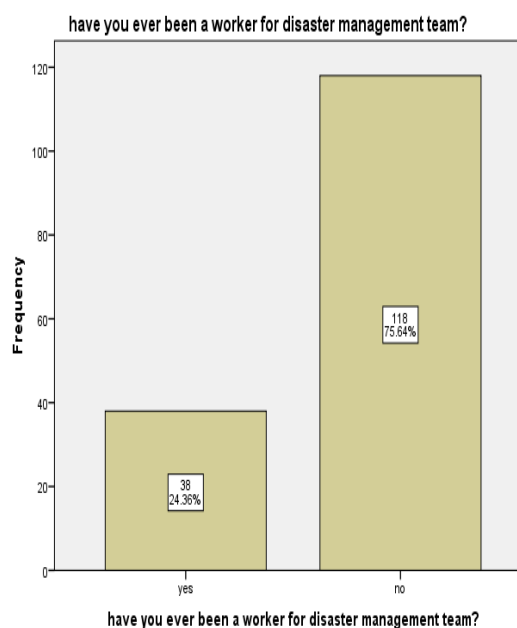
Graph No.10



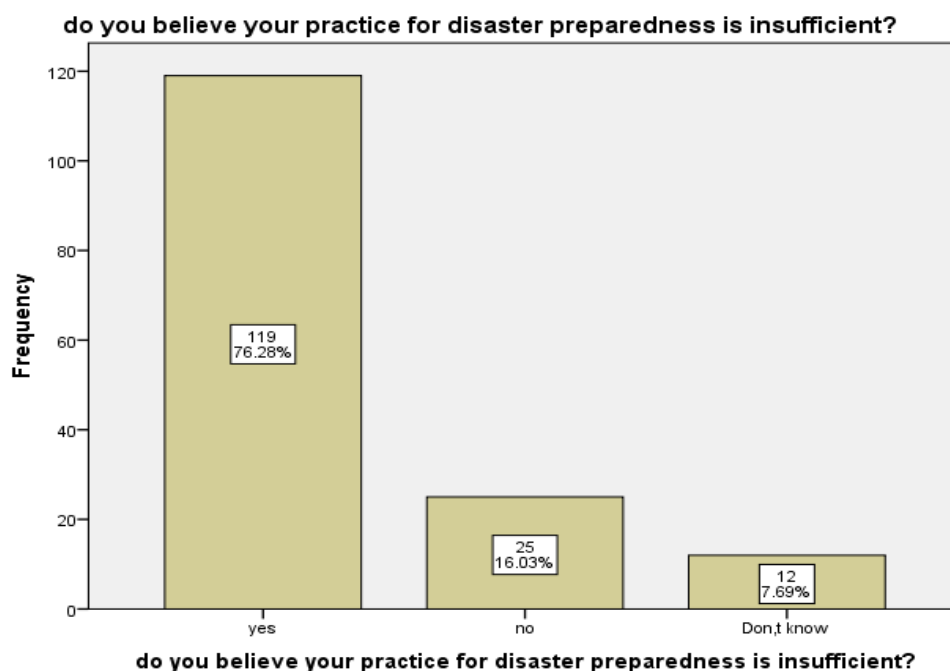
Graph No.11



Graph No.12:



Graph No.13:



Graph No. 14:

The practices of the participants in the present study were not good. Table#3 illustrates the percentages of the study participants' practice regarding disaster management and emergency preparedness which were as follows: 69.2% did not know that disaster drills done their hospital and only 9% knew about it. 21.8% were didn't know that disaster drills done at their hospital as shown in the graph No8. 2.6% knows that what type of drill done at their hospital and 97.4% participants

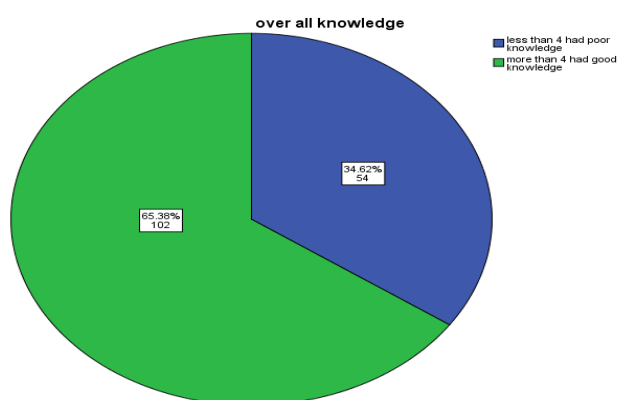
respond that they didn't know what type of drill done in their hospital. 4.5% participants were known that there was ongoing training in the hospital and 70.5% participants were respond negatively that there were no any ongoing training in the hospital and 25% participants were respond that they didn't know about this. 1.9% participants were known that how often training was done in their setups and 98.1% were respond that they didn't know how often training is

occurring. 11.5% Participants were known that disaster plan periodically updated and 62.2% were respond that the disaster plan didn't updated and 26.3% were respond they didn't know the plan is updated or not. 4.5% participants known how often the plans were updated and 95.5% didn't know how often plans were updated. 38.5% participants were respond that they faced disaster and 61.5% were respond that they didn't faced any disaster. 24.4% were responding that they have been a worker of disaster management team 75.6% have been not a worker of disaster management team.

32.7% participants were positively respond that their hospital were involved in the latest disaster and 35.9% were negatively responds that their hospital were not involved in the latest disaster and 31.4% were respond that they didn't know about this. 76.3% participants were positively respond that the practices of staff regarding the disaster preparedness is insufficient and 16% were respond negatively that practices of staff for disaster preparedness not insufficient and 7.7% said they didn't know as shown in the graph No.14

Table-4: The overall knowledge of the study participants.

	Frequency	Percent
Poor knowledge of the participants	54	34.6%
Good knowledge of the participants	102	65.4%

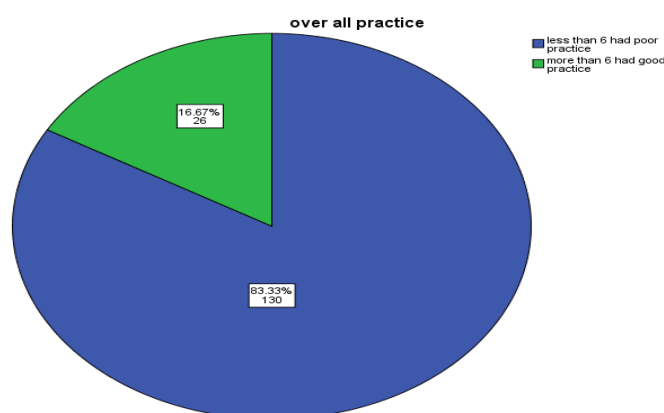


The overall knowledge of the study participants was good. Table#4 indicates that 65.4% (n=102) participants were respond positively regarding

the knowledge questions and 34.6% (n=54) were did not gave the correct answer about the knowledge questions.

Table No. 5: Over all practices of the study participants.

	Frequency	Percent
Poor practice of the participants.	130	83.3%
Good practice of the participants.	26	16.7%



The overall practice of the study participants was poor as shows in table# 5. 83.3% (n=130) participants were doing poor practices about the disaster

and emergency management and only 16.7% (n=26) were in good practices.

Table No 6: In the present research Chai square were applied to measure the significance or association.

Variables	p-value	Results
Age-Knowledge	.062	Not signification (No association)
Age-Practice	.418	Not signification (No association)
Experience-Knowledge	.014	Significant (Association found)
Experience-Practice	.192	Not signification (No association)
Marital status-Knowledge	.014	Significant (Association found)
Marital status-Practice	.118	Not signification (No association)
Qualification-Knowledge	.070	Not signification (No association)
Qualification-Practice	.013	Significant (Association found)
Department-Knowledge	.416	Not signification (No association)
Department-Practice	.378	Not signification (No association)
Designation-Knowledge	.019	Significant (Association found)
Designation-Practice	.460	Not signification (No association)
Organization-Knowledge	.302	Not signification (No association)
Organization-Practice	.393	Not signification (No association)

By applying chi square among the demographical (age, experience, marital status, qualification, department, designation and organization) and questionnaire (knowledge and practice) variables to search association in between them. From the result of the chi square the experience-knowledge p value .014, marital status-knowledge p value .014, qualification-practice p value .013 and designation-knowledge p value .019 were found signification (p value less than normal value 0.05), rest of others variables found no significant hence among them any association were not found.

DISCUSSION

The aim of the present study was to assess the nurse's knowledge and practices regarding disaster management and emergency preparedness in two tertiary care hospitals, the children hospital and General hospital Lahore.

The result of present study shows that the knowledge of the participants was good about the disaster, disaster plan, drills and disaster preparedness. The good knowledge of the participants was 65.4%.

Conducted the study on knowledge attitude and practices of health care workers regarding disaster preparedness. The similar results were obtained that the participants were quite knowledgeable about what a disaster is, what disaster plan, where to find the plans, what disasters preparedness, what drill are and what their function during drill [15].

The practices of the participants in the present study were very poor regarding the emergency and disasters preparedness. They participants were didn't know about the type of drills, there was no ongoing training; the disasters plan did not periodically updated and the practices about disaster preparedness were insufficient. The results show that the overall poor practices were 83.3%.

Another study conducted the similar results was found that shows the level of their practices were very negative regarding the disasters preparedness [16].

In another study which is conducted on Nurses Knowledge, attitudes, practices and familiarity regarding disaster and emergency preparedness, the results of her study showed lack of knowledge level of the study participants and the study finding revealed that the practices of participants regarding disaster preparedness was below average level [10].

A study conducted and according to the obtained results of this research, generally preparation against the any emergency and disasters in Tehran's hospital was found very weak. Its mean the practices were not good in selected hospital [21].

Another study was conducted ,The result of this study found that PHNs' (public health nurses) ability to practice regarding disaster management was at a moderate level [19].

According to the study, A total of 877 nurses only 44 nurses answer the knowledge based question and result showed that there was low level of knowledge regarding the emergency preparedness which is dissimilar to present study [14].

This study results showed that nurses perceived that they are not fully prepared for disasters and were not aware of disaster management protocols in the workplace [13].

Many KAP studies conducted of nurses' role in disaster and emergency preparedness. A study undertaken by nurses in Hong Kong the results concluded that nurses are not adequately prepared for disasters, but are aware of the need for such preparation.

So that disaster management training should be included in the basic education of nurses [8].

CONCLUSION

The purpose of this study is assess the nurse's level of knowledge and practices regarding the disaster management and emergency preparedness. The study followed a quantitative approach and exploratory design to analyses and describes the identified variables. Based on the present study it can be concluded that the participants have a good knowledge on disaster, disaster drills, disaster plan, disaster management and emergency preparedness. The overall knowledge of the participants in the present study was 65.4%. However the practices were poor and there should be still need to do work on it in regard to ongoing training, plans should be periodically updated, and performance of drills should be done. The overall poor practices of the nurses were 83.3%. There is needed to work on the practice and knowledge as well in these two hospitals. The study revealed that hospitals currently have deficiencies in practices, management and performance management

LIMITATIONS

The present study has some limitations as follows:

- Data has been collected from two hospital of the Lahore. Data collected was limited so its generalizeability of the study is limited. It is recommended for future that all government hospital should be included to take a broader review.
- Sample of the study was short to represent the large population. Therefore, large sample should be taken.
- Cross-sectional design of this study is yet another limitation.
- Convenient sampling is also limitation of the study whereas the probability sampling method can be enhancing the induction of different strata of the participants.
- The problem which faced most of the time during the completing the questionnaire was limitation of time. The study was conducted in a limited time period of 3 months.

RECOMMENDATIONS

- There should be adequate training of all nurses in both public and private health care setting in order to provide knowledge on how to prepare and handle any emergency situations.
- Disaster plan should be placed in every hospital where nurses and other staff should easily access them and Plan should be available when needed.
- The disaster management committee should make plan and make sure that all staff member

should know where the plans are and meet all these plans.

- Every member of staff e.g. head nurses and staff nurses should know their roles, responsibilities and their function during a drill.
- Training program should be made regarding the emergency management and disaster preparedness by the management committee.
- Some educational program and training practice about the disaster and emergency preparedness should be places in the nursing curriculum in order to their learning and training preferences.
- Nursing research in disaster is necessary in order to provide information to make evidenced-based decisions regarding practice and education.
- Disaster Management committee should make institution or training centre for the training of staff to handle any kind of emergency.
- All staff should inform about the regularity of the drill and ongoing training.
- The disaster management committee should be knowledge that all plan are regularly maintained and updated.
- Management committee should take responsibilities that all hospital is adequately prepared and plans are ready to use.
- Regular meeting should be continued to check the plan and proper implementation of the plans.
- Communication is very important for success of every plan. The telephone numbers and address of all staff members should be involved in the plan.
- Further researches should be made for maximizing the nursing education and quality of care in these critical situations in the health care setting.
- The above duties should be checked by the disaster management committee and the administration of the hospital.

Strength of the study

The present study has a number of strength which is as follows:

This study conducted in the Pakistan context which assesses the knowledge and practice of nurses regarding the disasters management and emergency preparedness. Moreover, this study has collect the large data on disaster, disaster preparedness process, knowledge and practice variable and as well as demographic variable of the study. In this study the self-administered questionnaire was used which was already been tested for validity and reliability. Data was collected after the signed of permission letter from the hospital authority and data was collected under

supervision of nursing superintendent of the hospital. The rule of Ethical consideration was followed in this study. Anonymity and confidentiality was assured.

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