

## Health Care Workers Awareness About Disaster Management Preparedness in EL-Minia General Hospital

Asmaa Mohamed Nageb<sup>1</sup>, Sahar Mohamed Morsy<sup>2</sup> & Fatma Rushdy Mohamed<sup>3</sup>.

Nursing Specialist in El-Minia Hospital, Egypt.

Professor of Nursing Administration, Faculty of Nursing ,Assuit University, Egypt.

Professor of Nursing Administration, Faculty of Nursing ,Assuit University, Egypt.

### Abstract

**Background:** Hospitals need to set up a higher level for preparing for disaster, **the aim of this study** is to assess the health care workers awareness about disaster management preparedness at Minia general Hospital. **Subjects & Method: Research design:** descriptive study design. **Setting:** The study carried out in El-Minia general hospital with bed capacity 225. **Subjects:** The Study included all the health care workers at Minia general hospital (n=450). **Tool of study** :it consisted of two parts as follows:-1<sup>st</sup> part personal data sheet ,2<sup>nd</sup>part disasters management preparedness .**Results:** it appeared that all workers and the majority of nurses ,doctors, administrative employees, technician, mentioned that hospital didn't have disaster plan (100%,93.8%-92.1% .82.6%, 80.05%) respectively, all of study subjects mentioned that the hospital did not conduct training /workshops to educate staff members on disasters. **Conclusion:** The study indicated that knowledge of the health care workers about disaster management preparedness was poor, the majority of the study subjects did not have training or education about disaster preparedness in the hospital .**Recommendations:** Ministry of Health and hospital should formulate training programs about disaster management, and the hospital should have disaster management plan.

**Key words:** *Awareness, Health Care Workers, Disaster Knowledge, Attitude & Willingness.*

### Introduction

Disaster is defined as a sudden extraordinary event that brings great damage, loss, destruction and injury to people and their environment (Stanhope & Lancaster, 2008) Disaster is defined as phenomenon that produces large-scale disruption of societal infrastructure and the normal healthcare system, Presents immediate threat to public health, and require external assistance for response (Bradt & Drummond, 2007).

A disaster may be natural or human –made accident that causes destruction that cannot be relieved without assistance. According to hospital involvement, disasters may be classified into internal disasters that occur inside the health care facility or external disasters that occur outside the care facility (Hassmiller, 2008) Disasters have a potential of producing mass casualties thereby straining the health care systems, this means that hospitals need to be prepared for unusual increase in workload, hence the importance of hospital disaster preparedness (Mehta, 2006).

Hospitals are at risk of structural damage and functional collapse during disasters. Functional collapse occurs when the system fails to function, because the elements that allow the hospital to operate on a day-to-day basis are unable to perform their functions mostly due to system overload (United Nations International Strategy for

Disaster Reduction (ISDR, 2008) This makes it important for hospitals to have well documented and

tested disaster management plans to prepare them to handle the unusual workload (Mehta, 2006).

Preparedness is the process of identifying the personnel, training, and equipment needed for a wide range of potential incidents and developing jurisdiction-specific plans for delivering capabilities when needed for an incident (Federal Emergency Management Agency, 2011). There are mechanisms for disaster response, which should be incorporated into the disaster preparedness plan. These mechanisms and strategies include evacuation procedures; formation of search and rescue teams including their training; formation of assessment teams; procedures for emergency reception centers and shelters; procedures for activating distribution systems (International Federation of Red Cross & Red Crescent Movement( IFRCS, 2010).

Effective disaster response requires an adequate supply of qualified and competent staff. This can be achieved through appropriate training and education of the healthcare workers in order to impart the necessary competencies required for responding to disasters. Competencies can be defined as knowledge, skills, abilities, and behaviors needed to carry out a job (Slepski, 2007).

### Significance of the Study:

Disasters are events that have a huge impact on humans and environments. Disaster management aimed to reduce the impact of disasters. Hospitals are among the healthcare centers whose prompt and efficient services can play a significant role in

decreasing disaster mortality rate. Accordingly, hospitals should be designed and built in such a way that they can effectively manage all kinds of high-pressure crisis situations (Zaboli *et al.*, 2006).

Effective disaster management necessitates having adequate disaster preparedness hospital disaster preparedness (HDP) which is one of the major concerns of the World Health Organization (Tanget *et al.*, 2014) So, the researcher found that it is important to assess healthcare workers awareness about disaster management preparedness in Minia general hospital to enable the researcher to gain an insight into the nature of the Hospital management preparedness process.

### **Aim of the study**

To assess the health care workers awareness about disaster management preparedness at El-Minia General Hospital.

### **Research Questions**

1. What is the knowledge of the health care workers about disaster management preparedness?
2. What are attitudes and willingness of the health care workers regarding disaster management preparedness?

### **Subjects & Method**

#### **Research design**

Descriptive design was used in this study.

#### **Setting**

The study was carried out in Minia general hospital with total bed capacity 225, which include the following departments:

General medical (90beds), Surgical (80beds), Pediatric (30beds), and Obstetric departments (25beds).

El-Minia general hospital consist of 3 main buildings, first build consist of three levels( 1st)level included emergency department laboratory department , and x-ray department ,2<sup>nd</sup> level include medical departments, and 3rd level include Pediatric departments, Second build consist of three levels, 1st level included operatory department, sterilization department, 2<sup>nd</sup>level included obstetric department, 3rd level included surgical departments, third build consist of two levels contain all administrative departments.

#### **Subjects**

The Study included all health care workers at El-Minia general Hospital. All personnel categories and positions within the hospital (450) which classified as the following: all physicians (n= 165), all nursing staff (n=160), all technicians (n=23), all administrative employees (n =77), and all workers (n = 25).

### **Tool of data collection**

The study tool consisted of two parts as follows:

#### **1<sup>st</sup> part personal data sheet**

It includes data about the subjects such as age, department, and educational qualifications.

#### **2<sup>nd</sup>part disasters management preparedness**

It developed by Olsen & George, (2004) to assess hospital disaster management preparedness. It consists of 25 items divided into three sections as the following: section one: about disaster knowledge (5 items), section two about attitudes toward disasters management preparedness (4 items) and section three related to willingness to report for duty during disaster (16 items).

#### **Scoring system**

The scoring system of the study tool for disaster knowledge, and for attitudes toward disaster management preparedness were (1) for Yes and (2) for No, and for willingness to report for duty during disaster is (1) for agree, (2) for Not sure, and (3) for Disagree.

#### **Ethical Considerations**

Research proposal approved from ethical committee in the faculty of nursing- Assuit University. An official permission took from the Administrators and the head of each department at El-Minia General Hospital clarifying the aim of the study through official letters and oral agreement obtained from study subjects that are willing to participate in the study after explaining the nature and purpose of the study. Also, study subject assured that the data of this research will not be reused without second permission and confidentiality and anonymity assured. In additional, study subject had the right to refuse to participate and or withdrawal from the study without any rational at any time.

#### **Pilot study**

A pilot study was carried out to assess clarity and applicability of the tool and to identify the problems that may be encountered during the actual data collection. It was applied on 45 health workers (10%) from the hospitals. Departments and health workers for pilot study were selected simple randomly. Departments included in pilot study were (Medical, Surgical, Pediatric and Obstetric departments). Data collected from the pilot study was analyzed; their reliability was assessed in a pilot study by measuring their internal consistency using Cronbach's alpha coefficient method. This turned to be Cronbach Alpha= 0.78 . Validity was assessed by jury committee from the nursing faculty staff members Thus indicates a high degree of reliability for the study tool. The pilot study was included in the total because no modification has been made.

**Filed work**

The questionnaires were distributed to the study subjects after thoroughly explaining the purpose of the study and ask for participation. After obtaining verbal consent, the study tool was handled to participating health workers to be filled. Furthermore, request for cooperation and assurance that all information gathered was treated strictly with confidentiality.

The researcher met with each subject in the study to explain the purpose of the study and to ask for participation. After obtaining verbal consent, the study tool was handled to participating health worker to be filled. The questionnaire took about twenty minutes from each participant. The present study carried out within about four months starting from April 2016 to July 2016, two day/ week at work time

from 8 am: 12 pm. The data collection started with nurses, physicians, administrative staff, workers then technicians. There was no barrier in the procedure of data collection.

**Statistical analysis**

Data entry and analysis were done using SPSS version 19 (Statistical Package for Social Science). Data were presented using descriptive statistics in the form of frequencies and percentages, mean, standard deviation, Pearson correlation analysis was used for assessment of the interrelation among quantitative variables, and qualitative categorical variables were compared using chi-square ( $\chi^2$ ) test: T-test was used to compare between two groups in quantitative data. Analysis variance (ANVA) Test. Statistical significance was considered at (p. value<0.05).

**Results****Table (1): Distribution of the studied subjects personal characteristics (n=450).**

	Occupation									
	Physicians N=165		Nurses N=160		Technicians N=23		Administrative employees N=77		Workers N=25	
	No	%	No	%	No	%	No	%	No	%
<b>Age (years).</b>										
≤24	5	3	30	18.8	4	17.4	0	0.0	3	12
24 - ≤ 34	66	40	41	25.6	15	65.2	25	32.5	3	12
35 - ≤ 44	74	44.8	55	34.3	4	17.4	30	39	9	36
45+	20	12.1	34	21.2	0	0.0	22	28.6	10	40
<b>Sex</b>										
Male	90	54.5	60	37.5	18	78.3	37	48.1	7	28
Female	75	45.5	100	62.5	5	21.7	40	51.9	18	72
<b>Departments</b>										
General medical	53	32.1	53	33.1	0	0.0	0	0.0	9	36
Surgical	50	30.3	40	29.3	0	0.0	0	0.0	6	24
Pediatric	30	18.2	35	21.9	0	0.0	0	0.0	6	24
Obstetric	32	19.4	25	15.6	0	0.0	0	0.0	4	16
Lab	0	0.0	0	0.0	14	60.8	0	0.0	0	0.0
Radiology	0	0.0	0	0.0	9	39.1	0	0.0	0	0.0
Office work	0	0.0	0	0.0	0	0.0	77	100	0	0.0
<b>Educational qualifications</b>										
Secondary school	0	0.0	51	31.9	0	0.0	0	0.0	25	100
Institute	0	0.0	92	57.5	23	100	71	92.2	0	0.0
Bachelor degree	55	33.3	17	10.6	0	0.0	6	7.8	0	0.0
Master degree	68	41.2	0	0.0	0	0.0	0	0.0	0	0.0
Doctorate degree	42	25.5	0	0.0	0	0.0	0	0.0	0	0.0

**Table (2): Distribution of knowledge about disasters among the studied subjects (n= 450).**

disaster knowledge	Occupation									
	Doctors N=165		Nurses N=160		Technicians N=23		Administrative employees N=77		Workers N=25	
	No	%	No	%	No	%	No	%	No	%
Are you aware of any disasters that have occurred in your area in the past 5 years										
Yes	60	36.4	40	25	7	30.4	10	13	5	20
No	105	63.6	120	75	16	69.6	67	87	20	80
Are you aware of the role of hospitals during disasters/emergencies										
Yes	100	60.6	95	59.4	13	56.5	40	51.9	10	40
No	65	39.4	65	40.6	10	43.5	37	48.1	15	60
Does your hospital have a disaster plan										
Yes	13	7.9	10	6.2	4	17.4	15	19.5	0	0
No	152	92.1	150	93.8	19	82.6	62	80.5	25	100
Are you aware of the major components/issues that must be included in a hospital disaster plan										
Yes	40	24.2	30	18.8	6	26.1	17	22.1	5	20
No	125	75.8	130	81.2	17	73.9	60	77.9	20	80
Have you attended any workshops/training related to disasters										
Yes	36	21.8	20	12.5	0	0	11	14.3	0	0
No	129	78.2	140	87.5	23	100	66	85.7	25	100

**Table (3): Distribution of attitudes toward disasters among the studied subjects (n=450).**

Attitudes toward disaster	Occupation									
	physicians		Nurses		Technicians		Administrative employees		Workers	
	No	%	No	%	No	%	No	%	No	%
Does the hospital organize disaster drills or exercises regarding disaster										
Yes	7	4.2	0	0.0	3	13	7	9.1	0	0.0
No	158	95.5	160	100	20	87	70	90.9	25	100
Does the hospital organize training/workshops for educating staff members on disasters										
Yes	0	0.0	0	0.0	0	0.0	2	2.6	0	0
No	165	100	160	100	23	100	75	97.4	25	100
do you have any participation in promoting or checking the hospital disaster plan										

Attitudes toward disaster	Occupation									
	physicians		Nurses		Technicians		Administrative employees		Workers	
	No	%	No	%	No	%	No	%	No	%
Yes	0	00.	0	0.0	0	0.0	0	0.0	0	0.0
No	165	100	160	100	23	100	77	100	25	100
Do you want to add any comments on the hospital's disasters preparedness										
Yes	100	60.6	110	68.8	16	69.6	30	39	7	28
No	65	39.4	50	31.2	7	30.4	47	61	18	72
Do you want to obtain information about disasters and the hospital's role in disasters										
Yes	135	81.8	130	81.2	18	78.3	42	54.5	20	80
No	30	18.2	30	18.8	5	21.7	35	45.5	5	20

**Table (4): Relation between willingness to participate during disasters score and sex among studied subjects (n=450).**

Willingness to participate during disasters	Sex		t-test	P. value
	Male	Female		
Physicians	39.5 ±3.93	38.2 ±4.29	2.751	0.038*
Nurses	37.1 ±5.02	35.9 ±4.79	1.125	0.139
Technicians	36.8 ±3.9	36.8 ±5.45	.995	0.992
Administrative employees	36.3 ±4.58	35.7 ±4.89	.341	0.549
Workers	36.2 ±6.18	34.4 ±4.72	.275	0.449

Independent t-test \* Significant difference at  $p. value < 0.05$

**Table (1):** Displays the socio demographic characteristics of study subjects As table shows as regard to doctors nearly half of them were aged from 35 to 44 years (44.8%), more than half of them were male (54.5%), about one third of them were working in general medical (32.1%), and nearly half of them had master degree (41.8%). As regard to nurses (34.3%) of them were aged from 35 to 39, nearly two thirds of them were females (62.5%), one third of them were working in general medical (33.1%), and more than half of them graduated from institute (57.5%). As regard to technicians more than two thirds of them were aged from 24 to 34 years (65.2%), more than three quarters were males (78.3%), working in laboratory (60, 8%). As regard to administrative employees more than one third of them were aged from 35 to 39 (39%), more than half of them were females (51.9%), the majority of administrative employees graduated from institute (92.2%). As regard to workers the majority of them were aged <40 years (92%), were female (72%), more than one third of them were working in general

medical (36%), all graduated from secondary school (100%).

**Table (2):** Displays that all workers and the majority of nurses ,doctors, administrative employees, technicians, mentioned that hospital didn't have disaster plan (100%,93.8%-92.1% .82.6%, 80.05%) respectively , all technicians and workers and the majority of administrative employees, nurses, doctors did not attend any workshops/training courses related to disasters (100%,100%,87.5%,85.7%,78.2%) respectively.

**Table (3):** Displays that, all of study subjects had not participated in developing or reviewing the hospital disaster plan, all of the study subjects mentioned that the hospital did not conduct training/workshops to educate staff members on disasters and did not conduct disaster drills or exercises regarding disaster situations. Moreover majority of doctors, nurses, workers, administrative employees ,and technicians had a positive attitudes toward receiving information regarding disasters and the role of hospitals and healthcare workers in disasters (81,8%,81,2%,80%,77,9%, 78.3%) respectively .

**Table (4):** Shows that the highest mean scores were among males for all studied subjects. There was statistical significant difference among doctors in relation between willingness to report for duty during disasters score and sex (0.038\*).

### Discussion

The health care members should have adequate knowledge and practices regarding disaster preparedness (Mehta, 2006). The present study was conducted with the aim of identifying the awareness of the health workers about disaster management preparedness in El- Minia general Hospitals

In the present finding study all workers and the majority of nurses, doctors, administrative employees, technician, mentioned that hospital didn't have disaster plan (table2). These findings might be because there was not disaster preparedness process in the hospital, and their was lack of awareness about disaster planning in the hospital. These findings were supported by Arbon, (2011) who mentioned that large number of workers in health settings had minimal knowledge about the disaster plan in their work place.

In the present results study all technicians and workers, and the majority of administrative employees, nurses, and doctors did not obtain any training about disasters (table3). These findings might be attributed to there wasn't disaster preparedness education programs from the Ministry of Heath that can educate the heath workers, and there wasn't disaster management committee in the hospital that can educate the medical and paramedical staff. These findings were consistent with Tadesse & Ardalan (2014) who revealed that only 20.6% of the health professionals had ever been trained despite the vast majority (92.8%) needed additional training on disaster preparedness and response.

In the present study all of study subjects and 97.4% of administrative employees had not participated in developing or reviewing the hospital disaster plan .These findings might be because there wasn't disaster management preparedness planning in the hospital (table3). These findings were consistent with Alice, (2011) who indicated that most of the staff (94.5%) had not participated in the development or reviewing of the hospital disaster plan. Only some of the registered nurses indicated that they had participated in the development of the hospital disaster plan. Those could have been members of the hospital disaster committee In addition Adini, (2006) reported that plan should be viewed as one of the elements of preparedness activities aimed at improving emergency response

In the current study results all of study subjects mentioned that the hospital did not conduct

training/workshops to educate staff members on disasters (table3). These findings might be because their was not qualified staff in disaster management in the hospital who can educate about disaster and there wasn't disaster management preparedness polices in the studied hospital These findings were consistent with Alexander, et al., (2006) reported that most health workers mentioned that they and their hospitals were not well trained about disaster management preparedness to act during disaster. In addition Karen, (2011) clarified that a low level of global knowledge was demonstrated by inappropriate effective of training.

The present study showed the relation between willingness to report to duty during disasters score and sex among studied subjects which illustrated that the highest mean score were among females for all studied subjects that were in males with statistical, significant difference among doctors in relation between willingness to report to duty during disasters score and sex among studied subject. These findings might be because males had the desire and more motivation to work in disaster and had a strong sense of duty (table4). These findings were supported with Smith, (2009) who reported that a strong sense of duty appears to be a significant motivating factor for health care workers to work during a disaster.

### Conclusion

The study indicated that knowledge of the health care workers about disaster management preparedness was poor as the majority of nurses, doctors, administrative employees, technicians, and all workers mentioned that hospital didn't have disaster plan, Moreover the majority of the study subjects did not have training or education about disaster preparedness in the hospital .The health care workers had a positive attitudes and willingness regarding disaster management preparedness as majority of study subjects were agreed toward receiving information regarding disasters, and that Hospitals should have disaster plan.

### Recommendations

**Consequently based upon such results, following recommendations are proposed**

1. Hospital should have disaster management plan.
2. Hospital should continuously assess its preparedness for disaster to make sure that the hospital is prepared and will be available during disasters
3. Training and education should be conducted as a way of making the healthcare workers become familiar with the contents.



**References**

1. **Adini, B., (2006):** Assessing Levels of Hospital Emergency Preparedness. *Prehospital and Disaster Medicine*, 21 (6), 451-457.
2. **Alexander, G., Wynia, M., (2006):** Physicians' Preparedness for Bioterrorism and Other Public Health Priorities. *Academic Emergency Medicine*, 13 (11), 1238-1241.
3. **Alice N., (2011):** Hospital emergency and disaster preparedness Of Onandjokwe Lutheran Hospital, South Africa, (Masters thesisn Disaster Management 2011
4. **Abron, P., (2011):** health workers knowledge regarding Disaster Preparedness for the Sumatra-Andaman and tsunami: *nursing journal*, 15, Pp. 235-244.
5. **Bradt D., & Drummond C., (2007):** professionalism of disaster medicine-An Appraisal of Criterion-Referenced Qualifications. *Pre hospital Disast Med*; 22(5):Pp360–368.
6. **Federal Emergency Management Agency (FEMA), (2011):** Department of Homeland Security, Federal Emergency Management Agency.
7. **Hassmiller, B., (2008):** In Stanhope M., and Lancaster J. centered health care in the community, 17<sup>th</sup> ed., Canada, Mosby El Sevier, p455.
8. **International Federation of Red Cross & Red Crescent Movement (IFRC), (2010).** Disaster Preparedness Training Program. Introduction to Disaster preparedness . IFRC.
9. **Karen, H., (2011).** Emergency nurses and disaster response. *Pre-hospital disaster medicine*; 8, Pp. 359-366.
10. **Mehta S., (2006).** Disaster and Mass casualty management in a Hospital: How well are we prepared. *Journal of Postgraduate Medicine*: 9(12), pp43-47 <http://www.bioline.org.br>.
11. **Slepski, L., (2007):** Emergency Preparedness and Professional Competency among Health Care Providers During Hurricanes Katrina and Rita: Pilot Study Results. *Disaster Management and Response*, 5, Pp. 99-110.
12. **Olsen C., George D., (2004):** Cross-Sectional Study Design and Data Analysis. *College Board*: 2 (1), 57-68.
13. **Smith, E (2009):** Paramedics' perceptions of risk and willingness to work during disasters. *The Australian Journal of Emergency Management*, 24(3), Pp. 21-27.
14. **Stanhope M., & Lancaster J., (2008):** Publish health nursing, population centered health care in the community.7<sup>th</sup> ed, Canada Mosby Elsevier, P545.
15. **Tadesse L., & Ardalan A., (2014):** Health Sector Initiatives for Disaster Risk Management in Ethiopia: A Narrative Review. *PLOS Current Disasters*. doi: 10.1371/currents.dis.949664319ad451313b499f9c90cd9c0f. [PMC free article] [PubMed] [Cross Ref].
16. **United Nations International Strategy for Disaster Reduction (UNISDR), (2008):**2008-2009 World Disaster Reduction Campaign. Hospitals safe from Disasters: Reduce Risk, Protect Health Facilities, Save Lives . Geneva, Switzerland: UN
17. **United Nations International Strategy for Disaster Reduction (UNISDR), (2008):** World Disaster Reduction Campaign. Hospitals safe from Disasters: Reduce Risk, Protect Health Facilities, Save Lives. Geneva, Switzerland: UN.
18. **Zaboli R., Amerion A., & Moghaddasi, H., (2006):** Survey of Tehran City Hospitals Disaster Preparedness for Disaster. *MilMed Journal*. 2006;8(2):103-11.