

# DISASTER MANAGEMENT PLAN TO OVERCOME INTERNAL DISASTER AT DIARB NEGM CENTRAL HOSPITAL

## REDA MOHAMMED MOHAMMED

Assistant Lecturer, Nursing Administration, Faculty of Nursing - Fayoum University.

## AHLAM MAHMOUD EL SHAER

Professor, Nursing Administration, Faculty of Nursing - Mansoura University.

## NEHAD SAAD EL-WKEEL

Assistant Professor, Nursing Administration, Faculty of Nursing - Mansoura University.

### Abstract

**Background:** Disasters are the most vulnerable factors affecting human life and the environment. Hospitals must be adequately prepared to manage internal disasters with proper disaster preparedness plans. **Aim:** Design and validate a Diarb Negm Central Hospital disaster management plan. **Methods:** Cross-sectional design was utilized. It included two groups; a target group of all 200 available hospital staff and a jury group of 35 faculty members. Data collection tools consisted of three tools; Disaster Expectation Questionnaire, Disaster Preparedness Checklist, and Validation Form for Disaster Management Plan. **Results:** Most study participants had low internal disaster expectations and awareness of the total disaster preparedness plan. More than half of the study participants had no awareness of the internal disaster preparedness plan. **Conclusion:** The developed plan agreed with about-face and content validity by the majority of the jury group. **Recommendations:** Implement the developed, validated plan in the study settings for a trial period to test its applicability and to amend any possible deficiencies. Conducted disaster drills for hospital staff periodically to improve their awareness and skills to deal with any internal disaster.

**Index Terms:** Disaster, Disaster Management Plan, Hospital Staff, Internal Disaster.

## INTRODUCTION

In every section of the world, disasters are now common for humans. The disruptive aspect of a catastrophe prevents daily activities from occurring, negatively impacting social, personal, political, economic, and environmental issues. The reasons for a catastrophe may be many, and a significant element of risk is involved. A catastrophe is defined as an occurrence or sequence of occurrences that result in fatalities as well as destruction or loss of assets, infrastructure, the environment, vital services, or means of subsistence on a scale that exceeds the ability of the impacted community. A disaster is often defined as a catastrophic event that throws off the regular course of life or ecology and necessitates drastic emergency measures in order to protect people and the environment [1].

There are alternative viewpoints; catastrophes are categorized as either internal or external events. Disasters within the hospital's walls include active shooters, blackouts, and radiation poisoning. Simultaneously, external calamities like industrial or transportation accidents happen somewhere other than the hospital. Catastrophes may

be both internal and external. For example, natural catastrophes might destroy hospital buildings and result in many deaths [2].

An abrupt occurrence that interferes with a facility's regular, daily operations is referred to as an internal catastrophe. It may or may not be connected to an outside or community-wide incident. This tragedy refers to an immediate danger to patient safety and/or hospital service continuity that must be handled in extreme uncertainty. It also refers to an incident within a party's premises and significantly impairs that party's capacity to treat patients. This covers but is not limited to, electrical power outages, fires, and disruptions in water or sewage systems. Furthermore, it could impact a small facility area or the whole one [3].

The body of administrative and policy choices as well as operational actions related to different levels and phases of a catastrophe, is known as disaster management. Another definition of disaster management is the collection of actions intended to keep emergency and disaster situations under control and provide a framework for assisting those at risk in avoiding or recovering from the effects of the catastrophe. Moreover, catastrophe management addresses circumstances that arise before, during, and after the calamity [4].

Pre-, during-, and post-disaster settings may be used to categorize disaster management in general. Disaster management is centered on developing and implementing strategies for preparation and other measures to lessen the effects of catastrophes and improve recovery. This is why failing to develop or implement a plan may cause harm to people, property, and income. It may not, however, totally stop the risks or avoid them [5].

A disaster management plan (DMP) is a prophylactic strategy intended to lessen a catastrophe's damaging impacts. You can equip your organization to handle a crisis on its arrival by developing a disaster management strategy ahead of time. You'll reduce the amount of time and money wasted following a disaster—two things that are all too valuable. But your staff won't be able to respond effectively without a catastrophe management strategy. Meanwhile, you won't be ready to guarantee that your workplace doesn't become a community danger, communicate clearly, or go to a catastrophe site [6].

## **SIGNIFICANCE OF THE STUDY**

Nowadays, the notion of catastrophe threatens the whole society like a ghost since there are no preparations for disaster preparedness, and the element of surprise is the majority of any occurrence that threatens the entire human race's existence. As a result, this research aimed to create and verify a disaster management strategy for Diarb Negrn Central Hospital.

## AIM OF THE STUDY

This study aimed to design and validate a disaster management plan for Diarb Negm Central Hospital.

### Research Hypothesis

- H1:** Diarb Negm Hospital staff will not have an awareness of internal disaster.
- H2:** There is no disaster management plan to overcome internal disasters in Diarb Negm Central Hospital.

## METHODS

### Research Design

A cross-sectional design was used.

### The Study Setting

The research was carried out at Diarb Negm Central Hospital. The hospital is linked with the Ministry of Health and has a capacity of 239 beds. It offers free assistance to all situations including emergency victims.

### Participants of the Study

The present study included two participant groups: the target group and the jury group.

**Group I: The Target group** consisted of 200 hospital staff recruited from all categories of the hospital manpower, such as physicians, nurses and nursing staff, administrative employees, technicians, security, and housekeepers.

**Group II: The jury group** consisted of 35 academic experts (11 professors and 24 assistant professors) from five different Faculties of Nursing with a special interest in the area of disaster management.

## TOOLS OF DATA COLLECTION

Three tools were used for data collection namely; a Disaster Expectation Questionnaire, Disaster Preparedness Checklist, and Validation Form for a Disaster Management Plan.

### Tool I: Disaster Expectation Questionnaire

The researcher developed this tool based on the review of pertinent literature [7]; [8]; [9]. It aimed to assess hospital staff expectations and awareness of the internal disaster preparedness plan in the previously mentioned study setting. It consisted of the following three parts as;

**Part I:** Personal characteristics of the participants such as name (optional), age, gender, marital status, educational qualification, job type, experience years, and attendance of training courses related to disaster management.

## **Part II: Disaster Expectation Questionnaire**

To elicit the respondents' opinions about their expectations regarding the occurrence of possible internal disasters. It included 17 items divided into two subgroups: natural disasters (6 items) and man-made disasters (11 items). The response was measured on a 3-point Likert scale as high, moderate, and low.

**Scoring System:** The expectation by the cut-off point was considered high if the percentage was 60% or higher and low if less than 60%.

## **Part III: Disaster Awareness Questionnaire**

To assess staff awareness of the internal disaster preparedness plan at Diarb Negrn Central Hospital. It included (181 items). The questionnaire items were to be scored as yes, no, or not applicable.

**Scoring system:** The awareness of the plan via the cut-off point was considered high if the percentage was 60% or higher and low if less than 60%.

## **Tool II: Disaster Preparedness Checklist**

This tool was designed to assess the availability of structural standards related to disaster preparedness. The researcher developed it based on [8]. The tool consisted of 187 items to be checked by the researcher as present, absent, or not applicable.

## **Tool III: Validation Form for Disaster Management Plan**

The researcher developed and constructed it based on [7], to examine the face and content validity of the proposed designed disaster management plan by jury group. It elicited the opinions of the jury group members, whether they agreed or disagreed with each item of the plan. The tool consisted of two main parts along with identification data as follows;

**Part 1:** Face validity: a list of 78 statements covering 21 elements seeking experts' agreement regarding the general form of the proposed disaster plan.

**Part 2:** Content validity: a list of 118 statements covered 28 elements to elicit experts' agreement regarding the contents of the proposed disaster plan.

## **VALIDITY AND RELIABILITY**

A panel of five experts evaluated the tools (I, II, and III) in their preliminary version for face and content validation. Two professors and one assistant professor of nursing administration from Mansoura University's Faculty of Nursing, one assistant professor of nursing administration from Fayoum University, and one assistant professor of community health nursing made up the group. They examine the tools (I, II, and III) to ensure that they are accurate, relevant, clear, and complete. There was not a suggestion offered. Statistical Social Science (SPSS) version 20 statistical software's Cronbach Alpha coefficients test was used to evaluate the research instruments' dependability. Internal

natural disaster expectation, internal man-made disaster expectation, internal natural disaster awareness, and internal man-made disaster awareness were 0.75, 0.89, 0.85, and 0.88, respectively.

### **Pilot Study**

A pilot research was conducted on a random sample of 10% of participants (20) to assess the tools' questions' clarity, completeness, and practicality. It also helped calculate the time required to complete the questions. Each participant sheet took roughly 45 minutes to complete. The pilot participants were not included in the overall research sample. Based on the pilot research, the essential changes were made via clarity and rewording.

### **Data Collection**

The fieldwork took about six months, from the 1<sup>st</sup> of January 2021 to the end of June 2021. It was achieved through assessment, observation, plan development, and plan validation phases.

**Assessment Phase:** Following the receipt of formal authorization, the researcher went to the location and met with the medical and nursing directors to explain the purpose of the study and its processes. Then, with the assistance of the nursing director, complete the questionnaire form and conduct direct observation. The researcher then met with the participants, described the study's purpose and methods, and asked them to take part. The questionnaire form was used to interview those who provided verbal informed permission. The interview technique was used to fill the questionnaire sheet to protect against ambiguous or confusing questions and increase the response rate. The filled forms were then scored as previously detailed. It took about 45 minutes to tool I with each respondent. The number of interviewed participants ranged between 2 and 4 per day. The work was done 2 days/week.

**Observation Phase:** The researcher verified the existence of structural criteria for disaster readiness using the disaster preparedness checklist. Each hospital's department's assistant director or nursing director was present when the researcher finished it. This was done before designing the plan to identify the specific needs for developing the disaster preparedness plan.

**Plan Development Phase:** Using the information obtained from the analysis of the data from the Disaster Expectation Questionnaire (Tool I) and the findings from the Disaster Preparedness Checklist (Tool II), in addition to pertinent literature, the researcher developed a disaster preparedness plan

**Plan Validation Phase:** Following its completion, the disaster preparation plan was used the designated tool III to show it to the jury group for face and content confirmation. Thirty-five academic experts from five nursing faculties made up the jury, including eleven professors and twenty-four assistant professors. It took about two months. The researcher took two days each week until the validation phase was completed from the distribution of the designated tool to gather it from them.

## Ethical Consideration

The Mansoura University Faculty of Nursing's Research Ethics Committee granted the project ethical permission. Before receiving verbal informed permission, the researcher gave each participant a rundown of the study's objectives and guaranteed their freedom to accept, decline, or withdraw from it at any moment. Complete secrecy, anonymity, and privacy of the information gathered were maintained.

## Statistical Analyzing

The statistical software program SPSS 20.0 was used for data input and statistical analysis. Descriptive statistics were used to display the data. This meant using frequencies and percentages for qualitative variables and for quantitative variables, means, standard deviations, and medians. The chi-square test was used to compare qualitative category variables. The Fisher exact test was used instead of other tests where the predicted values in one or more cells in a 2x2 table were less than 5. If the predicted value in 10% or more of the cells was less than 5, no test could be done to bigger than 2x2 cross-tables. To evaluate the correlations between ranked and quantitative variables, Spearman rank correlation was used. The independent determinants of the scores for expectations, outward disaster awareness, internal disaster awareness, and overall awareness were found using multiple linear regression analyses. At p-value <0.05, statistical significance was deemed to have occurred.

## RESULTS

**Table 1: Personal Characteristics of Studied Participants of Hospital Staff (n=200)**

Personal characteristics of participants	No.	%
<b>Age:</b>		
<30	56	28.0
30-	87	<b>43.5</b>
40+	57	28.5
Mean ±SD	34.9±8.5	
<b>Gender:</b>		
Male	74	37.0
Female	126	<b>63.0</b>
<b>Marital status:</b>		
Unmarried	38	19.0
Married	162	<b>81.0</b>
<b>Experience years:</b>		
<30	56	28.0
30-	58	29.0
40+	86	<b>43.0</b>
Mean ±SD	9.2±6.1	
<b>Had training courses in disaster:</b>		
No	182	<b>91.0</b>
Yes	18	9.0

**Table (1):** Illustrated personal characteristics of studied participants of hospital staff (43.5%) of studied staff aged from 30-40 years, with Mean  $\pm$ SD 34.9 $\pm$ 8.5, most of them (63.0%) were females. The majority (81.0%) of the studied participants were married, (43.0%) of them have more than 40 years of experience with Mean  $\pm$ SD 9.2 $\pm$ 6.1 and great majority (91.0%) have not trained in disaster courses.

**Table 2: Number and Percentage of Qualification/job Positions of Various Categories of the Studied Participants (n=200)**

Qualification/job positions of various categories of the participants	No.	%
<b>Qualification (physician):</b>		
General practitioner	11	27.5
Specialist	17	<b>42.5</b>
Consultant	10	25.0
Head of the department	2	5.0
<b>Qualification (nurse):</b>		
Nursing school diploma	10	16.7
Specialty diploma	1	1.7
Technical institute	14	23.3
Bachelor	33	<b>55.0</b>
Master	2	3.3
<b>Qualification (technicians):</b>		
Technician	27	<b>90.0</b>
Specialist	2	6.7
Head of the department	1	3.3
<b>Qualification (administrator employees):</b>		
Employee	33	<b>94.3</b>
Head of the department	2	5.7
<b>Qualification (Security)</b>		
Staff	15	<b>100.0</b>
<b>Qualification (housekeeper):</b>		
Worker	19	<b>95.0</b>
Head of the department	1	5.0

**Table (2):** Demonstrated number and percentage of qualifications/job positions of the various categories of studied participants. The highest percentage of physicians (42.5%) were specialists. As for nurses, more than half (55.0%) had a bachelor's degree. The majority (100.0%, 95.0%, 94.0%, and 90.0%) were for security staff, housekeeper workers, administrative employees, and technicians' qualifications.

**Table 3: Expectations Levels of Internal Disasters among Studied Participants (n=200)**

Internal disasters	Expectation Levels			
	High levels (60%+)		Low levels of less than 60%	
	No.	%	No.	%
<b>Internal disaster expectations:</b>				
- Natural disaster	25	12.5	175	<b>87.5</b>
- Man-made disaster	20	10.0	180	<b>90.0</b>
<b>Total internal disaster expectations</b>	76	38.0	124	<b>62.0</b>

**Table (3):** Concerning participants' expectation levels of internal disasters, this table shows that a high percentage (90.0% & 87.5%) of them had low expectations of man-made & natural internal disasters, respectively. As a total, (62.0%) of the studied participants had low internal disaster expectations.

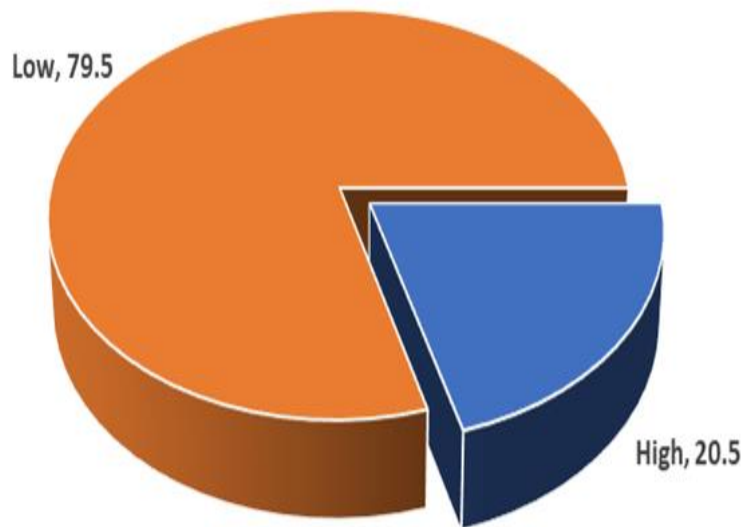
**Table 4: Awareness Levels of Internal Disaster Preparedness Plan among Studied Participants (n=200)**

Internal disaster preparedness plan	Level of awareness			
	High aware (60%+)		Low awareness (60%-) less than 60%	
	No.	%	No.	%
<b>Internal disaster plan:</b>	<b>85</b>	<b>42.5</b>	<b>115</b>	<b>57.5</b>
Designing an internal disaster preparedness plan	124	62.0	76	38.0
Methods of communication specified in the plan	112	56.0	88	44.0
Disaster Management Control Center	122	61.0	78	39.0
<b>Hospital preparedness:</b>	<b>56</b>	<b>28.0</b>	<b>144</b>	<b>72.0</b>
General	33	16.5	167	83.5
Emergency department	82	41.0	118	59.0
Nurse role in internal disaster	83	41.5	117	58.5
<b>Hospital preventive measures and precautions to prevent specific types of disasters within the hospital</b>	<b>29</b>	<b>14.5</b>	<b>171</b>	<b>85.5</b>
Infection control	65	32.5	135	67.5
Fire protection	78	39.5	122	61.0
Gas explosion	99	49.5	101	50.5
Radiation accidents	128	64.0	72	36
Mass food poisoning	25	12.5	175	87.5
Architectural and furniture	75	37.5	125	62.5
<b>Preparation for the outage of power/ supplies</b>	<b>22</b>	<b>11.0</b>	<b>178</b>	<b>89.0</b>
Electricity	20	10.0	180	90.0
Water cutoff	129	64.5	171	35.5
Gas supply	98	49.0	102	51.0
<b>Earthquake preparedness measures</b>	<b>149</b>	<b>74.5</b>	<b>51</b>	<b>25.5</b>
<b>Evacuation plan</b>	<b>19</b>	<b>9.5</b>	<b>181</b>	<b>90.5</b>

**Table (4):** Indicated awareness levels of internal disaster preparedness plan among studied participants. High percentages (74.5%) of studied participants reported high awareness of earthquake preparedness measures. On the contrary, high percentages



(85.5%, 89.0% & 90.5%) of them reported low awareness regarding hospital preventive measures and precautions to prevent specific types of disaster within the hospital, preparation for outage of power/ supplies, and evacuation plans, respectively. In addition, more than two-thirds (70.0%) of the studied participants reported low awareness of the total internal disaster preparedness plan.



**Figure 1: Total Awareness Levels of Disaster Preparedness Plan among Studied Participants (n=200)**

**Figure (1):** Illustrated total awareness levels of the disaster preparedness plan among studied participants. The majority (79.5%) of the studied participants reported low awareness of the total disaster preparedness plan. While only (20.5%) of them responded with high awareness of it.

**Table 5: Correlation between Participants' Expectation and Awareness Scores and their Age and Experience Years**

Participants' expectation and awareness scores and their age and experience years	Spearman's rank correlation coefficient		
	Expectations	Awareness (internal)	Awareness (total)
Age	-.009	.190**	.228**
Experience years	.078	.105	.100

(\*) Statistically significant at  $p < 0.05$       (\*\*) statistically significant at  $p < 0.01$

**Table (5):** Shows the correlation between participants' expectation and awareness scores and their age and experience years. It shows that study participants' age had statistically significant positive correlations with their scores of internal awareness ( $r=0.190$ ) and total awareness ( $r=0.228$ ).

**Table 6: Best Fitting Multiple Linear Regression Model for the Score of Awareness of Internal Disaster Plan**

Score of awareness of internal disaster plan	Unstandardized Coefficients		Standardized Coefficients	t-test	p-value	95% Confidence Interval for B	
	B	Std. Error				Lower	Upper
Constant	50.20	3.20		15.695	<0.001	43.89	56.50
Age	0.33	0.09	0.25	3.656	<0.001	0.15	0.51
Training courses	-8.75	2.66	-0.23	-3.289	0.001	-13.99	-3.50

R-square=0.09

Model ANOVA: F=10.47, p<0.001

**Table (6):** Illustrated correlation between the independent variable (age and attendance of training courses) and dependent variable (participants' awareness of internal disasters plan). This table shows a statistically significant positive correlation between participants' awareness of internal disaster plans and age. On the other hand, there was a statistically significant negative correlation between participants' awareness of the internal disaster plan and their attendance at training courses.

**Table 7: Total Disaster Preparedness Checklist as Observed in the Study Settings (n=200)**

Total disaster preparedness checklist	Present		Absent		Not applicable	
	No.	%	No.	%	No.	%
1- Mission	0	0.0	3	100.0	0	0.0
2- Vision	0	0.0	5	100.0	0	0.0
3- Philosophy and objectives	0	0.0	7	100.0	0	0.0
4- Organizing	0	0.0	3	100.0	0	0.0
5- Policies and procedures	1	12.5	7	87.5	0	0.0
6- General characteristics of the disaster plan	0	0.0	9	100.0	0	0.0
7- Nursing staff preparation	0	0.0	4	100.0	0	0.0
8- Communication means	0	0.0	12	100.0	0	0.0
9- Resources and supplies	22	47.0	25	53.0	0	0.0
10- Safety and security precautions	10	48.0	21	52.0	0	0.0
11- Preparedness for cut-down of supplies	10	53.0	9	47.0	0	0.0
12- Earthquakes	1	17.0	5	83.0	0	0.0
13- Hospital evacuation	7	64.0	4	34.0	0	0.0
14- Preparedness for hospital security	5	71.5	2	28.5	0	0.0

**Table (7):** Demonstrated total disaster preparedness checklist as observed in the studied settings. The high percentages of disaster preparedness were hospital security (71.5 %) and hospital evacuation (64.0%). On the other hand, high percentages (100.0%) of no disaster preparedness were observed for mission, vision, philosophy and objectives, organizing, general characteristics of disaster plan, nursing staff preparation, and communication means.

**Table 8: Total Face and Content Validity (Content Validity Index: CVI) of Jury Group Members (n=35)**

Total validity	%Agree	CVI
<b>Face</b>	98.8	<b>0.99</b>
<b>Content</b>	98.3	<b>0.98</b>

**Table (8):** Illustrated jury group members' total face and content validity. It indicates the developed plan's high face and content validity, with CVIs 0.99 and 0.98, respectively.

## DISCUSSION

Disasters are considered significant challenges, especially in the developing world. It is associated with high casualties, high mortality, and deleterious environmental and economic effects [10]. The proper response to disasters necessitates a concerted effort of all hospital staff [11]. Nonetheless, nurses have a long history and critical role in disaster preparedness and management [12]; [13]. The present study was aimed to design and validate a disaster management plan at Diarb Negm Central Hospital by assessing the internal disaster awareness in the designated hospital and examining the validity of the designed disaster management plan.

Regarding participants' expectations levels of internal disasters, less than two-thirds of the studied participants had low levels of internal disaster expectations. This might be explained by a lack of understanding and awareness about the resources and their needs for disaster management, which lowers one's expectations for the crisis. This outcome also explains why the training programs successfully impart sufficient information about disaster management requirements. The results of [14]. Investigation into the knowledge, attitudes, and practices of medical professionals working in emergency units towards disaster and emergency preparedness in hospitals in Ethiopia's south Gondar zone were in line with the findings of the current study, which showed that less than two-thirds of the medical professionals had low overall internal disaster expectations. A catastrophe during an infectious disease epidemic was that many medical personnel chose not to report to work out of fear of contracting the illness and passing it on to their family. This result is consistent with a study by [15], which found that most study participants had low overall internal disaster expectations. The study's authors also developed a disaster management plan and implemented an educational program at the emergency unit at Minia University Hospital in Egypt. This might be because people have lower expectations for the catastrophe due to inadequate information and understanding about the scarcity of resources and their needs for disaster management. In contrast, it disagreed with the study of [16], who examined emergency preparedness and perceived competence of healthcare providers in disasters at the emergency department in Alexandria Main University Hospital and concluded that less than two-thirds of the studied samples had high total expectations of man-made and natural internal disaster.

The present study revealed that high percentages of participants reported a high awareness level for earthquake preparedness measures. On the contrary, high percentages of them reported low awareness levels regarding hospital preventive measures and precautions to prevent specific types of disaster within the hospital, preparation for outage of power/ supplies, and evacuation plans, respectively. In addition, more than two-thirds of the studied participants reported low awareness of the total internal disaster preparedness plan. This result may indicate a lack of awareness programs and educational programs for participants about precautions and disaster measures and how to deal with them if any internal disaster occurs. The current investigation aligns with the findings of [17], study on nurses' preparedness for disasters at Suez Canal University Hospital in Egypt, which found that the majority of the sample had inadequate knowledge about how to prepare for a power or supply outage and how to evacuate because the hospital did not have a disaster plan. Also, a study of the concerns of hospital evacuation in the European Union by [18], about current perspectives and concerns facing hospital evacuation concluded that more than half of the studied participants had low awareness about preventive measures for evacuation plans and this was attributed to lack of awareness among hospital staff and hospital had lack of the proper preparedness and evacuation planning. Moreover, [19], assessed the effect of a guidance booklet on the knowledge and attitudes of nurses regarding disaster preparedness at hospitals in Egypt and represented that less than three-quarters of the studied sample in Menoufia Governorate, Egypt, had low awareness level about total internal disaster preparedness plan. This is due to participants having high deficiency in knowledge about disasters. In this respect, the study conducted by [20], about how disaster-based hospitals prepare for dialysis therapy after earthquakes? The introduction of double water piping circuits provided by Well Water System in Japan indicated that most study participants were unaware of a double-source power supply and water in any healthcare setting. On the other hand, [21], study, which looked at health team members' awareness of hospital internal disaster management plans in a University Hospital in Egypt, found that most hospital staff members had a high level of awareness regarding the preparation of power and gas supply. The lack of crisis management strategies in hospitals and the lack of in-service training for disaster preparedness may be to blame for this.

The results of this research showed that the majority of survey participants had little knowledge of the whole disaster preparation strategy. Conversely, less than 25% of them replied with high awareness. These results may result from the hospital's absence of a disaster preparation procedure, which prevented staff members from learning about disaster planning throughout their education and employment in hospitals. These results also show how important it is to raise hospital staff members' knowledge and comprehension of emergency preparation guidelines and procedures. In line with the findings of [22], who looked at how educational programmes affected nurses' understanding of internal disaster management in Egypt and found that most study participants knew very little about the whole of the country's disaster preparation strategy.

This can mean there weren't enough chances for in-service training or education to update staff members' knowledge and abilities or shift their perspectives. Accordingly, a study conducted in 2012 by [23], regarding hospital incident command system performance and decision-making during disasters in Iran revealed that the investigated hospitals' disaster preparedness was inadequate, based on variables such as information management, local databases, and disaster handling protocols. Furthermore, the findings of [24], study on hospital emergency and disaster preparedness, which examined Onandjokwe Lutheran Hospital in Northern Namibia, confirmed this outcome. The study revealed that a significant number of hospital participants were unaware of the existence of the disaster management plan and the contents of a hospital plan. This may be because many of the regional nations lack skilled personnel for disaster preparation and response. However, the current study differs from the research conducted in Pakistan by [25], regarding the knowledge and practices of nurses concerning disaster management and emergency preparedness, finding that fewer than two-thirds of the sample had a high awareness of the entire disaster preparedness plan.

The present study revealed that participants' age had statistically significant positive correlations with awareness of internal and total disasters, so disaster awareness increased in hospital staff with age increase. This can confirm that older participants had more experience dealing with disasters than young participants, which can be one of the reasons for the increase in disaster preparedness plans as the age increases. [26], found a significant positive correlation between nurses' age and their knowledge and awareness of disasters in their line of research regarding the relationships between knowledge levels, health-protective practises, and anxiety in the workplace during a disaster. On the other hand, [25], revealed no statistically significant correlation between participants' awareness of external disaster plans with their age.

The current study showed a statistically significant positive correlation between participants' awareness of internal disaster plans and age. The finding agrees with [27], who designed and validated a disaster plan for Zagazig University Emergency Hospital in Egypt and stated a statistically significant relationship exists between studied participants' awareness of internal disaster preparedness and their qualification, experience years and job category. On the opposite side, [28], who assessed knowledge, attitude, and readiness toward disaster management among healthcare practitioners in the United Arab Emirates and stated that no significant relation between studied participants' awareness of internal disaster and their age and workplace of them.

The current study showed a high percentage of disaster preparedness for hospital security and hospital evacuation disaster preparedness. On the other hand, a high percentage of them have no disaster preparedness observed for mission, vision, philosophy and objectives, organizing, general characteristics of disaster plan nursing staff preparation, and communication means. This might be because the hospital cares more about hospital security and evacuation disaster preparedness, which affects the safety of the hospital staff and patients. These findings also demonstrate the need for

further enhancements to the hospitals' capability for disaster preparedness in the areas under investigation, including organising, general disaster plan features, nursing staff preparation, communication methods, mission, vision, philosophy, and goals. The present study agrees with the results done by [29], about the regional impact of cyclone Sidr in Bangladesh and mentions that the studied hospital had an evacuation preparedness plan during an emergency. These findings also demonstrate the need for further enhancements to the hospitals' capability for disaster preparedness in the areas under investigation, including organizing, general disaster plan features, nursing staff preparation, communication methods, mission, vision, philosophy, and goals. This could be due to the disaster frequency in the hospital, so the managers are interested in evacuation plans.

In line with this, a study conducted by [30], about disaster nursing experiences of Chinese nurses responding to the Sichuan Ya'an earthquake in China found that more than half of the nurses had prepared for security and evacuation before being deployed. Moreover, [31], assessed disaster preparedness among Hong Kong nurses and concluded that there was no nursing staff preparation and they were unaware about the hospital disaster preparedness to mission and objectives. This may be attributed to a deficiency in the disaster preparedness plan at the hospital. This result was contradicted by the study done by [32], about the evaluation of disaster preparedness for mass casualty incidents in private hospitals in Central Saudi Arabia, which found that the studied hospital had no drilled evacuation plan of staff and patients. This might be due to a deficiency in the hospital staff's education, training, and monitoring to prepare for disaster emergencies. Additionally, [7], designed and validated a disaster plan for the nursing department at Al-Quds Hospital in Gaza City and noticed no immediate hospital evacuation plan in internal disasters. This could be due to a lack of disaster preparedness and no emergency exits designed in the structure of the hospital buildings as observed.

Based on the present research, the established disaster management plan has high face and substance that a broad group of specialists has confirmed from five different institutions. This outcome might be explained by evidence that most elements were pertinent to the suggested disaster management strategy, arranged logically and scientifically. This finding is consistent with research conducted by [7], which discovered that most jury group members had reached a consensus on every point in the suggested catastrophe plan for the nursing department. The jury group's agreement was divided between 86.0% and 98.0%. This might be because the idea, which was better off not being written, was just scribbled down and put on a shelf. [27], demonstrated that the members of the jury group reached a unanimous decision on every issue related to the content validity of the disaster preparation plan. This might be explained by everyone agreeing on the face and substance legitimacy of the suggested emergency preparation. Regarding this, experts agreed on the majority of the elements in the plan created by [33], to strengthen the Netherlands' disaster preparation and management system. They also suggested a continual and methodical examination of the plan to improve. [15], also disclosed that the jury expert group reached a consensus on the best-recommended

disaster management plan, with a total Cronbach's Alpha value of (0.875) indicating strong reliability. This outcome may be explained by evidence that the majority of the tool's pieces were pertinent to the suggested strategy, making sense when arranged logically and scientifically. Furthermore, the suggested plans complete correspondence.

## CONCLUSION

The majority of study participants had low internal disaster expectations and also reported low awareness of the total level of disaster preparedness plan. More than half of the study participants were unaware of the internal disaster preparedness plan. In addition, the developed plan agreed on face and content validity with the majority of the jury group.

## RECOMMENDATIONS

1. Implement the developed, validated plan in the study settings for a trial period to test its applicability and to amend any possible deficiencies.
2. Conducted disaster drills for hospital staff periodically to improve their awareness and skills to deal with any internal disaster.
3. Revised hospital mission, vision, philosophy, and objectives, organizing, general characteristics of a disaster plan, nursing staff preparation, and communication means accommodating disaster management.
4. Proposed further intervention research to assess hospital staff awareness after implementation of the developed plan.

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