A Comparative Study to Assess Nurses' Perceptions toward the Disaster Management Process in Alexandria and Jeddah Cities

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Abstract:
Introduction: *Despite the scarcity of natural disasters, local terrorism, and other forms of disasters, they pose a major public health challenge when occur. Nurses should receive fitting training to identify, treat and possibly supervise local disaster preparedness initiatives. Insufficient resources have been allocated to the education that nurses receive in government hospitals.* ***Aim:*** *Researcher intended to assess nurses' perceptions toward disaster management process in Alexandria and Jeddah Governmental Hospitals.* ***Research question:*** *Is there a difference between nurses' perceptions toward the disaster management process in Alexandria and Jeddah governmental hospitals?.* ***Methodology:*** *ADescriptivecomparative cross sectional study design was utilized in this study. The study was conducted at governmental hospitals in Alexandria and Jeddah cities.* ***Convenient sample*** *was used; the estimated sample size is 200 nurses at governmental hospital in Alexandria and 200 nurses at governmental hospital at Jeddah who provided direct care for patients regardless of their age, gender, qualifications, and experiences.* ***Results:*** *The mean score of disaster skills and family preparedness at Jeddah were 29.7±9.2 and 8.2±3.7. While at Alexandria were 22.6±8.1 and 6.9±2.5 respectively. Also, Mean score of nurses' perception of patient management and total of mitigation/response stage at Jeddah were 41.7±13.3 and 53.6±15.5. While at Alexandria were 38.0±8.6 and 47.8±11.2 respectively. Moreover, 39% of nurses worked in Jeddah hospital was perceived total preparedness stage in strong level, while 43.5% of them was in moderate level for nurses worked at Alexandria hospital.* ***Conclusion:*** *The present study revealed that there was a high positive correlation between studied nurses at Alexandria and Jeddah cities according to total preparedness stage and response stage of disaster management process. While there was slight positive correlation of total evaluation stage, with a mean scores of nurses working in Jeddah higher than nurses in Alexandria.* ***Recommendations:*** *Managers must evaluate nurses' disaster core competencies regularly to achieve effective preparation plans and trainingprograms.Regular training programs including disaster drills withoccasionalhospital‐widedisasterandemergencyscenarios.Future studies must investigate obstacles to nurses' disaster preparedness and strategies for preparing nurses for all stages of the disaster managementcycle.*
Key words: Disaster, Management, Preparedness, Perception.

I. Introduction

The WHO defines disaster as "an occurrence disrupting the normal conditions of existence and causing a level of suffering that exceeds the capacity of adjustment of the affected community. Disasters are defined as a "sudden, calamitous event that seriously cripple the functioning of a community or society and causes human, material, economic or environmental losses that exceed the community's ability to cope using its own resources" ***(Ghezeljeh, Aliha, Haghani&Javadi, 2019).*** Disaster is a "serious troubles in the community functions that cause a huge loss in many aspects such as human and environment. ***(Xia, Li, Chen, Jin& Zhang,2019).***

Disaster refers to a significant functional deterioration or loss of life, materials, economy or environmental resources. The magnitude, frequency, and type of disaster events vary as per to the geographical location, ethnicities, and economic capacities ***(Lam et al., 2018).*** Natural and human-induced disasters befall every day throughout the biosphere and cause catastrophic impacts on public health in terms of injuries, sufferings, deaths, destruction of infrastructure, and facility ***(Azeem et al., 2019).***

Egypt is a country that has been seriously influenced by numerous types of disasters including natural and man-made disasters. Natural disasters are flash floods, earthquake. In addition, major fires, transportation accidents, desertification, climate changes, pollution, pandemic diseases, as well as leakage of hazardous substances are the most frequent man-made disasters that happened in Egypt ***(Sattar, Zahra & Mohamed, 2018).***

The Kingdom of Saudi Arabia (KSA) has experienced several general health disasters as a result of overcrowding, terrorist attacks, and natural disasters. The most frequent occurrences of natural disasters are in the form of flooding since the country lacks a comprehensive drainage system. When there are floods, families

are not only displaced; they also suffer from adverse health effects as a result of waterborne diseases that get carried by floodwaters into the streets and then into their homes *(Sham, Musa, Mohamed & Othman, 2018).* The KSA is also vulnerable to several hazard- oriented risks related to oil exploration and production activities in the country's oil and gas sector. These risks include oil leakages and spills, accidents in wells, fires, and explosions *(Alzahrani&Kyratsis, 2017).*

Disaster Management can be defined as the organization and management of resources and responsibilities for dealing with all humanitarian aspects of emergencies, in particular preparedness,response and recovery *(Basal & Ahmed, 2018).* Disaster manag- ement initiatives have more often emphasized pre- hospital protocols and personnel preparation while insufficient resources have been placed on the education and training of the healthcare providers in tertiary medical institutions that receive disaster victims. This has been previously termed "ambulances to nowhere". Disaster training is rarely incorporated in neither undergraduate nor graduate medical and nursing education *(Wolf et al., 2019).*

Disaster management focuses on creating plans to minimize the effect of disasters instead of averting or eliminating the threats *(Labrague et al., 2018).* Its planning is a sequential and continuous process called the disaster risk management cycle that consists of four stages: mitigation; preparation; response; and recovery. Every stage of this process is important and affects the others. However, the preparedness stage is most significant for decreasing the effects of disasters *(Hossain, Ghazipura&Dichter, 2019).*

Disaster preparedness is wide-ranging skills, capabilities, knowledge, and actions that are needed to react and get ready for a threat, actual or suspected. Nurses must anticipate an expanded role during disaster events to include caring for the sick and injured, infection control, contingency planning to prevent further damage, triage, mass immunizations, mass evacuations, and treatment for mass casualties *(Gladston&Nayak, 2017).*

Significance of the study

Nursing has important roles at every stage of disasters as the largest member of the healthcare team. Nurses play a wide variety of roles in disasters, such as rescuers, caregivers, trainers, counsellors and managers *(Al Thobaity, Alamri, Plummer & Williams, 2019).* They are important human resources in struggling with unforeseen disasters. Therefore, their preparedness for disasters is very important for sociocultural and economic development of societies *(Sonneborn, Miller, Head & Cross, 2018).*

Despite the central role of front-line nursing staff in hospital emergency departments in responding to disasters, little is known about the knowledge and skills required by this group of health professionals to effectively carry out this important clinical role. Nurses play an important role in disaster preparedness such as educating the public to reduce disaster vulnerability and working in a disaster situation *(Salama&Awad, 2020).* Thus, when disaster happens, nurses need to have adequate skills related to disaster management. However, the research suggests that nurses are often not sufficiently prepared to deal with disaster-related responsibilities *(Grimes Sparke, Rouen & West, 2020).*

The study aimed to:
Assess nurses' perception toward disaster management process in Alexandria and Jeddah Governmental Hospitals. Through the following objectives:
- Assess nurses' perception of disaster management process at governmentalhospital in Alexandria.
- Assess nurses' perception of disaster management preparedness at governmentalhospital in Jeddah.
- Compare between nurses' perception of disaster management processat governmental hospitals in Alexandria and Jeddah.

Research question:
Is there a difference between nurses' perception toward disaster management process in Alexandria and Jeddah governmental hospitals?

II. Materials and Method

Design:
ADescriptivecomparative cross sectional study design was utilized.
Setting:
The study was executed in all in-patient medical, surgical and intensive care units and its specialties at both Alexandria and Jeddah Hospitals. Alexandria governmental hospital is equipped with 1724 beds. The capacity of Medical units was 951, 773 beds in surgical units and 100 beds in intensive care units. The number of inpatient units included in the study was 44 units: 23 medical, 15 surgical, and 6 intensive care units. Jeddah governmental hospital has 1067 of total bed capacity, 967 beds for medical, surgical, maternity and other specialties; as well as 100 beds were occupied with critically ill patients.

Subject:
Convenient sample, the estimated sample size is (n=400);200 nurses at governmental hospital in Alexandria and 200 nurses at governmental hospital atJeddah, who agreed to participate in the study as well as provided direct care for patients regardless of their age, gender, qualification, and experience

Tool:
The Disaster Preparedness Evaluation Tool (DPET) **(Tichy et al., 2009)** originally developed to examine the preparedness of nurses in disaster management process, and in 2012 Arabic version of (DPET) done by **Al Khalaileh et al**. to assess perceptions of the disaster preparedness of registered nurses in Jordan. The modified DPET adopted by the researcher to collect the data from nurses. The questionnaire consists of 54 items grouped under two parts. **The first part** were 9 items (open-ended and close-ended questions) about demographic data and additionally related to disaster preparedness as: age, gender, marital status, qualification, working unit, years of experience, participation of real disaster and in addition, attending the training about disasterpreparedness. **The second part** of the tool included 45 items that were about disaster stages. 25 items were related to *preparedness stage* and it's divided into three dimensions: *disaster knowledge* 16 items; *skills* seven items; and *family preparedness* two items. The next 14 items were related to **mitigation/response stage**, which measures response to disaster and divided into two dimensions: *knowledge* three items; and *patient management* 11items. The last six items in the second section related to the **recovery/evaluation stage.** These six items were divided into two dimensions: *knowledge* with one item; and *patient management* five items. Responses were measured on a 6-point Likert-type scale, ranging from strongly disagree (1) to strongly agree (6).
Scoring system: The total score ranged from 1 to 270. The higher scores means higher level of nurses' perception toward disaster management. These scores were converted into a percent score to determine the level of perception which is calculated as follow:<33.3% Week level, 33.4- 66.6 % Moderate level, 66.7- 100% Strong level.

Data collection:
A written approval was obtained from the administrators of the identified settings to collect study data. The pilot study was carried out on 10% of nurses (n=20) at the previous mentioned setting in order to test the applicability of the constructed and the clarity of the included tool. The pilot has also served to estimate the time needed for each subject to fill in thequestionnaire. In addition, to test the content validity of the questionnaire, it was ascertained by a five experts in nursing administration department, their opinions elicited regarding the format, layout, accuracy, and relevancy of the tool. Reliability;the questionnaire was tested for reliability using Cronbach's alpha coefficient test, to measure the internal consistency of the items composing each dimension of the tool;the Disaster Preparedness Evaluation Tool = .799.The researcher firstly met with the nurses worked at the previously mentioned settings, explained the purpose of the study after introducing herself. The researcher was visiting the study settings 3days/week at morning and afternoon shifts to collect data. The questionnaire was filled by nurses which take 30-35minutes for each, around nine nurses/day were filled the questionnaire. It took a time period fromthe beginning of April 2019 to the end of July 2019.

StatisticalAnalysis:
Data collected from the studied sample was revised, coded, and entered using Personal Computer (PC). Computerized data entry and Statistical analysis were fulfilled using the Statistical Package for Social Sciences (SPSS) version 22. Data were presented using descriptive statistics in the form of mean and S.D. Linear regression model is a linear approach to modeling the relationship between a scalar response and one or more explanatory variables. T. test used to compare means pre and post intervention.

Ethical Considerations:
An agreement was acquired from the Hospitals' Administrators. The ethical research considerations include the following:The researcher was clarified the objectives and aim of the study to nurses included in the study before starting. Data confidentiality and privacy were preserved and ensured by getting informed consent of the study subjects for engagement in the research before data gathering. Nurses' anonymity was considered. The nurses were informed that they are allowed to choose to participate or not in the study and they have the right to withdrawal from the study at any time.

III. Results

Table (1): revealed that themean age of studied nurses at Alexandria city was 32.2±4.6, while Jeddah city was 31.9±5.2. According marital status, 55% and 65% of them were married at Alexandria and Jeddah cities respectively. 47.5% of nurses in Alexandria had technical nursing degrees, while 75% of them had bachelor's degree at Jeddah. According to working unit, 50% and 45% of nurses worked at critical units at Alexandria and Jeddah respectively. Related to participation in real disaster, it was found that nurses at Alexandria city participated with 31.5%, while 49% at Jeddah city. Regarding years' experience, mean experience of studied nurses at Alexandria city was 6.97±2.6, while Jeddah city was 6.20 ± 3.1.

Table (2): illustrated mean of disaster knowledge at Jeddah was 61.5±15.9, while at Alexandria was 52.8±18.7. As regard mean of disaster skills and family preparedness at Jeddah were 29.7±9.2 and 8.2±3.7 respectively. While at Alexandria were 22.6±8.1 and 6.9±2.5 respectively. Also there was a high significant difference between studied nurses at Alexandria and Jeddah cities according to disaster knowledge, skills and total preparedness stage (P= .000, .009 and .000) respectively. While there was slight significant difference according to family preparedness at p .012. Moreover, 39% of nurses worked in Jeddah was perceived total preparedness stage strong level, while 43.5% of them was in moderate level for nurses at Alexandria

Table (3): showed that mean of nurses regarding disaster knowledge at Jeddah was 11.9±2.2, while at Alexandria was 9.8±2.6, mean score of nurses' perception of patient management and total of mitigation/response stage at Jeddah were 41.7±13.3 and 53.6±15.5 respectively. While at Alexandria were 38.0±8.6 and 47.8±11.2 respectively. Also, there was slight statistical significant difference between studied nurses at Alexandria and Jeddah cities according to disaster knowledge and management at p= 024 and .031. While there was high significant difference according total mitigation stage at p =.009. In addition, 45% and 41% of nurses perceived total mitigation/response stage at moderate level at Jeddah and Alexandria respectively.

Table (4): illustrated that mean score of nurses' perception of disaster knowledge at Jeddah was 4.1±1.15, while at Alexandria was 3.8±1.2. Additionally, mean of patient management and total of evaluation stage at Jeddah were 18.4±3.6 and 22.6±4.7 respectively, while at Alexandria were 15.1±3.1and 18.9±5.1 respectively. Also, there was slight statistical significant difference between studied nurses at Alexandria and Jeddah cities according to disaster knowledge, patient management, and total evaluation stage (p= .034, .021 and .020) respectively. Also, nurses' level of perception toward evaluation stage were moderate 50.5% and 42.5% for Alexandria and Jeddah cities respectively.

Figure (1): showed that mean score of studied nurses at Alexandria city was 82.5 and Jeddah city was 99.4 for preparedness stage. Also, according to mitigation stage, mean scores were 47.8 and 53.6 of studied nurses at Alexandria and Jeddah cities respectively. Regarding evaluation stage, mean score of studied nurses at Alexandria city was 18.9 and while Jeddah city was 22.6.

Table (5): revealed that there was highly significant correlation between preparedness stage with mitigation and evaluation stage at p= .000 and .009 respectively. While there was slight significant correlation between mitigation and evaluation stage at p = .011

Table(6) revealed that there was significantly higher frequencies effect of working unit, Training courses, Participation in a Real Disaster and years of experience as predictors onDisaster Management Preparedness (p = .009, .001, .001 and .005) respectively. While age, qualification and marital status had slight effect on Disaster Management Preparedness at (p =.044, .021 and .013) respectively. But gender not predicted by relation to Disaster Management Preparedness (p = 0.063).

Table (1): Distribution of Nurses According to their Demographic Characteristics (N=400)

Demographic Characteristics	Alexandria (N=200)		Jeddah (N=200)		X^2 P
Age	N	%	N	%	
<30	120	60	135	67.5	2.113 .062
30 - 40	55	27.5	45	22.5	
>40	25	12.5	20	10	
Mean S.D	**32.2±4.6**		**31.9±5.2**		
Gender					
Male	48	24	40	20	1.990 .071
Female	152	76	160	80	
Marital Status					
Married	110	55	130	65	3.689

Not married	90	45	70	35	.048*
Qualification					
Diploma	48	24	12	6	5.671 .014*
Technical nursing degree	95	47.5	30	15	
Bachelor nursing degree	55	27.5	150	75	
Higher education	2	1	8	4	
Working unit					
Medical units	60	30	66	33	1.082 .092
Surgical units	40	20	44	22	
Critical units	100	50	90	45	
Participation in a Real Disaster					
Yes	63	31.5	98	49	3.565 .032*
No	137	68.5	102	51	
Experience					
<5 years	92	46	105	52.5	4.301 .020*
5 – 10 years	73	36.5	65	32.5	
>10 years	35	17.5	30	15	
Mean S.D	**6.97±2.6**		**6.20 ± 3.1**		
Training about disaster preparedness					5.617 .011*
Yes	30	15	110	55	
No	170	85	90	45	

Table (2): Mean Distribution of Nurses' Perception toward Preparedness Stage at Alexandria and Jeddah Governmental Hospitals (n=400)

Preparedness stage	Alexandria (N=200)				Jeddah (N=200)				T P
	Mean SD	Strong	Moderate	Weak	Mean SD	Strong	Moderate	Weak	
		N %	N %	N %		N %	N %	N %	
Disaster knowledge	52.8±18.7	51 **25.5**	89 **44.5**	60 **30**	61.5±15.9	80 **40**	78 **39**	42 **21**	14.685 .000**
Disaster Skills	22.6±8.1	38 **19**	72 **36**	90 **45**	29.7±9.2	69 **34.5**	81 **40.5**	50 **25**	9.301 .009**
Family Preparedness	6.9±2.5	45 **22.5**	90 **45**	65 **32.5**	8.2±3.7	73 **36.5**	70 **35**	57 **28.5**	5.248 .012*
Total	82.5±27.9	43 **21.5**	87 **43.5**	70 **35**	99.4±28.3	78 **39**	74 **37**	48 **24**	16.510 .000**

*Significant at level P< 0.05; **highly significant at P<0.01
<33.3% week level, 33.4-66.6 % moderate level, 66.7-100% strong level

Table (3): Mean Distribution of Nurses' Perception toward Mitigation/ResponseStage at Alexandria and Jeddah Governmental Hospitals (n=400)

Mitigation/Response Stage	Alexandria (N=200)				Jeddah (N=200)				T P
	Mean SD	Strong	Moderate	Week	Mean SD	Strong	Moderate	Week	
		N %	N %	N %		N %	N %	N %	
Disaster knowledge	9.8±2.6	50 **25**	76 **38**	74 **37**	11.9±2.2	74 **37**	88 **44**	38 **19**	6.375 .024*
Patient Management	38.0±8.6	44 **22**	90 **45**	66 **33**	41.7±13.3	69 **34.5**	89 **44.5**	42 **21**	5.932 .031*
Total	47.8±11.2	47 **23.5**	82 **41**	71 **35.5**	53.6±15.5	70 **35**	90 **45**	40 **20**	8.961 .009**

*Significant at level P< 0.05; **highly significant at P<0.01
<33.3% week level, 33.4-66.6 % moderate level, 66.7-100% strong level

Table (4): Mean Distribution of Nurses' Perception toward EvaluationStage at Alexandria and Jeddah Governmental Hospitals (n=400)

EvaluationStage	Alexandria (N=200)				Jeddah (N=200)				T P
	Mean SD	Strong	Moderate	Weak	MeanSD	Strong	Moderate	Weak	
		N %	N %	N %		N %	N %	N %	
Disaster knowledge	3.8±1.2	47 **23.5**	100 **50**	53 **26.5**	4.1±1.15	70 **35**	88 **44**	42 **21**	3.661 .034*
Patient management	15.1±3.1	43 **21.5**	97 **47.5**	60 **30**	18.4±3.6	68 **34**	82 **41**	50 **25**	5.004 .021*
Total	18.9±5.1	40 **20**	101 **50.5**	59 **29.5**	22.6±4.7	66 **33**	85 **42.5**	49 **24.5**	5.077 .020*

*Significant at level P< 0.05; **highly significant at P<0.01
<33.3% week level, 33.4-66.6 % moderate level, 66.7-100% strong level

Figure (1): Total Mean Score Distribution of Nurses' Perception Regarding Disaster Management Stages at Alexandria and Jeddah Governmental Hospitals
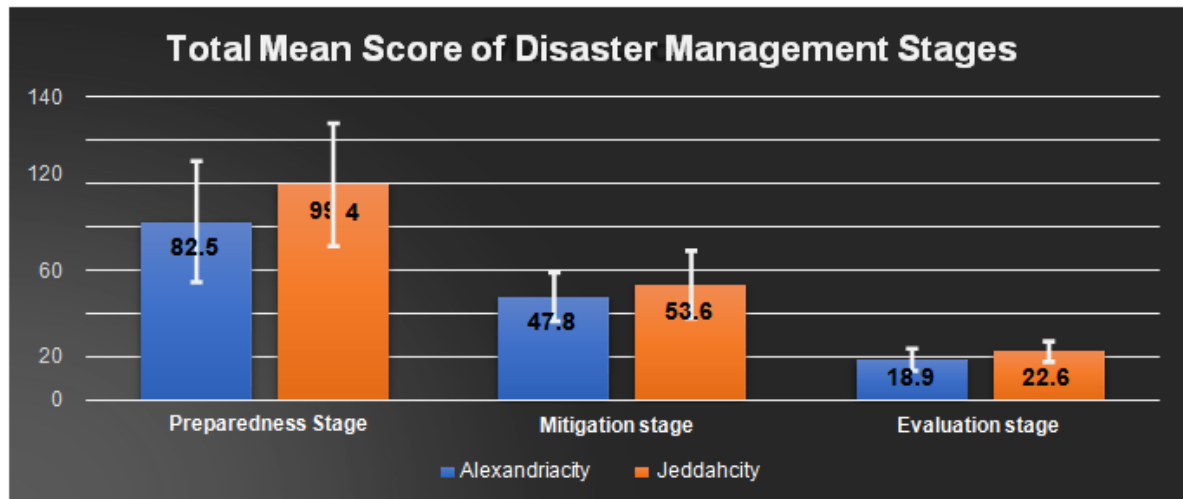

Table (5) Correlation Matrix between Stages of Disaster Management Process

Variables		Preparedness Stage	Mitigation/Response Stage	Evaluation Stage
Preparedness stage	R. p.		.468 .000**	.388 .009**
Mitigation/response stage	R. p.	.468 .000**		.235 .011*
Evaluation stage	R. p.	.388 .009**	.235 .011*	

*Significant at level P< 0.05; **highly significant at P<0.01

Table (6): Multiple Linear Regression Model of Nurses' Demographic Characteristics, Participation in a Real Disaster, and Attending Training Courses in relation to Disaster Management Process.

Model	Unstandardized Coefficients	Standardized Coefficients		
	B	β	T	P
Age	.212	.185	2.145	.044*
Gender	.084	.176	1.118	.063
Qualification	.461	.328	4.008	.021*
Marital status	.319	.650	5.616	.013*
Working unit	.530	.684	6.172	.009**
Years of experience	.628	.733	7.064	.005**
Participation in a Real Disaster	.711	.924	9.447	.001**
Attending Training Courses	.723	.895	9.855	.001**
Model	**df**	**P**		
Regression	7	.015*		

a. Dependent Variable: disaster managementprocess
b.   Predictors: (constant) age, gender, qualification, marital status, working unit, years of experience, participation in a real disaster and trainingcourses.

IV. Discussion

Since disasters can cause a massive amount of damage to properties and the local community, enough knowledge and competence in the delivery of both physical and psychological care are essential if nurses are to respond effectively during disasters, on-site or in hospitals *(Said & Chiang, 2019)*.

According to the demographic characteristics of studied nurses, the current study revealed that the majority of nurses who are working in both hospitals were female and in the age group less than 30 years. Also, more than half of them were married. As for qualification, it was found that slightly less than half of nurses who are working in Alexandria governmental hospital had a technical nursing degrees, while more than half of

nurses in Jeddah hospital had a bachelor nursing degree. These results cohort with the study conducted by **Hussein & Mahmoud, 2016** about "Emergency preparedness and perceived competence in disaster at Alexandria", who reported that around half of studied nurses had age less than 30 years, majority of nurses had diploma and majority of them were female. Also, supported with the study by **Al Thobaity, Plummer, Innes &Copnell, 2015** about "Perceptions of knowledge of disaster management among military and civilian nurses in Saudi Arabia", who found the majority of studied nurses were female, slightly less than half of them had age less than 30 years and two-thirds of them had bachelor nursing degree.

Concerning nurses' perception toward preparedness stage, mean score of disaster knowledge and disaster skills, the results showed that the mean of nurses working in Jeddah was higher than the mean of nurses who are in Alexandria hospital. While there was a high positive correlation according to total nurses' perception toward the preparedness stage between Jeddah and Alexandria. This results may be due tonurses who are working in Jeddah hospital were participated in disaster drills or exercises at their work place, also, they had an excessive knowledge from available policies, guidelines, research literatures, materials which help them to be familiar with emergency situations and increase their readiness for disasters more than nurses who are working in Alexandria hospital. These results were consistent with the study performed by **Baker, Alamri&Aboshaiqah, 2019** about "A descriptive study to analyze the disaster preparedness among Saudi nurses through self- regulation survey", who revealed that level of knowledge of the healthcare nurses was satisfactory for the disaster preparedness. Also, at the same line with **Mouhamed, Mohamed & Ismail, 2019** about "Assessment of emergency nurse's response toward caring of victims during disasters at Assiut University Hospital", who showed that emergency nurses had a poor level of knowledge regarding the disaster, response, education, andtraining.

Regarding nurses' perception toward the mitigation/response stage, it was found that the mean score of nurses' disaster knowledge and patient management in Jeddah was higher than nurses' mean score in Alexandria. With a high positive correlation between both cities for a total of response stage. This results may be due to nurses in Jeddah governmental hospital were well trained and familiar with the organizational logistics and roles among local and national agencies in disaster response situations; reflected in psychological interventions, cognitive strategies as well as administrative supports within the organization, which in turn increase nurses' self-confidence in implementing and handling such situations more than nurses who are working in Alexandria governmental hospital.These difference in results also may be due to around half of studied nurses at Jeddah participated in a real disaster while at Alexandria was more than two-thirds of studied nurses did not participate in a real disaster. These results inconsistent with **Ibrahim, 2014** about "Nurses knowledge, attitudes, practices, and familiarity regarding disaster and emergency preparedness–Saudi Arabia" who detected that the level of knowledge and practice was below average with an acceptable level of attitude regarding disaster preparedness and neutral familiarity with emergency preparedness were found. On the other hand, supported with the study performed by **Sattar, Zahra & Mohamed, 2018** titled in "The effect of an educational intervention about disaster preparedness on knowledge and attitudes of technical nursing institute intern-nurse students at Egypt", who demonstrated that most of the studied subject had low score related to knowledge and attitude at pre educationalintervention.

Related to nurses' perception toward the evaluation stage, the mean of disaster knowledge and mean of management specific to recovery at Jeddah were higher than the mean score of nurses in Alexandria. Also, it was found that there was a high positive correlation at Jeddah and Alexandria according to the total evaluation stage. Additionally, more than half of nurses at Jeddah attended training about disaster preparedness, while only less than one fifth at Alexandria. This result may be due tonurses in Jeddah hospital were participate in peer evaluation of skills on disaster preparedness and response, also, they are familiar with post-disaster situations and able to treat emotional outcomes for acute stress disorders more than nurses who worked in Alexandria hospital. These results disagree with the study performed by **Shammah, 2018** titled in "Preparedness assessment for disaster management among Dhahran al Janoub general hospital staff during hazm storm support", who demonstrated that there is a minor deficiency about awareness of hospital staff members regarding emergency response plan and the meaning of disaster. But, supported with the study done by **Hegazy, Taha, AbouZeid, El-Taher& Hassan, 2016** titled in "Assessing the awareness regarding disaster management plan among an interprofessional team in a university hospital at Egypt", who found that there is a lack of awareness of hospital staff members regarding emergency response plan and the meaning of disaster at the Suez Canal UniversityHospital.

As for the correlation between stages of disaster management preparedness, the current study showed that there was a highly positive correlation between the preparedness stage with the mitigation and evaluation stage. While there was a slight positive correlation between mitigation and evaluation stage. These results similar to **Taskiran& Baykal, 2019** study about "Nurses' disaster preparedness and core competencies in Turkey: a descriptive correlational design", who showed that there was a positive correlation between stages of disaster management. Also, at the same line with **Munasinghe& Matsui, 2019** studytitled in "Examining disaster preparedness at Matara district general hospital in Sri Lanka", who found a high correlation between all

stages of disaster management preparedness.

According to the linear regression model related to disaster management preparedness, the results revealed that there were significantly higher frequencies effect of the working unit, training courses, participation in a real disaster and years of experience as predictors on disaster management process. While, age, qualification and marital status had a slight effect on the disaster management process. But gender not predicted by relation to the disaster management process. This result may be due tonurses worked in Jeddah hospital are well oriented and trained to be prepared and be able to react in disaster situations, also, they had an experience in handling such situations; this is because previous participation in real disaster, moreover, they had bachelor degrees which enable them in acting professionally than nurses who worked in Alexandria hospital. These results regular with the study by **Shahzad, Irfanullah Khan Hussain & Khan, 2018** titled in "Disaster Management Preparedness: Attitudes and Previous Experience of Emergency Physicians of Peshawar, Pakistan", who detected that training had a positive effect on disaster management process. Also, supported with **Park, 2019** titled in "A Convergence Study on Disaster Awareness, Disaster Preparedness, and Ego-resilience of Nursing Students", who revealed that education level and educational program improved disaster awareness and preparedness. Also, regular with the study by **Brewer, Hutton, Hammad&Geale, 2020** about "A feasibility study on disaster preparedness in Regional and rural emergency departments in New South Wales:Nursesself-assessment of knowledge, skills, and preparation for disaster management", who demonstrated that previous disaster experience and years of experience have a significant influence on the perceived disaster preparedness of the individual.

V. Conclusion

To conclude, the present study revealed that there was a high positive correlation between studied nurses at Alexandria and Jeddah cities according to total preparedness stage and response stage of disaster management process. While there was slight positive correlation of total evaluation stage, with a mean scores of nurses working in Jeddah higher than nurses in Alexandria.

Strengths of the study: The comparison between nurses' perception toward disaster management process in two different cities was beneficial in identifying areas of similarities and areas in need for improvement to enhance the quality of managing disaster.

VI. Recommendations

According to the results of current study, the following recommendations are suggested:

- Regular training programs including disaster drills with occasional hospital- wide disaster and emergency scenarios.
- Managers must evaluate nurses' disaster core competencies regularly to achieve effective preparation plans and trainingprograms.
- Encourage nurses to take participative role in training programs and disastercommittees.
- Integration of topics about disaster management in the nursing curriculums for different qualification's levels.
- Prepare teamwork at every hospital from nurses and other healthcare workers for disaster managementpreparedness
- Future studies must investigate obstacles to nurses' disaster preparedness and strategies for preparing nurses for all stages of the disaster management cycle.

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