

Original Article

THE ROLE OF AL-SHIFA MEDICAL COMPLEX ADMINISTRATION IN EVACUATION & SHELTERING PLANNING

Ahmed H. Al-ramlawi¹, Mohammed M. El-Mougher², Mohammad R. Al-Agha³

¹ Emergency Management- MOH

² Evacuation and Emergency Management- IUG

³ Sustainable Development- IUG

* Correspondence: a7meed.ps1989@gmail.com.

Received: 2 November 2020; Accepted: 3 December 2020; Published: 1 January 2021

Abstract: The study aimed to Highlight the role of Al-Shifa Medical Complex administration in evacuation and Sheltering Planning, due to the suffering of the Gaza Strip from repeated attacks by the Israeli occupation, and the escalation of such attacks over the past ten years. The researcher used the content analysis method and Descriptive approach to try to collect all the appropriate data for this topic. The researcher relied on several tools: observation (field visits), personal interviews with stakeholders, risk analysis of the Al-Shifa Medical Complex. The results showed that Quick response in implementing evacuation mechanisms is a critical element in the success of the plan and saving the lives, and showed that planning for evacuations and sheltering is among the priorities of Al-Shifa Complex Administration and the General Administration of Hospitals and that Al-Shifa Complex Administration had prepared a comprehensive evacuation plan and it is developed annually. However, the study found that no maneuver was conducted that simulate activation of the plan for all the working staff in the complex, due to several reasons, and also showed that risk analysis contributes to enhancing preparedness for crisis and disasters, and improving response level to any risk that may occur in future. The study recommends the necessity of forming an internal emergency committee specialized in crisis, disasters, and emergency management and activating it permanently to enhance preparedness level, implementing maneuvers that simulate the evacuation, sheltering, and isolation of major hospitals by standard and modern methods, Developing and strengthening of working staff capabilities in emergency and evacuation management.

Keywords: evacuation, sheltering, planning, Al-Shifa Medical Complex, administration, the Gaza strip, Palestine.

1. Introduction

The role of the health sector in most societies and countries revolves around providing health and medical services for patients and strengthening interventions to address risks and losses resulting from them and reduce their effects, as that health institutions rely on developing their performance and enhancing their preparedness to face potential risks. The higher management of the national health system is interested in building preventive measures and activities and emergency response interventions, including management of evacuation and sheltering operations for hospitals and health centers, which requires knowledge of planning and organization methods, taking into account their proximity to reality for the success of the evacuation and shelter management plans. (Anis, Ali, 2015)

Due to the exposure of the Gaza Strip to repeated attacks by the Israeli occupation, and the escalation of these attacks on the Strip during the last ten years, which included Exposed many hospitals and government health centers for directly targeted, which led to several casualties and injuries. Therefore, we had to look and discuss at field evacuating and sheltering hospitals planning to develop the capabilities of the medical, technical and administrative staff for manage the evacuation and sheltering operations if a hospital is under some threat, and to contribute enhancing the resilience and preparedness of the health sector for any emergency event. (Palestinian National Information Center, 2012).

1.1. Research Problem

The study problem focused on the nature of the risks to which the Gaza Strip is exposed, and after conducting an initial risk analysis matrix, it was observed that emergency planning needs to reinforcement the risk analysis methodology, Especially after analyzing the content of the evacuation plan for the Shifa Medical Complex for the year 2019, there was also a spread of chaos regarding the spread of rumors related to the evacuation one of the complex buildings during the Israeli aggression in 2014.

Main Question:

What is the role of the Al-Shifa Medical Complex administration in planning for evacuation and sheltering if a complex is exposed to a risk that requires evacuation?

Sub-Questions:

- 1) What is the methodology for preparing an evacuation and sheltering plan for Al-Shifa Medical Complex if exposed to an emergency event?
- 2) What is the preparedness extent of the medical, technical, and administrative staff when implementing the evacuation and sheltering plan?
- 3) What are the main challenges that hinder the implementation of the evacuation and sheltering plan at Al-Shifa Complex for the year 2019?

1.2 Research Objectives

General objective:

Highlight the role of Al-Shifa Medical Complex administration in evacuation and Sheltering Planning.

Sub objectives:

- 1) Analyzing the content of the evacuation plan of Al-Shifa Medical Complex.
- 2) Determine the preparedness of the medical, technical, and administrative staff if the evacuation and sheltering plan are activated.
- 3) Identify the mechanisms of evacuation and sheltering followed at Al-Shifa Medical Complex.

Research Justifications

- 1) Contributing to the development of Al-Shifa Complex preparedness to face crises and disasters.
- 2) Helping decision-makers in achieving the goal of maximizing the preparedness of health institutions by the political and security changes prevailing in the Gaza Strip.
- 3) The study simulates a vital topic that represents a top priority for governmental emergency committees and authorities charged with preparing emergency, evacuation, and sheltering plans.

1.3 Research Methodology

Due to the importance that the study subject acquires, and to try to collect all the appropriate data for this topic, it has been adopted the content analysis method appropriate to the phenomenon of the study, and the descriptive approach to display the current situation.

Data Collection Tools

a. Primary data: collecting primary data through observation (Field visits), and personal interviews with the relevant stakeholders.

b. Secondary data: Collecting secondary information and data from scientific books, refereed research, and thesis related to the study field.

Previous Studies

Previous studies considered an important component of scientific studies, and no study can achieve its goals without reviewing it.

- a.** Study of (AL-Mughier, et al., 2019) entitled:

The Role of Evacuations and Shelters Process on the Internal Front in Gaza Strip

The study aimed at explaining the role of evacuations and shelters process on the internal front in the Gaza Strip. through the use of the analytical descriptive method using interviews with specialists and direct observation. The researchers reached several results, the most important is that the evacuation and shelters based on planning contribute to the effectiveness of the protection of the internal front in the Gaza Strip. And the study recommended the

need to provide multiple plans and scenarios according to risk assessment of each crisis that has a high probability to occur in the Gaza Strip and work to organize evacuation and shelter operations to protect and fortify the home front.

b. Study of (Nero, Ortenwall, & Khorram-Manesh, 2013) entitled:

Hospital Evacuation: Planning, Assessment, Performance, and Evaluation – Gothenburg

This study focused on the factors that contribute to hospital evacuation and analyzed them to prepare appropriate plans, the objectives focused on: analyzing the risks and weaknesses (vulnerabilities) of the hospital evacuation plan, identifying the risks that lead to hospital evacuations, and proposing a model for evaluating evacuations. The study adopted of analyzing risks and vulnerabilities methodology for a hospital evacuation plan, and researching the literature and previous studies related to the hospital evacuation field. The results of the study confirmed that all hospital evacuation plans are inadequate due to a lack of knowledge and appropriate tools for planning, implementing, and evaluating hospital evacuations procedures, vulnerability, and risk analysis that can be used to identify key factors in the evacuation process. The study recommended: that Hospitals are in constant need of a detailed plan for evacuation procedures, and carry out risk and vulnerability analysis of the evacuation plan continuously to identify areas of weakness and use a general guide as a basis for evacuation planning.

c. Study of (Bagaria, Heggie, & Murray, 2012) entitled:

Evacuation and Sheltering of Hospitals in Emergencies: A Review of International Experience – London

The study aimed to define the scope of common hospital evacuations and to define hospital evacuation policies, and the processes and challenges involved in hospital evacuation globally, The methodology of the study was represented by its use of several methods: structured search at the database (PubMed) and agencies concerned with disasters, and use of some relevant previous references, communication with WHO staff, analysis of literature and media reports. This study showed that hospitals are highly vulnerable to natural disasters and human disasters, and that hospital evacuations are taking place worldwide. The published policies in the hospital evacuation and sheltering management field were divided into three groups/ international policy: its primary goal is to establish safe and capable hospitals that can function during and after emergency events. National policy: Emphasize on measures taken to evacuate patients with considering all potential risks, and provide appropriate plans for evacuations, sheltering safe transportation, and follow-up of patients. Local policy: It works to create plans in response to phased evacuations and complete evacuations. among the challenges faced by the study is the lack of scientific references and policies related to hospital evacuation, and recommended the importance of conducting similar studies.

1.1. Comment and Comparison

1) The current study differed from previous studies in choosing the place and community of the study which represent at Al-Shifa Medical Complex, it is the largest medical complex in the Gaza Strip, and most of them provide various medical services, and the evacuating process is very complicated due to several great challenges.

2) Previous studies did not shed light on the role of hospital administration in emergency planning, evacuation, and sheltering if exposed to a threat or risk.

3) Previous studies did not talk about the importance of the role of medical staff in managing crises and disasters, and strengthening the home front.

4) Most studies did not offer clear mechanisms for hospital evacuation and sheltering during complex emergencies.

2. Theoretical Framework

2.1. Introduction

Emergency events contribute negatively to exacerbating the general conditions of all vital sectors, especially the health sector, Due to the exposure of many direct and indirect attacks, The Gaza Strip is considered one of the unstable areas due to the multiplicity of dangers and threats facing the population, and deterioration of the Palestinian infrastructure and the resulting climate change and weather factors. (Governmental Emergency Committee, 2018)

2.2. Concept of Evacuation:

It is the deportation of persons or residents from areas exposed to the dangers of wars and disasters to safe areas and far from danger areas, and work to fully care and assist these people, whether humanitarian or health services. (Cambridge Dictionary, 2019)

2.3. Medical Evacuation:

It is an important part of the evacuation in general, but it is specific to a certain group of people affected by the disaster, Where the injured and deceased are evacuated from incident sites to the medical triage area while passing through the disinfection area in the event of poisoning cases, then transferred to health facilities equipped to combat epidemics of poisoning or deal with the injured and wounded. (Ministry of Interior and National Security, 2017)

2.4. Motivations of Evacuation:

the motivation of evacuation is considered the primary pillar on which decision-makers rely on activating the evacuation plan in the threatened place or location.

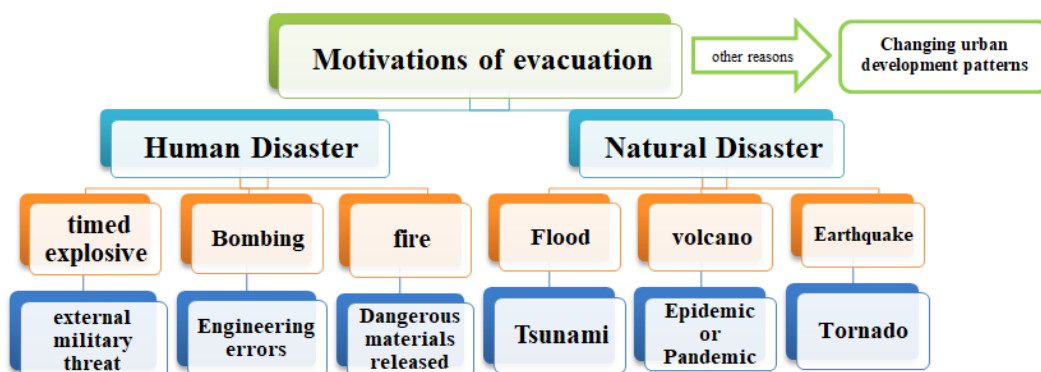


Figure 1. shows the motivation and causes of Evacuation
(Bagaria, Heggie, & Murray, 2009, p.2)

2.5. Types of Evacuation

When an emergency occurs in the institution and that incident requires evacuation, it is necessary to immediately start activating the pre-prepared evacuation plan and determine the level and type of evacuation according to the size and severity of the emergency.

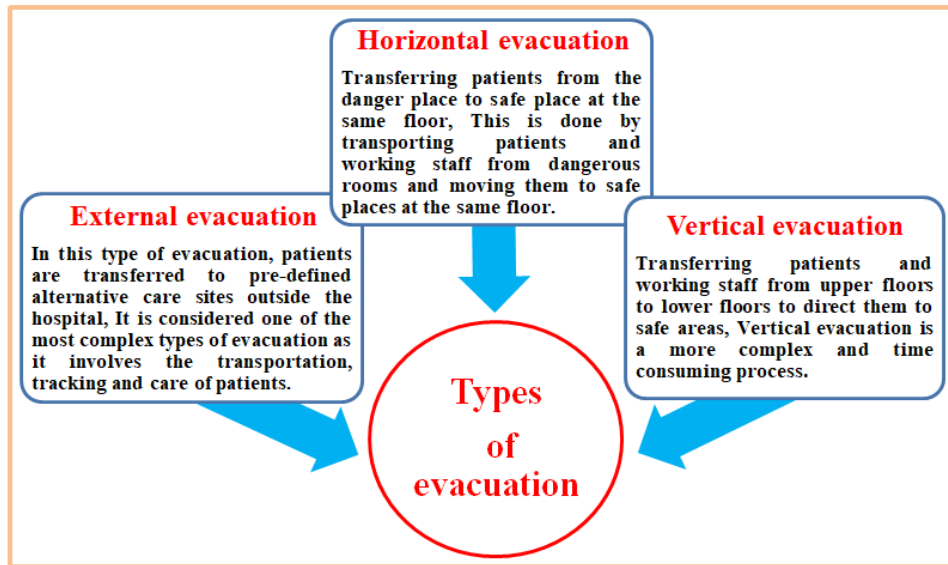


Figure No. (2): shows the levels and types of evacuation for buildings and hospitals
(Wallack, Performing Emergency Evacuations, 2007)

2.6. Sections of Evacuation

Evacuation occurs optional or mandatory according to the emergency and according to variables in the area at risk. It also occurs completely, partially, temporary or permanent, the official sources and agencies differed in determining the types and sections of evacuation. (Qurani, 2007)

Table No. (1): shows all the details of hospital evacuation departments
if they are exposed to a threat or danger.

	Sections of evacuation	Definition & Other information
1.	Completely Evacuation	This evacuation takes place when a disaster occurs to an area as a result of a natural event such as (floods - rains - earthquakes - volcanoes - an epidemic) or an artificial event (sabotage - neglect - a direct military threat). While the order is issued to the teams, the persons concerned, and the civil defense personnel, it is necessary to immediately start preparing the supplies for people sheltering, and that by preparing another site for them, as this place is equipped with all the requirements while ensuring the continuity of providing all basic and health services.

2.	Partially Evacuation	This type of eviction occurs on a certain part of the population, while the risk of occurrence is limited to a specific place, Therefore, teams assigned to crisis management must move people from the danger area to a nearby safe area, or transfer people from the building at risk to another safe building near the emergency event, and it must also provide them with all their needs and requirements of health services and food aid until the emergency stabilizes.
3.	Temporary Evacuation	This evacuation is considered one of the easiest known evictions, as it does not exceed a few hours, such as evacuations resulting from false reports in institutions or agencies, which takes only a short period until emergency and crisis management teams make sure that the situation is safe and does not require evacuation.
4.	Permanent Evacuation (several years)	This type of evacuation is one of the most difficult types of evacuation and only occurs in war times, as the evacuation order/decision is issued by the highest authority in the state or region that the population and civilians must be evacuated from that area due to fear of entering it on the battlefield. the evacuated area is often occupied or destroyed, and thus it takes several years to rebuild it, therefore this type was called (permanent evacuation).

(Source: University of Bahrain, Security and Safety Division, 2019)

2.7. Evacuation Tracks

It's the tracks that predetermined for safe evacuation methods, and designated for transporting patients and working staff from inside the hospital to alternative health facilities in case of external evacuation, It shows specific information about the safe routes that must be taken by the participating transport means, and assist the competent authorities and security agencies in directing traffic and close unsafe roads to facilitate the external transport process. (Office of Emergency Management, 2020)

2.8. Evacuation Time

It is the time required to evacuate patients and working staff from inside hospital departments to alternative medical sheltering sites or surrounding hospitals, there are several methods of estimating it, including a comprehensive actual plan training or a simulated hospital evacuation. (Palestinian Ministry of Health, 2019)

The time element must also be taken importantly during the evacuation process, as the time required to evacuate the building is measured according to its seriousness and materials involved in its construction and the extent of its resistance to the existing danger. The evacuation time depends on the rate of people exit from emergency exit per minute, and this varies according to the type of building, as well as the different type exit method, whether it is horizontal or vertical.

2.9. Hospitals Evacuation Stages

The decision to evacuate hospitals is a very difficult decision, and it is carried out with the participation of a group of managers and officials in the hospital or by the higher government authorities after conducting a careful assessment of the potential threats and exhausting all possible alternatives. The following figure shows a detailed diagram of the main stages in the hospital evacuation process (Harvard University, 2014):

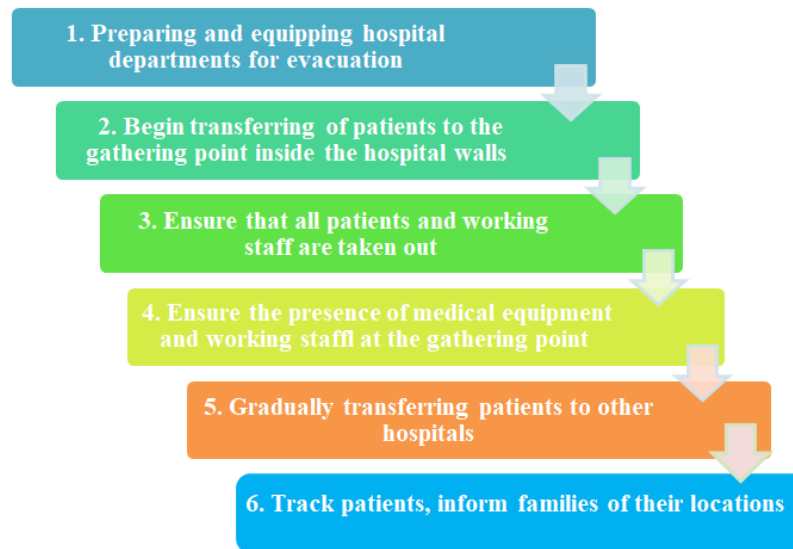


Figure 2. shows the basic stages of hospital evacuation.

Figure (2) shows the basic stages of the entire hospital evacuation process from the issuance of evacuation orders to transferring of patients outside the hospital site, tracking them and informing their families of their locations (Harvard University, 2014).

2.10. Evacuation Orders / Decision

Governmental institutions rely on issuing evacuation orders based on information sources or risk analysis carried out by the competent institutions, or based on reports issued by international organizations, or based on the decision of the Higher Governmental Emergency Committee, the institutions take decisions to evacuate either optionally, especially in the case of natural hazards that could cause sinking and destroying the facilities and buildings and the infrastructure, or mandatory evacuation when the areas and Facilities, institutions are exposed to a direct threat.

3. Sheltering

Most of the international legislations and laws are agreed that civil protection is the top priority of the state towards its citizens in terms of protection and relief of people and property in all circumstances, and in war times and disorders and during calamities as well as preventing natural, industrial and war hazards, mitigating their consequences, uniting efforts to confront those dangers, and setting appropriate procedures and actions to protect lives. among the necessary measures taken by the state to save lives are the urgent evacuation and sheltering of the affected people until the end of the crisis or disaster (Al-qidwa, 2008).

3.1. Concept of Sheltering

It's the process of providing basic services and protection for the internally displaced population (IDP) to pre-determined shelters by government agencies, by international standards and in a manner that ensures community participation (UNHCR, 2018).

3.2. Concept of Shelter

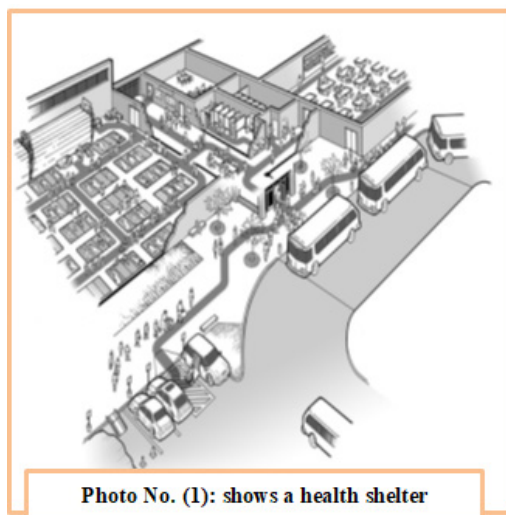
The shelter is a vital survival mechanism in crisis times or displacement, it is also an essential element to restore a personal security sense, enjoy self-sufficiency and dignity, where protection and humanitarian aid and health care are provided to the displaced. (UNHCR, 2020)

3.3. Medical Sheltering (Medical Shelter)

It's the shelter that seeks to meet the medical needs of people who have been displaced from their residence place as a result of a disaster or an emergency event, which requires a temporary place equipped with all medical equipment to ensure the continuity of providing medical services. (California Department of Public Health, 2011).

3.4. The Safe Healthy Shelters

are the shelters that specifically established for urgent sheltering, and provides basic and health services, necessary materials and equipment, additionally, the facilities and infrastructure shall be habitable, suitably located, taking into account the privacy and requirements of persons with special needs, the elderly, children and their mothers.



3.5. Purpose of Healthy shelters

The following figure shows the purpose of the field of medical shelter during emergencies, in which health service is provided for people who need daily therapeutic and diagnostic monitoring and follow-up.

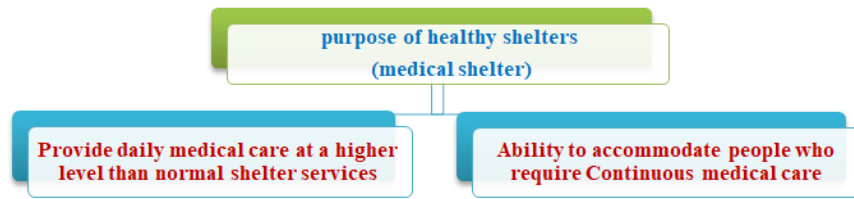


Figure 2. Clarifies the purpose of the field of medical shelter during emergencies.
(Delaware Health and Social Services, 2009)

3.6. Alternative Places that can be used as Medical Shelter

Those places that could be used as temporary medical shelters for patients who are to be evacuated from the hospital at risk can be summarized, as shown below:

- ✓ Surrounding government hospitals (Ministry of Health hospitals).
- ✓ Surrounding non-governmental hospitals (private sector hospitals).
- ✓ Surrounding primary health care centers.
- ✓ Establishing an internal field hospital (inside the hospital walls).
- ✓ Establishing an external field hospital (educational school yard or cultural institution).
- ✓ Converting surrounding hotels into a temporary hospital.
- ✓ Schools and educational facilities can be used as medical shelters.

3.7. Basic elements that must be provided in the medical shelter (Delaware Health and Social Services, 2009):



Figure 3. Shows the basic elements that must be provided in the medical shelter

4. The health system in Gaza Strip

The Israeli occupation has contributed to complicating the Palestinian health system due to the succession of closures, chronic blockade, and geographical separation between the

North and South governorates. This posed a massive challenge for the Ministry of Health by facing difficulties in the availability of health care services and affected the harmony of the health care system in all Palestinian cities. (Palestinian Ministry of Health, 2017)

4.1. Dangers That Facing Gaza Strip

By looking at the natural or even industrial (human) hazards in Palestine, that most of these risks can have a short-term impact, and some of them have a long-term impact, below is an overview of these risks (Ministry of Interior and National Security, 2017):

4.2. Palestinian Ministry of Health (MOH)

The Palestinian Ministry of Health is responsible for citizens' public health of the State of Palestine, and it's the main provider of all health, medical, and treatment services in its various specialties, all hospitals, and treatment centers belonging to the public sector belong to it.

4.3. General Hospital Administration – MOH

It is considered a governmental institution affiliated to the Palestinian Ministry of Health that is concerned with news and activities of the hospital sector at the Ministry of Health and aims to continuously raise the level and technical quality and administrative performance in hospitals, to keep up with all global developments in the art of medical management to devote effort at planning, organizing, directing and controlling work.

4.4. Governmental hospitals

The governmental hospitals affiliated with the Ministry of Health provide treatment and diagnostic services in various specialties to the Gaza Strip population, whose number for the year 2019 was (1.99) million.

Table No. (2) *reviews governmental hospitals in the Gaza Strip*

Central hospitals	Al Shifa Medical Complex, Nasser Medical Complex, European Gaza Hospital.
General hospitals Provides basic secondary services	Al-Aqsa Martyrs Hospital, Indonesian Hospital, Mohammed Yousuf al-Najjar Hospital, Beit Hanoun Hospital.
Mono-specialty hospitals	Ophthalmic hospital Emirates Crescent Obstetrics and Gynecology Hospital El Naser Children's Hospital Muhammad Al-Durra Children's Hospital Abdel Aziz Al-Rantisi Children's Hospital.

(Palestinian Ministry of Health, General Administration of Hospitals, 2018)

5. Methodology and Tools

Due to the importance that study subject acquired, which seeks to highlight the role of al-Shifa medical complex administration in the evacuation and sheltering planning, and because the topic touches on the health system, it has been based on methods used in administrative, engineering, and economic studies, Where the researcher relied on the descriptive and analytical approach.

5.1. Study Tools

a. Observation (Field Survey)

The researcher conducts several field visits to Al-Shifa Medical Complex buildings, where he used direct observation, to know the mechanisms of evacuation and sheltering if the complex is exposed to a threat or danger.

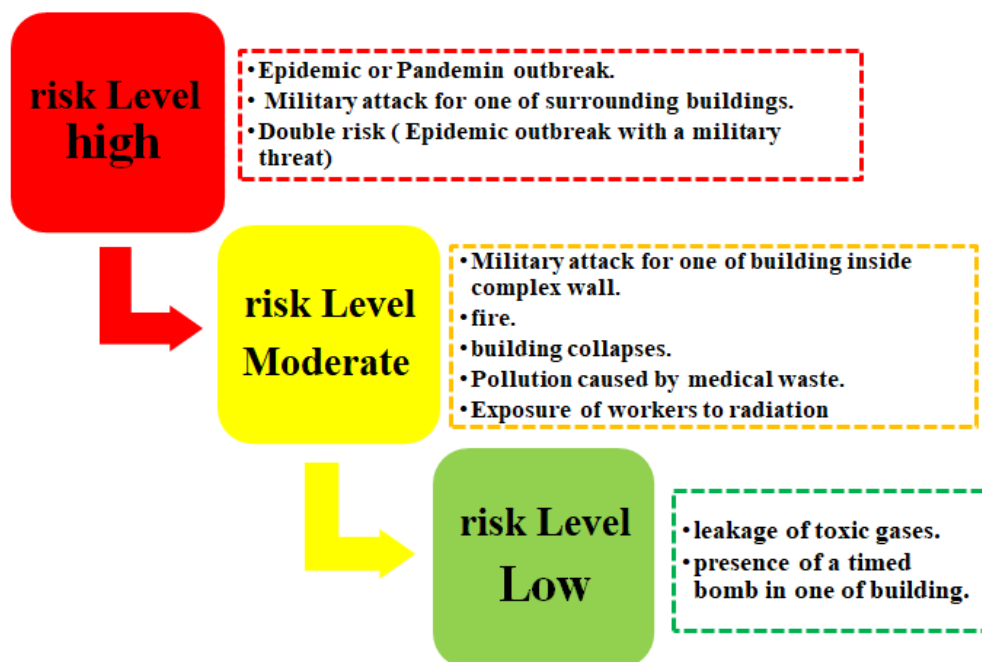
b. Personal Interviews

Several structured interviews were conducted with stakeholders in an evacuation, sheltering and emergency management (General managers, supervisors, administrators, heads of departments) at Al-Shifa Medical Complex, to obtain clear and accurate answers to some of the questions that need explanations, and to reach objective results.

6. Study Results

6.1. Risk Analysis Matrix Results

Looking at the matrix, we find that the Mentioned risks have taken several different risk levels, and those levels can be clarified and classified through the following figure:



(Al-Ramlawi, Ahmad, Hazard Analysis Matrix Results, 2020)

We conclude that (risk analysis matrix) contributes significantly to detecting and showing potential risks before they happen, and determine the priority of immediate intervention to deal with it, to prevent its occurrence or mitigate its consequences, it also contributes to enhancing preparedness for crises and disasters, and improving response level to any risk that may occur in future. This corresponds with the study of (Nero, Ortenwall, & Khorram-Manesh, 2013). where the study reached in its findings that the risk and vulnerability analysis contribute effectively to identifying the strengths, weaknesses, threats, and risk factors of hospital evacuation plans, it also strengthens the basic factors in evacuations operations and can be used in planning, implementation, and evaluation. This study recommended that the risk and vulnerability analysis of the evacuation plan should be implemented continuously to identify areas of vulnerability, and use it as a general guide for planning and preparing evacuation and emergency plans.

6.2. Interviews & Field Visits Results

- **The Role of Al-Shifa Medical Complex Administration in Emergency, Evacuation, and Sheltering management Planning.**

The medical director of Internal Medicine Hospital confirmed that planning for evacuation and sheltering is among the priorities of the complex administration, it also that emergency planning is done continuously and permanently with the participation of all parties concerned at evacuation and sheltering operations due to the nature of threats and potential risks that may occur at any moment in future. On the other hand, the previously Administrative Director of Surgical Hospital stated that hospital administration participated in preparing the emergency and evacuation plan and had a basic role in the planning of evacuation and sheltering mechanisms for al-Shifa complex if exposed to an imminent threat or danger, and he also confirmed that the complex administration conducted a workshop to clarify evacuation and sheltering mechanisms, but not all administrators and working staff at Shifa Medical Complex were involved. On the other hand, the supervisor of nursing at Emergency Departments (Internal Medicine and Surgery) confirmed that the complex administration has prepared a complete and comprehensive evacuation plan that clarifies the mechanisms and procedures of evacuation and sheltering, it also updated and developed annually. This confirms that the al-Shifa Complex administration has a basic role in evacuation and sheltering operations planning to raise the level of preparedness for any emergency. This means that al-Shifa Medical Complex administration Give great attention to emergency planning and potential risks, and it's also working to develop preparedness level to confront any potential risks or crises by preparing appropriate evacuation and emergency plans. However, it turned out that al-Shifa complex administration did not conduct any maneuvers, training, or workshops for evacuation and emergency plan for all working staff at the complex, and this matter is considered a weak point and a clear threat for evacuation plan and needs to be addressed by the decision-makers in the complex.

- **Evacuation and sheltering mechanisms in case the complex is exposed to a military threat or some danger.**

The Director of nursing at internal medicine Hospital talk about the measures that would be taken upon decision issuance to activate the evacuation plan, and explained as follows:

Firstly: The medical and nursing staff shall prepare and equip patients for the evacuation operation, in addition to collecting all the necessary medicines, files, and documents, and classifying patients according to their health conditions to ensure transported inappropriate ways.

Secondly: Continuous coordination with the civil defense to help implement evacuation and sheltering procedures and operations, in addition to coordinating with receiving parties of patients and informing them about the emergency.

Thirdly: Equipping ambulances, including Intensive care ambulances, also preparing portable medical equipment and devices that are used for patients during the transportation process to ensure continuity of providing health services.

Fourthly: begin the evacuation of patients gradually to Gathering point, in proportion with nature of their conditions and not to endanger their health at risk, then loaded them into ambulances to transfer them to alternative health places Pre-agreed upon in the emergency plan.

it's also confirmed that quick implementation of these mentioned procedures is a crucial element in the success of the evacuation and sheltering plan and saving life. This corresponds with a guide (Harvard University, 2014), Where noted the importance of applying these mentioned steps if a hospital evacuation decision is issued, and it must be applied within a specific frame time commensurate with the emergency event.

- Main obstacles obstructing evacuation operations.

Most of the interviewees agreed on a set of obstacles and challenges hindering evacuations, the most important are:

- The very large number of patients and staff working.
 - Lack number of nursing, medical, and technical staff participating in the evacuation and sheltering operations.
 - lack of necessary medical equipment, supplies, and tools during the evacuation process.
 - culture of community members and gathering of escorts and visitors within the walls of the al-Shifa medical complex.
 - Poor coordination and communication with concerned parties involved in hospital evacuations and sheltering.
 - lack of emergency exits and their narrow space poses a real threat during the evacuation of patients.
 - Inability to ensure continuity of providing medical services for hemodialysis patients if internal medicine building is evacuated, due to a large number of patients and a lack number of hemodialysis machines in other health institutions. Among proposed hospitals for referring hemodialysis patients (Al-Quds Hospital, Abdel Aziz al-Rantisi Hospital, Indonesian Hospital). This agreement with the study of (Agha, 2019), which recommended the necessity of interest by the Ministry of Health to fill all gaps and obstacles at health facilities by providing all the equipment and supplies needed to ensure service quality and its Sustainability during and after crises and disasters, and developing work environment.
- Role of the civil defense in evacuation and sheltering management at Hospitals.

The Supervisor of Nursing at emergency departments (Internal Medicine and Surgery) confirmed that complex administration participates the civil defense in evacuation operations and procedures, and has previously conducted (risk analysis) for internal risks and security and safety procedures of evacuation plan in partnership with civil defense, it's also the involvement of Palestinian police and high Committee for ambulance and emergency in Evacuation and sheltering procedures management.

On the other hand, the Deputy Director-General of Civil Defense at Gaza Strip stated that civil defense is always well prepared to deal with emergencies of all levels, as the civil defense teams participated in managing the evacuation of some hospitals during the Israeli aggression on the Gaza Strip in 2014, and in case of similar emergency events that require evacuating a government hospital such as Al-Shifa Medical Complex in future; Our teams are ready to intervene and participate in several different roles at evacuation and sheltering management, it's also noted that Planning and Development Department at Civil Defense participated in preparation and development of emergency and evacuation plan for Al-Shifa Medical Complex and recommended for evaluating and testing by conducting a live maneuver to evacuate one of the hospital sections or buildings. The researcher believes that civil defense has an important and primary role in emergency planning and hospital evacuation and sheltering, it also participates in (risks analyzing and monitoring) with hospital managers and crisis and disasters management specialists to identify potential risks and predict the extent of their occurrence and risk level and priority of intervention to manage and deal with them as required.

7. Recommendations

Based on the results of the study, the researcher extracted several recommendations that he hopes will have an effective role in strengthening the role of evacuation and sheltering planning and raising levels of preparedness for crises and disasters and worst possibilities and variables surrounding the health facilities.

- 1) Interest the Ministry of Health to develop this study and fill all the gaps that have been mentioned, and complete this effort to include other hospitals and health facilities in Gaza Strip.
- 2) Forming an internal emergency committee specialized in managing crises, disasters, and emergencies, and activating it permanently to enhance preparedness.
- 3) Improve and develop evacuation and sheltering plans and set isolation mechanisms to make the plan able to confront all potential risks, especially epidemics and infectious diseases risk.
- 4) The necessity to implement maneuvers that simulate the evacuation, sheltering, and isolation of major hospitals by standard and modern methods, by the recommendations of the World Health Organization and agencies concerned with crisis and disaster management.
- 5) Update emergency and evacuation plans annually by specialists in crisis and disaster management and present them to consultants in emergency management.
- 6) Conducting several research studies specializing in an evacuation, sheltering, and isolation management of major hospitals if exposed to worst expected risks.
- 7) Developing and strengthening of working staff capabilities in emergency and evacuation management, and informing them about updated plans internationally.
- 8) Communicating all research study outputs to decision-makers and officials in the Ministry of Health and emergency committees, to enhance and raise knowledge level in evacuation and sheltering management of major hospitals.

References

1. Al-araj, Shady, Mogheir, Muhammad. (2019). The role of the Gaza municipality central emergency committees in the sheltering and evacuation operations. Journal of Strategic Studies for Disaster and Opportunity Management, Berlin.

2. Al-Mogheir, Muhammad, et al. (2019). The role of evacuation and sheltering operations in protecting the home front at Gaza Strip. *Journal of Strategic and Military Studies*, Gaza, Palestine.
3. Al-qidwa, Salem. (2008). Urgent sheltering for those affected by wars and earthquakes - the Gaza Strip as a case study. Islamic University, Gaza, Palestine.
4. Al-Qurani, Abdullah. (2007). r evacuation and sheltering in Disasters. Institute of Public Administration, Riyadh, Saudi Arabia.
5. Al-Ramlawi, Ahmed. (2020). Evacuation and Sheltering management at Governmental Hospitals - Case Study - Al-Shifa Medical Complex. Gaza, Palestine: Unpublished MA Thesis, Islamic University - Gaza.
6. Anis, Ghanem, Ali, Falah. (2015). Quality of health care and nursing performance at Ibn Al-Nafees Hospital. *Journal of Economic and Administrative Sciences*, Baghdad University, Iraq.
7. Arab news site. (2014). The occupation targeted 35 ambulances and 17 hospitals in Gaza. Arabic 21, retrieved on 04/23/2020, from <https://arabi21.com/story/766570/>
8. Bagaria, J., Heggie, C., & Murray, V. (2012). Evacuation and Sheltering of Hospitals in Emergencies: A Review of International Experience. *Prehospital and Disaster Medicine*, Cambridge University, United Kingdom.
9. Bahrain University, Security, and Safety Division. (2019). Emergency Handbook - General instructions and subordinate elves' tasks. Bahrain: University of Bahrain.
10. California Department of Public Health. (2011). Guidance for Sheltering Persons with Medical Needs. Washington: The Highlands Consulting Group LLC.
11. Delaware Health and Social Services. (2009). Medical Needs Shelters. Delaware: Delaware Health and Social Services, Division of public health, New Castle County, New York, United States.
12. Development and Planning Unit, Palestinian Civil Defense. (2019). general emergency framework. Gaza: The General Directorate of Palestinian Civil Defense.
13. Dictionary of Cambridge. (2019). Evacuation & Shelter Definition, Dictionary Cambridge org. Retrieved from: <https://dictionary.cambridge.org/dictionary/english/shelter>
14. General Directorate of Palestinian Civil Defense. (2017). Crisis and Disaster Risk Reduction National Framework. Gaza: Palestinian Ministry of Interior.
15. Getty Research Institute. (2019). Shelters. Retrieved from Getty Vocabularies: <https://www.getty.edu/vow/AATFullDisplay?find=&logic=AND¬e=&subjectid=300007688>
16. Governmental Emergency Committee. (2018). Governmental emergency plan for the winter season. Gaza, Palestine: General Secretariat of the Council of Ministers.
17. Harvard University. (2014). Hospital Evacuation Planning Guide. Harvard School of Public Health, Cambridge, USA.
18. Lindell, Michael. (2013). Evacuation planning, analysis, and management, University of Washington Seattle, Washington, USA.
19. Ministry of Interior and National Security. (2017). national framework for managing and Confronting crisis and disaster risks. Gaza: Palestinian Civil Defense.
20. Nero, C., Ortenwall, P., & Khorram-Manesh, A. (2013). Hospital evacuation: planning, assessment, performance, and evaluation. *Journal of Emergency & Disaster Medicine*, Gothenburg, Sweden.
21. Office of Emergency Management. (2020). Evacuation Routes. New Jersey, USA. Retrieved from: <http://ready.nj.gov/plan-prepare/evacuation-routes.shtml>

22. Palestinian Ministry of Health, General Administration of Hospitals. (2018). Annual statistical report for hospital performance. Gaza, Palestine: Palestinian Ministry of Health.
23. Palestinian Ministry of Health, General Administration of Hospitals. (2019). Evacuation plan for Al-Shifa Medical Complex. Gaza: Ministry of Health.
24. Palestinian Ministry of Health. (2017). the health system in Gaza Strip. Ministry of Health, retrieved on 04/28/2020, from <https://www.moh.gov.ps/portal/>
25. Palestinian National Information Center. (2012). the political situation in the Gaza Strip. Gaza: Palestinian National Information Center, Wafa.
26. Scott Wallask. (2007). Performing Emergency Evacuations. Marblehead, USA: HCPro. Retrieved from: <http://promos.hcpro.com/pdf/sr5604.pdf>
27. Talbot, Julian, right with risk matrices, Success, and Leadership, Retrieved from <https://www.juliantalbot.com/post/2018/07/31/whats-right-with-risk-matrices>.
28. UNHCR. (2018). Shelter solutions, Shelter management. Retrieved from The UN Refugee Agency: <https://emergency.unhcr.org/entry/57186/shelter-solutions>
29. UNHCR. (2020). Shelter, camp alternatives, UNHCR Organization, Retrieved from <https://www.unhcr.org/ar/4be7cc275bd.html>

8. Appendices

Appendix No. (1): Interview questions

S	Interview questions
1.	What is your role in evacuation and sheltering operations planning, did you participate in workshops related to evacuation and sheltering?
2.	What are the training maneuvers that being implemented for staff working at the al-Shifa complex about evacuation mechanisms?
3.	How are evacuation and sheltering procedures applied if the complex is exposed to a threat or danger?
4.	What are the coordination mechanisms with parties involved in evacuation and sheltering operations?
5.	What are the main obstacles that hinder evacuation operations?
6.	What are procedures that ensure continuity of providing services for patients during evacuation?
7.	Is the civil defense involved in evacuation and sheltering operations? if the followed plan is activated

Appendix No. (2): interviewees names

S	Name	Job title	Date of interview
1.	Dr. Mohamed Zaqqout	Medical Director - Internal medicine Hospital	27/04/2020
2.	Ahmed Ahmad	Nursing Director _ Internal medicine Hospital	28/04/2020
3.	Mohammad Al-Khudary	Emergency Nursing Supervisor (Surgery - Internal Medicine)	28/04/2020

4.	Mohammad Al-Ra'i	Administrative Director - Surgical Specialist Building	27/04/2020
5.	Dr. Imad Al-Fayoumi	Emergency Manager - Internal medicine Hospital	27/04/2020
6.	Dr. Muhammad Al-Attar	Deputy Director-General of Civil Defense - Gaza Strip	30/06/2020
7.	Mahmoud El-Sayed	Specialist in Emergency Management - Al-Shifa Medical Complex	20/04/2020