Exploring Saudi Emergency Room Nurses’ Perceptions About Their Disaster Preparedness

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Exploring Saudi Emergency Room Nurses’ Perceptions About Their Disaster Preparedness

by

Fadiyah Alshahrani

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Submitted in partial fulfillment of the requirements for the degree of

Doctor of Philosophy (PhD) in Health Sciences

Seton Hall University

2021
SETON HALL UNIVERSITY
School of Health and Medical Sciences

APPROVAL FOR SUCCESSFUL DEFENSE

Doctoral Candidate, Fadiyah Alshahrani, has successfully defended and made required modifications to the text of the doctoral dissertation for the Ph.D. during the Spring Semester 2021

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Abstract
Exploring Saudi Emergency Room Nurses’ Perceptions About Their Disaster Preparedness

By
Fadiyah Alshahrani
Seton Hall University
2021

Dissertation Chair: Deborah DeLuca, MS, JD

Background: Disasters can overwhelm the capacities of health care facilities quickly. In recent years, the world has been affected by an increasing number of significant disasters. These include natural disasters such as earthquakes, hurricanes, floods, tornados, storms, fires, and epidemic outbreaks. There are man-made disasters such as terrorist attacks, transportation accidents, and stampedes at mass gatherings. The resulting deaths and property damages have enormously affected countries’ economies, particularly on a health care system’s preparedness. In a major disaster, health care professionals must respond, manage, and prevent additional harm to victims. Nurses are the largest group of health care professionals required to respond. However, there are gaps in a health system’s preparedness that make it difficult for nurses to respond adequately.

Purpose: The purpose of this study was to explore how emergency nurses (ER) nurses in Saudi Arabia perceive their disaster preparedness by assessing their perceived levels of disaster knowledge, disaster training, and awareness of disaster management policies and procedures and by identifying the barriers associated with their preparedness for disasters.
Methods: This study used a basic qualitative design exploratory in nature because the problem needed to be easily measured. There were 20 participants in the study, and all were certified ER nurses who had worked in a Saudi Arabian ER for at least 1 year.

Results: There are five overarching themes about exploring the perceptions of Saudi ER nurses about their disaster preparedness: receiving insufficient disaster training, lacking knowledge about the disaster, policy and procedures existed only on paper, associating barriers with disaster preparedness, and insufficiently prepared psychologically. The study used the conceptual framework as a lens to interpret the findings.

Conclusion: This study’s findings to bridge current gaps of knowledge in disaster preparedness situations based on Saudi nurses’ perceptions and identification of existing barriers. The study shows that participants feel underprepared for disaster responses and do not feel that education and training readily exist; nurses reveal an absence of formal knowledge in the nursing curriculum. An additional conclusion of this study is a need to emphasize important information regarding Saudi nurses’ perceptions concerning disaster management preparedness and to focus on understanding their limitations in responding effectively. As a result, extending a survey to a larger Saudi ER nurse population will benefit further investigations.

Keywords: disaster management, disaster preparedness, disasters, Kingdom of Saudi Arabia, Ministry of Health, training, knowledge, policy and procedure
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This Doctoral Journey has been a long, hard road, but trust the wait. As this is the last chapter in my PhD Journey. I would like to take this opportunity to thank and appreciate individuals who supported me along the way.

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I am forever blessed to my family, each member for them, my parents, my siblings, for their support, sweet words, believe on me, and encouraged me to find my passion in learning.
Dedication

To my loving parents, Abdullah and Fatimah and my sister Faten
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Chapter I

Introduction

Background of the Problem

Disasters can overwhelm the capacities of health care facilities quickly. In recent years, the world has been affected by an increasing number of substantial disasters. These disasters are natural disasters such as earthquakes, hurricanes, floods, tornados, storms, fires, and epidemic outbreaks. They also include man-made disasters such as terrorist attacks, transportation accidents, and stampedes at mass gatherings. The resulting deaths and property damages have enormously affected the economies of the countries concerned.

Moreover, the number of reported mortalities stemming from major disasters doubled from 600,000 to greater than 1.2 million, and the number of affected people grew from 230 million to 270 million. The severity and reach of disaster outcomes depend, in part, on the health care system’s preparedness. In a disaster, health care professionals must respond, manage, and prevent additional harm to victims. Nurses are considered the largest group of health care professionals required to respond when disasters affect a specific location or hospital (Lavin, 2006). Still, there are gaps in health system preparedness that make it difficult for nurses to respond adequately. Studies have shown that health care systems do not generally address disaster preparedness comprehensively and systematically (Ben-Ishay et al., 2016). Health care systems are a crucial part of any community disaster management system. The success of health care systems’ disaster preparedness generally depends on the success of specific activities such as implementing disaster policy and procedures, improving knowledge, and providing disaster
preparedness training. There are more questions concern about the disaster preparedness of the nursing profession. The variation in knowledge, education, life experience, professional experience, and nurses’ level of expertise all play an important role in disaster preparedness (Baack & Alfred, 2013). Therefore, this study explores the perceived disaster preparedness among Saudi nurses who work in ER. This research provides more insights to the limited knowledge about current nurses’ preparedness practices. Results provide information about nurses’ level of disaster training, knowledge, and awareness of disaster policy and procedures. Results also provide information on Saudi nurses’ perspectives of their readiness to respond effectively in disaster situations.

**Health Care Systems in Saudi Arabia**

The Kingdom of Saudi Arabia (KSA) is considered as a developing country that is especially vulnerable to disaster events. The KSA is a welfare country; the Saudi constitution clearly states that the government should provide free health care services to all nationals. The Ministry of Health (MOH) is responsible for providing for the KSA’s health care needs (Figure 1). The MOH provides roughly 59.5% of the free health services in the KSA. Other public agencies, including the Ministry of Defense and Aviation, the Ministry of Education, the National Guard, and the Red Crescent Society, provide a further 19.3% of health services. The private sector provides for the remaining 21.2% of health care services, an area that is growing rapidly (Almalki et al., 2017).
Figure 1.

Structure of the KSA Health Care System

Note: This figure illustrates the Saudi Arabia health care system’s structure in the public and private sectors. Adapted from Almalki et al., 2011.

The KSA has witnessed several disasters for which the health care system was poorly prepared (see Table 1). In the KSA, disasters may be man-made in origin, as in the case of terrorist attacks, or of natural origin, in floods and epidemics, including Ebola, coronavirus, and
Middle East respiratory syndrome (MERS). For example, the KSA accounts for more than 80% of reported MERS cases, with 1,291 confirmed cases and 552 deaths (MOH, 2016). “Black Wednesday” in 2009 saw flooding affect more than 25,000 residents, cause 125 deaths, and destroy over 7,000 vehicles and 11,000 homes. The lack of an adequate drainage network and the slow responses by emergency teams have earned widespread government criticism (Alamri, 2011). Disaster preparedness and management receive limited attention in KSA. Numerous studies have identified the existing Saudi health care system’s weaknesses and suggested methods to achieve disaster management, control costs, and improve health care service quality. To resolve these issues, the government plans to restructure and reform the health care system (Abosouliman et al., 2014; Hammad et al., 2010).
Table 1.

*Disasters in KSA*

<table>
<thead>
<tr>
<th>Year</th>
<th>Type of Disaster</th>
<th>Deaths</th>
<th>Injuries</th>
</tr>
</thead>
<tbody>
<tr>
<td>1941</td>
<td>Kaaba flash flood</td>
<td>20</td>
<td>1,000</td>
</tr>
<tr>
<td>1964</td>
<td>Flash flood</td>
<td>20</td>
<td>1,000</td>
</tr>
<tr>
<td>1975</td>
<td>Fire during hajj</td>
<td>200</td>
<td></td>
</tr>
<tr>
<td>1979</td>
<td>Occupation of mosque in Makkah</td>
<td>250</td>
<td>600</td>
</tr>
<tr>
<td>1985</td>
<td>Floods in the northwest of kingdom</td>
<td>32</td>
<td>5,000</td>
</tr>
<tr>
<td>1990</td>
<td>Pilgrim stampede inside tunnel</td>
<td>1,426</td>
<td></td>
</tr>
<tr>
<td>1994</td>
<td>Pilgrim stampede inside tunnel</td>
<td>270</td>
<td></td>
</tr>
<tr>
<td>1997</td>
<td>Yanbu and Asir floods</td>
<td>26</td>
<td></td>
</tr>
<tr>
<td>1997</td>
<td>Fire during Hajj</td>
<td>343</td>
<td>1,555</td>
</tr>
<tr>
<td>2000/01</td>
<td>Epidemic</td>
<td>179</td>
<td>1,700</td>
</tr>
<tr>
<td>2002</td>
<td>Makkah floods</td>
<td>31</td>
<td></td>
</tr>
<tr>
<td>2005</td>
<td>Medina floods</td>
<td>29</td>
<td>43</td>
</tr>
<tr>
<td>2009</td>
<td>Jeddah floods</td>
<td>163</td>
<td>11,640</td>
</tr>
<tr>
<td>2011</td>
<td>Jeddah floods</td>
<td>10</td>
<td>5,000</td>
</tr>
</tbody>
</table>

*Note.* Adapted from Almalki et al. (2011).
Problem Statement

Disaster management in the KSA is lacking. Previous studies have shown significant gaps in disaster preparedness in disaster times, including floods, terrorism, and epidemics such as Ebola, MERS-CoV, and H1N1. There is no national plan or existing standard guidelines for the systematic examination of disaster preparedness management in the KSA (Bin Shalhoub et al., 2017). Additionally, there is a lack of literature for the provision of nurses in general, and ER, specifically, during disaster situations. Research has established that Saudi nurses have insufficient knowledge, training, and practice during disasters (Hammad et al., 2010).

Significance of the Study

Nurses are mainly unprepared to respond to and manage significant disaster events (Baack & Alfred, 2013; Fung et al., 2008; McKibbin et al., 2011). There is significant research addressing disaster preparedness barriers and attempting to mitigate the gaps (Leiby, 2008; Nasrabadi et al., 2015). However, crucial information is needed from the nurses’ perspectives to advance understanding of which areas of disaster preparedness need improvement. This study enhanced the nurses’ role in disaster preparedness, develops strategies to improve disaster knowledge, and addresses training needs. The study promptly disseminated study results to nursing colleges to KSA to enhance nurses’ knowledge of disaster management and provide valuable information for future continuing education initiatives and academic curricula.

Purpose Statement

ER nurses are typically the first hospital responders to disaster events and are on the front lines of preparedness. Nurses’ perspectives are essential in identifying gaps in disaster
preparedness and needs for improvement. Understanding nurses’ perceptions may provide an in-depth explanation about approaches to complex problems or situations and is a strategy used by many researchers (Chenal, 2011; Creswell, 2013; Miller, 2008; Yin, 2016). In this study, The PI explored how Saudi ER nurses perceive their disaster preparedness by assessing their perceived levels of disaster knowledge, disaster training, and awareness of disaster management policies and procedures.

**Research Questions**

This study's primary purpose using a basic qualitative research approach, with one main research question and four sub-questions to guide the research. The overarching research question is, “What are Saudi ER nurses’ perceptions about their level of preparedness in a disaster”? The sub questions are as follows:

1. What are Saudi ER nurses’ perceived level of training in disaster preparedness?
2. What are Saudi ER nurses’ perceived level of knowledge of disaster preparedness?
3. What are Saudi ER nurses’ perceived level of awareness of policy and procedure for disaster preparedness?
4. What perceived barriers do Saudi ER nurses’ associate with their preparedness for disasters?

**Conceptual Framework**

The conceptual framework used to guide this dissertation and developed from the disaster management model framework of disaster nursing competencies that the International Council of Nursing (ICN) and the World Health Organization [WHO] ICN & WHO, 2009). This conceptual
framework is selected to guide the research because of its separation by phases: the pre-disaster (preparedness) phase, followed by the disaster, the response phase, and the recovery phase. The study focuses particular interest is in the preparedness phase. Disaster preparedness has many aspects, including organizational and interpersonal levels and teamwork and individual applications; my interest is also at the intrapersonal level focusing on the ER nursing profession because nurses are the center of disaster preparedness within a hospital. Unless a health care system prepares its nurses, it cannot be considered prepared. According to the WHO (2009) nurses play an important role in disaster preparedness at any level, the local, state, and national levels through planning, community education, consumer education, and direct care provision during disasters.

The literature concerning disaster preparedness identifies training, knowledge, and awareness of policy and procedure. However, current research does not organize these three elements as a conceptual framework regarding this phenomenon. Instead, the literature focuses on why there remains a lack of disaster knowledge and a challenge in providing training programs. This study’s conceptual framework will focus on the abovementioned elements within the particular context to understand what influences nurses’ perceptions of disaster preparedness. Applying this framework emphasizes preparing nurses through training, knowledge, and awareness of disaster policy and procedures. Anticipating needs in these areas and understanding nurses’ perceptions are crucial elements in improving disaster preparedness (Al Thobaity et al., 2015; Slepski, 2009).
Summary

Given the increasing number of disaster events and the crucial roles nurses are called upon to perform (Chan et al. 2010), it is vital to understand the factors that influence nurses’ ability to manage disasters. Fung et al. (2008) found it significant to study registered nurses’ perceptions of disaster because they believed nurses’ understanding of proper disaster preparedness and management “safeguards the lives of both victims and rescuers” during disaster events (p. 702). This study will bridge these research gaps, assess preparedness based on nurses’ perceptions, and identify barriers that Saudi nurses face in disaster preparedness. This study may fill gaps in the literature on policy, guidelines, and knowledge, leading to a better prepared Saudi MOH.
Chapter II

Literature Review

The literature review covers research pertaining to global issues and common themes related to disaster preparedness. These broad themes include disaster nursing education and a lack of curricula for such education, disaster preparedness knowledge, and an overview of nurses’ roles in disaster policy and procedures. This review also discusses disasters in general, disaster management, and disaster preparedness.

Empirical Research: Disasters, Health Systems, and Role of Nursing

Disasters lead to the loss of life and destruction of public infrastructure and result in health care delivery concerns (Tichy et al., 2009). According to the World Health Organization (WHO, 2012), a disaster is defined as “an event with consequences on health and health services as a serious disruption of society’s functioning, causing widespread human, material, or environmental losses that exceed the capacity to respond. Natural disasters are caused by nature, such as earthquakes, volcanoes, hurricanes, floods, fires, and epidemics, whereas man-made disasters are caused by humans, such as war, pollution, nuclear explosions, terrorist attacks, and transportation accidents. Disasters affect many people, causing loss of lives, injuries, and property and infrastructure damage. Any country can be immensely affected by a disaster, but some places have a greater potential than others for being affected by disasters. The differences in effects among countries can be due to their geographic location, natural habitat, or lifestyle. Although no nation is entirely immune to the negative effects of disasters, some countries are more effective than others in addressing them (Coppola, 2006).
Because of geographic location and abundant oil fields, the Kingdom of Saudi Arabia (KSA) is prone to man-made and natural disasters. Several kinds of disasters in the KSA are likely to occur, including natural disasters (e.g., Middle East Respiratory Syndrome, earthquakes, landslides, sandstorms, and floods) and human-made disasters (e.g., stampedes during the annual mass gathering for Hajj or accidents related to hazards in the oil sector). Countries have been encouraged to respond to the WHO’s and the Pan American Health Organization’s requests to take major steps to ensure safe health care facilities during disasters (Bin Ottai, 2017). Despite this urging and the number of disasters that occur in the country, the KSA does not have a multisectoral state sector endeavor that facilitates effective disaster health management (Alraga, 2017).

**Health Systems**

Health systems are a fundamental part of any community disaster management system. The success of disaster preparedness depends on the success of planning activities, such as implementing disaster policies and procedures, increasing knowledge, and providing training. Hospitals are one of the most vital areas that face challenges during and after disasters. When disaster victims are transferred to hospitals for health care needs, the hospitals need to be able to provide them with optimal health care services when they arrive. Hospital employees may be injured or unprepared. Hospitals may have limited capacity and resources that are unsuitable for managing disasters. These scenarios may put hospitals in a chaotic situation that requires them to be prepared for how the disaster may affect them. Because of the important role that hospitals play within communities during disasters, they must prepare structurally and functionally to respond effectively to people’s needs (Alshehri, 2012). According to the WHO (2012), hospitals
and health care facilities are two of the most important areas to protect from disasters and over 500 hospitals have been destroyed by floods in developing countries, which has led hospitals to prepare for flooding and transformed health care workers’ perception of disaster preparedness.

Three studies have examined disaster preparedness in the KSA. Alrage (2017) offered a big-picture examination of the intersection between health care and disaster management in the KSA. Alrage found that the KSA lacks a multisectoral state department endeavor to facilitate effectual disaster health management. Instead, the KSA continues to take an outdated health care approach to major disasters, treating emergencies and disasters like other health care needs. The KSA does not appear to be well prepared for disasters or actively seeking to prevent disasters or emergencies. There is a dearth of knowledge of KSA’s health care system’s performance during disasters, which reveals the weaknesses of the current disaster health management system.

Alzahrani and Kyratsis (2017) studied emergency room (ER) nurses’ perspectives at the mass-gathering event of Hajj in Mecca city. Their findings indicated two critical problems in KSA’s health care disaster preparedness. They found it essential that nurses understand their role in disaster preparedness. Still, nurses reported limited knowledge and awareness of wider emergency and disaster preparedness plans. Alzahrani and Kyratsis reported inadequate training offerings in the existing Saudi nurse curriculum and suggested that benefits may be gained from providing education and training, including hospital education sessions, the Emergency Management Saudi Course and workshop, and short courses in disaster management.

**Role of Nursing**

Internationally, nurses are the largest group in the health care workforce that responds to victims during a disaster, and nurses are often on the front lines of disaster management. Nurses
are critical direct care providers, yet research has shown that they lack the basic knowledge and skills to respond to disasters (Li et al., 2017; WHO, 2009). The WHO (2009) has declared that no health care system should be considered prepared unless its nurses are prepared. Disaster nursing in the Middle East is often not reported in the literature. Limited studies evaluate disaster management information, skills, and preparedness (Al-Thobaity et al., 2015). Nurses should be equipped with the necessary and proper knowledge and abilities to prepare them for their role during large-scale disasters to meet the needs of the community they serve (Arbon et al., 2006). In addition, nurses’ training for disaster preparedness should be evidence based. There is a need to assess nurses for their awareness of the hospital’s disaster policies and procedures. A disaster policy is a systematic procedure that details what needs to be done, when, and by whom, before or after a disaster occurs (Carolyn, 2006). Nurses require increased awareness about disaster nursing and further development of knowledge and expertise related to disaster education in the workforce (Hammad et al., 2011; Pattillo, 2006; Spain et al., 2012; Yin et al., 2012). Previous literature reviews have shown that most nurses are not well prepared in disaster management (Hammad et al., 2011; Julawong, 2013; Slepski, 2007; Yang et al., 2010; Yin et al., 2012).

ER nurses are the most significant health care response group and the most effective intervention available to reduce the effects of a disaster. O’Sullivan et al. (2008) surveyed 1,543 Canadian nurses from ER and intensive care units to determine whether the participants felt a sense of preparedness in the event of a large-scale disaster event, such as biological, chemical, radiological, and nuclear events. The researchers differentiated by gender, employment status, employment region, and experience with disasters. The researchers also asked participants whether their facility had programs and policies in place to respond to a large-scale event. O’Sullivan et al. found that 50% of participants knew that their facilities have programs and
policies in place, but the facilities do not provide continuing education on emergency preparedness. Approximately 40% of O’Sullivan’s survey respondents were unaware that their hospital had a written emergency plan for large-scale events, and respondents also reported that they felt that they were unprepared and ill equipped to care for victims in a large-scale event.

**Disaster Management Model**

The life cycle of disasters, generally referred to as the disaster management cycle, provides the foundation for the disaster timeline and is characterized by three major phases: preimpact, impact, and post impact. The life cycle of a disaster is matched by a series of disaster management phases: preparation, response, and recovery. Each phase contains distinct activities. This process of disaster management should be continuous and designed to build community resilience and decrease harm to populations, infrastructure, and development (WHO, 2009). The pre-event phase ensures that nurses possess the relevant knowledge, training, and capabilities to identify risk factors and maintain an awareness of disaster policy and procedures. The intra-phase ensures nurses have the physical, psychological, and holistic care competence for the affected population. The post disaster phase deals with recovery and reconstruction competency (Al-Thobaity, 2016). In collaboration with other specialty fields, disaster nursing is the systematic implementation of knowledge and skills toward solving or minimizing health hazards and life-threatening situations that disasters cause (Alfred et al., 2015). In this research, the disaster management model focuses on individual or intrapersonal levels of disaster management as the first response and most effective nursing role intervention to reduce the impact of disasters. This study narrowed this research to focus on how well nurses are equipped for activities in the preparedness phase of the disaster cycle.
Preparedness

Preparedness, the first phase of the disaster cycle, is defined as turning awareness of risks into actions that improve the capability to respond to and recover from disasters (National Research Council, 1991). Preparedness is a continuous process of activities and measures taken in advance to ensure an effective response to a disaster (WHO, 2009). According to a report by the National Research Council (NRC, 2010), preparedness consists of measures that enable individuals to respond effectively and recover more quickly when disasters strike. Hospital preparedness activities include developing disaster plans to ensure established disaster policies and procedures, training employees and conducting drills and exercises, developing knowledge to ensure effective performance of disaster-related tasks, and ensuring that employees have adequate knowledge to respond to disasters (Tierney et al., 2001).

Response

The second phase of the disaster cycle is the response, which refers to measures undertaken during and immediately after the disaster’s impact. During this phase, preparedness plans are put into action. This phase aims to save as many lives as possible, limit injuries, provide for the immediate needs of the survivors, and reduce the long-term health impacts of the disaster (O’Leary et al., 2006). This phase’s activities include rescuing, providing medical care (Gillespie et al., 1993), evacuating threatened populations, and providing food and shelter (Tierney et al., 2001). The response phase is the most complex disaster management phase, conducted during stressful and challenging situations (Coppola, 2006).
Recovery

The final phase of the disaster cycle, recovery, involves post-phase measures undertaken to restore normalcy after the disaster is over (O’Leary et al., 2006). During this phase, nurses are responsible for evaluating the impacts of the disaster, including morbidity and mortality rates, to improve disaster nursing knowledge. This strategy is useful for identifying disaster plan modifications, minimizing the weaknesses of previous plans (Jennings-Sanders, 2004; Sundnes & Bimbaum, 2003). This phase requires actions taken to repair, rebuild, and reconstruct damaged properties and to restore disrupted routines and activities (Tierney et al., 2001). The Joint Commission on Accreditation for Healthcare Organizations (JCAHO, 2001) underscored that recovery not only includes facility-related activities but also responding to lost revenues, supporting staff, and dealing with community reaction. All disaster management phases—preparedness, response, and recovery—are essential; this study focuses on the disaster preparedness phase.

Disaster Preparedness in Health Care Settings

The nation-states’ health system is the main component of disaster management organization, and disaster preparedness is important for an effective health system response to disasters (Bayntun et al., 2012). Preparedness includes numerous activities to improve readiness when faced with a disaster (Gillespie et al., 1993). Disaster management initiatives have mostly highlighted prehospital protocols and disaster preparation. Disaster preparedness within hospitals includes a logical process, with a series of activities beginning with the formulation of policies, continuous monitoring and evaluation of training and education programs, and ongoing evaluation of the policies. Hospitals are among the first institutions to be affected after natural or
man-made disasters. Hospitals need to prepare for unusual events or workloads, such as may occur at the time of a disaster, and this necessitates a well-documented and tested disaster management preparedness policy to be in place (Mehta, 2006). Most research on disaster preparedness focuses on systems-level responses, rather than on institutional and individual responses (DiGiovanni, 2003).

Disaster preparedness is the comprehensive knowledge, abilities, and actions needed to prepare for response to threatened, actual, or suspected incidents; natural disasters; or other related events. The actions specified in disaster preparedness ensure that nurses prepare for all kinds of disasters before they occur (Slepski, 2009). Previous studies in disaster preparedness have indicated that most hospitals have written disaster preparedness plans and regular disaster drills. However, the hospitals are not ready for disasters because of insufficient preparedness in disaster training and knowledge and awareness of policy and procedures. For most nurses, every drill is virtually the same, but every disaster is different and will test nurses’ competence differently (Al-Thobaity et al., 2015). Therefore, in this study the PI intends to examine the perceived preparedness among Saudi nurses by assessing their knowledge, awareness of policy and procedures, and training levels to identify potential barriers to effective disaster preparedness.

**Disaster Preparedness in the United States**

According to a report by the National Research Council (NRC, 2006), disaster preparedness typically consists of actions that enable individuals to respond effectively and recover more quickly when disasters strike. The achievement of disaster preparedness takes place through a process that involves multiple activities. Developing a planning process to ensure
established disaster policy and procedures, training and education of medical personnel, developing knowledge to ensure effective performance of disaster-related tasks, and organizing effective communication and information procedures is necessary. Previous research has identified factors that affect the lack of disaster preparedness. These factors include gender, age, lack of disaster training and education in hospitals and nursing schools (Garbutt et al., 2008), lack of knowledge regarding disaster preparedness in the practice setting (Goodhue et al., 2010), and lack of understanding of what constitutes disaster preparedness (Fung et al., 2009).

The JCAHO, which accredits U.S. and international health care organizations worldwide, has mandated hospitals maintain a certain degree of staff preparedness (O’Leary, et al. 2006). In January 2001, with anticipated future terrorist attacks, JCAHO introduced new emergency management standards built on its long-standing disaster preparedness requirements (JCAHO, 2001). JCAHO required hospitals to improve the planning and evaluation of their emergency management drills to ensure the emergency response’s effectiveness in hospitals. Also, JCAHO required hospitals to use the Plan, Do, Check, and Act protocol as a management methodology to continually improve their emergency management system. The revised standards also required hospitals to test their emergency management plans twice a year (JCAHO, 2003). With JCAHO’s emphasis on disaster management in its accreditation standards, it may follow that accredited hospitals are more prepared for a disaster. However, the literature showed that despite JCAHO’s requirements for disaster preparedness, hospital staff and nurses receive training infrequently, which contributes to poor outcomes.

Written hospital policy does not guarantee that hospital staff can or will implement that policy. For example, Hammad et al. (2015) found that several nurses had not received recent disaster training, and some had never received any disaster training. Similarly, most new nurses
have not had any education in disaster preparedness (AHRQ, 2005). In a more recent study, Labrague et al. (2018) performed a systematic review of the literature, examining peer-reviewed publications over 10 years, from 2006 to 2016, specifically looking at nurses’ preparedness for disasters on an international spectrum. Using a cross-sectional research design and a survey approach with questionnaires, the authors concluded that nurses report insufficient preparation and a lack of confidence to respond effectively to disasters. All the studies reviewed indicated that nurses had a low to moderate level of preparedness. Labrague et al. (2018) noted that factors that increase nurses’ preparedness include previous disaster response experience and disaster-related training. Shalhoub et al. (2017) found similar results in KSA hospitals. All hospitals they examined had well-prepared documents to prove that they were ready to face a disaster event. However, most of the weaknesses were apparent, particularly in education and training, and nurses are unaware of the policies and procedures. None of the hospitals provided unannounced exercise and training events for employees. Several healthcare sectors in the KSA have become familiar with hospital disaster management, but only in written forms to meet JCAHO standards (Richter, 2008).

**Conceptual Framework: Nursing Perception of Disaster Preparedness**

The conceptual framework proposed for this research focuses on the individual context and ER nurses’ perception of their disaster preparedness in three different elements: (a) nurses’ perception regarding training, (b) nurses’ perception regarding their knowledge, and (c) nurses’ perception of their policies and procedures. These three elements in disaster preparedness have been identified in the literature. Still, the literature did not organize them as a conceptual framework to understand disaster preparedness failures. Instead, the literature focused on why
there remains a lack of disaster knowledge and a challenge in providing training programs. Applying this conceptual framework frames nurses’ perceptions about the elements of training, knowledge, and policies and procedures as central to correcting poor preparedness. Anticipating needs in these particular areas and understanding nurses’ perceptions are crucial elements in disaster preparedness.

**Disaster Training**

Disaster training is the first element of assessment within this model. Assessing training is important for understanding nurses’ needs in preparation for disasters. Research has emphasized that the lack of formal disaster preparedness education has led many nurses to be underprepared and not to view disaster response as a priority. Nurses trained in the basic principles of disaster response will make more appropriate decisions and fewer mistakes than nurses who are not trained in these principles (Moresky et al., 2001). According to the WHO (2009), a plan’s proper execution requires continuously evaluating the plan through nurses’ participation in training.

Therefore, developing and maintaining training and testing programs, including initial and annual training education in preparedness, is essential to reduce barriers that hinder disaster response. Several U.S.-based universities now offer classes, and ultimately a degree, in some aspect of emergency preparedness. Although these programs may not be suited for the layperson, they should be an educational requirement for people in emergency preparedness. Nurses should have a basic understanding of disaster science and key components of disaster preparedness. Educational programs must be established to address the existing knowledge deficits of nurses related to disaster preparedness. Enhancing nurses’ professional capability and competence
through training and education will ensure adequate health care services in disasters (Veenema, 2006).

The literature has shown that, in the United States, standards are not clearly defined, and guidelines for emergency preparedness training do not exist (Everly, 2002; Farmer & Carlton, 2006; Veenema, 2006). In 2002, the AHRQ commissioned an evidence report to identify the most effective methods of training clinicians for the detection and management of a bioterrorism attack or other public health events. After a review of 1,942 pieces of literature, the report authors found no published validated measures of preparedness, little data demonstrating the effectiveness of particular training interventions, no studies evaluating educational programs for bioterrorism or other public health events in particular, and no studies addressing how to update and reinforce the training of clinicians in how to respond to mass casualty incidents. Training is an essential part of disaster preparedness and response, and education received often determines nurses’ willingness to participate in disaster response (Chapman & Arbon, 2008; Melnikov et al., 2014; Yin et al., 2011). The literature highlighted that, internationally, the burden of disaster education and training often rests with health care services and hospitals because of competing curriculum demands through nursing education and limited continuing professional development education (Alshehri, 2017; Mitchell et al., 2015; Ranse et al., 2013; Schultz et al., 2012; Seyedin et al., 2015; Usher et al., 2015).

There is a lack of evidence-based literature and published data regarding disaster training for nurses in the KSA. Disaster training is rarely incorporated in either undergraduate or graduate medical education. There is no specific program available in the existing nurse education program in the KSA that addresses disaster nursing management and preparedness. A growing number of studies in the literature have reported facts about the KSA’s disaster management and
preparedness (Abosuliman et al., 2014; Alraga, 2017; Alshehri, 2016; Al-Thobaity et al., 2015; Bin Shalhoub et al., 2017; Ibrahim, 2014) and have suggested that staff training is key. Bajow and Alkhalil (2014) evaluated hospital disaster preparedness in the Jeddah region of the KSA; their study revealed that the hospital had the tools and quality indicators for emergency preparedness. Still, employees lacked the proper training and management skills for the disaster. Bajow and Alkhalil stated that it is essential to develop a disaster nursing curriculum or training program for nurses. Other studies similarly show a lack of disaster nursing programs and inadequate training offered in the existing Saudi nursing curriculum (Abosuliman et al., 2014; Alraga, 2017; Alshehri, 2016; Al-Thobaity et al., 2015; Bin Shalhoub et al., 2017; Ibrahim, 2014). Moreover, Al-Thobaity et al. (2015) compared nurses’ preparedness in many hospitals and found that nurses’ preparedness varied among hospitals. Al-Thobaity et al. revealed that the role of education concerning disaster preparedness remains uncertain and needs more investigation. The authors recommended that, regardless of where the training occurs, it is essential that nurses be adequately trained and prepared. In addition, education about disasters for nurses nationwide has not been a priority. Nursing education has been inconsistent in terms of disaster education and training and in imparting this information to schools and workplaces. Limited national curriculum development efforts are underway, but no national curriculum has been delineated. Disaster preparation education for nurses seems to be limited, inconsistent, and unregulated from state to state (Tichy et al., 2009). Furthermore, the existing literature has not revealed Saudi nurses’ perception of their learning needs concerning disaster management.

Nonetheless, limited literature exists regarding the content and mode of delivery of such education programs. In addition, the relevance of existing programs to nursing professionals in ER is questionable (Chapman & Arbon, 2008; Enock & Jacobs, 2008). Nurses are challenged to
respond to natural, man-made, and technological disasters, and there is a lack of disaster preparedness content in the curriculum in nursing schools (Weiner & Irwin, 2005). The need for qualified nurses ready to respond to disasters and participate in preparedness and disaster recovery activities is well documented. To solve this problem, the continuous development of specialized education and training is necessary (Fulmer et al., 2007). Loke and Fung (2014) found no evidence that disaster education in Thailand was integrated into the nursing curriculum or offered as additional training. Loke and Fung also found that participants believed disaster management training and drills to be useful. They agreed that disaster training should include certain additional courses, such as first aid, basic and advanced cardiovascular life support, infection control, advanced trauma care nursing, and posttraumatic psychological care. In addition, according to Waeckerle (2010), no single authoritative source or approved body has sanctioned disaster preparedness content or curriculum, and no program or policy has been established to integrate programs for disaster preparedness. Thus, training and educational efforts lack standardization and application. Hospital ER nurses should be adequately trained and prepared to effectively respond and reduce the number of mortalities and lost victims during disasters (Chapman & Arbon, 2008). Mollie et al. (2007) developed a disaster drill evaluation tool designed to identify strengths and weaknesses in hospital disaster drills to enhance disaster drills and lead to improved overall preparedness. They found that hospital drills provide valuable disaster training for staff. However, the current standard for drill evaluation in most institutions consists of only a post-drill discussion, rather than a comparison to an established standard or identification of activities within the drill that need further practice.

In particular, ER nurses must have the fundamental knowledge, awareness of policy and procedures, and training to efficiently manage disasters and cope with often chaotic
circumstances accompanying a disaster. Disaster education is vital, and nursing and medical school curricula integrating issues in disasters would improve disaster knowledge (Stanley & Bennecoff, 2015). The WHO (2016) recommended that all nations, no matter how frequently or infrequently they experience disasters, prepare and train health care workers for disaster. Also, the WHO and the Association of Colleges of Nursing recommended integrating disaster response training into nursing curriculums nationally and internationally to improve and enhance the competency level and confidence of nursing students in disaster situations. Therefore, to better understand nurses’ needs, in this study PI explored nurses’ perceptions regarding training needs.

**Disaster Knowledge**

Drawing from various definitions and elements of preparedness, Gillespie et al. (1993) conceptualized preparedness as a cycle starting with a preliminary level of awareness and followed by adequate knowledge of the potential threats. The second element to consider is disaster knowledge because the individual’s knowledge level affects their level of preparedness in dealing with a disaster. Disaster preparedness involves having adequate knowledge and responding effectively and quickly during disasters to combat the negative impact of these events (Gladston & Nayak, 2017; Labrague et al., 2018; Slepski, 2005). The successful improvement in nurses’ disaster preparedness knowledge will be reflected in their changing perceptions and practices. The complexity of disasters requires that each nurse acquire a knowledge base to plan for and respond to a disaster in a timely and appropriate manner (WHO, 2009). Hence, knowledge is the key to survival in the event of a catastrophe. According to Wang (2006), “An understanding of what audiences know about disaster preparedness will assist in understanding how they will be prepared and respond effectively” (p. 282).
In addition, an understanding of the staff’s knowledge deficit would assist in identifying weaknesses and strengths in disaster preparedness in ER. Nurses require a unique knowledge base to function effectively during a hospital’s response to disasters. Lack of knowledge and preparedness will make nurses feel vulnerable when facing the unexpected (Khan et al., 2017). Knowledge of disaster preparedness is essential for all health care professionals. It is a key concept in disaster management, and measuring knowledge is essential to determine their education and training needs in this regard.

Evidence has suggested that nurses’ knowledge about disasters is inadequate and that nurses are challenged with learning deficiencies. The literature I reviewed identified a wide array of nursing functions, roles, education and training, and backgrounds; however, no study concluded that nurses were fully or even adequately prepared with the necessary knowledge of disaster preparedness. Given the increased propensity of both man-made and natural disasters, learning more about nurses’ disaster preparedness will help direct training and educational efforts where they would be most effective (Gebbie & Qureshi, 2002).

Disaster preparedness in the KSA regarding the knowledge level of nurses is currently unclear because of limited or no research on this issue. In addition, accessing appropriate resources, such as relevant research, is essential to closing the disaster preparedness knowledge gap. Nurses in the KSA reported difficulty finding relevant research articles and information (Abosuliman et al., 2014). Furthermore, Whitehead and Arbon (2010) viewed lack evidence-based information as an international concern. Additionally, protocols and guidelines are frequently unavailable, the information in journals varies extensively, and articles and textbooks about disaster nursing are often outdated. Al-Khalaileh et al. (2012) suggested that the gap in information and knowledge is related to the decrease in the number of international journals
available in many developing countries. Measuring knowledge is essential to determine nurses education and training needs in this regard. Furthermore, Quarantelli (1982) identified 10 general principles of disaster planning to facilitate enhanced preparedness. One of the most important elements is knowledge, including knowledge of how people typically behave in disasters; knowledge of the hazard itself; and knowledge of the resources needed to respond to the disaster.

Alrazeeni (2015) researched Saudi Emergency Medical Service (EMS) students’ perceptions of disaster management preparedness. Alrazeeni’s main finding was that Saudi EMS students have inadequate disaster preparedness knowledge and skills. Participants believed that a combination of disaster courses in EMS curricula with practical training would help them prepare for disasters. In addition, Hammad et al. (2011) found that nurses were not adequately prepared because they lacked disaster knowledge; they further emphasized the importance of nurse preparedness because nurses are on the front lines when there is a disaster. A clear disaster plan may help nurses know their chain of command and the relevant disaster emergency plan and be familiar with and recognize their role when an event requires them to respond. These studies concluded that drills and continuous education courses would increase nurses’ knowledge of disasters and ensure their preparedness by increasing their confidence and ability to manage any disaster event (Al-Khalaileh et al., 2010; Al-Thobaity et al., 2015; Duong, 2009; Hammad et al., 2011; Usher et al., 2015). Previous studies have emphasized the need to investigate disaster knowledge among nurses. Disaster knowledge is an important domain to explore because nurses’ knowledge of disasters allows them to be prepared effectively and respond efficiently in a timely and appropriate manner. In addition, an understanding of self-perceived knowledge deficit would help identify weaknesses and strengths in disaster preparedness to make sense of an issue and make it more likely for nurses to take action.
Disaster Policy and Procedures

The third element is the policy and procedures practices. Within hospitals disaster preparedness is a written policy accompanied by procedures that prevent harm and minimize damage resulting from disasters (JCAHO, 2012). Hospitals need to implement policies to address any lack of preparedness among health care workers (Labrague et al., 2018). Fung et al. (2008) indicated that the WHO priorities include countries establishing a plan to implement disaster preparedness policies and procedures, making this an important domain to investigate. A disaster plan can be a starting point for organizational policies and procedures to ensure proper nurse preparedness during a disaster. The response should be effective, timely, and appropriate. Having policy and procedures is not enough because the literature shows a lack of awareness of existing policy and procedures and an absence of nurses’ input.

Many nurses lacked confidence in implementing disaster plans, indicating that they are unaware of what disaster policy and procedures entail or they do not know how to execute them because of lack of knowledge about the chain of command, disaster skills, and similar functions (Tichy et al., 2009). Furthermore, hospitals need to implement policies to address any lack of preparedness among health care workers (Labrague et al., 2018). There is a need to develop broad disaster preparedness policies to ensure that different sectors and departments involved in disaster preparedness pursue common goals. Policies ensure assignment of responsibilities for achieving these goals to various organizations and sectors and assist in the decision-making process (Allen, 2006).

Policies and procedures in the workplace will allow nurses to respond effectively to major incidents if they arise. Nurses’ lack of awareness about hospital disaster preparedness policy and procedures leads to an inability to prepare for and manage disasters in hospitals.
(WHO, 2009). In addition, for nurses to initiate a disaster plan, they must participate in the review of policy (Schultz, 2012). Nurses’ participation in disaster planning for policy and procedures is important to ensure that nurses are aware of and prepared to deal with other factors that may arise. Nurses’ opinions must be considered when the policy is reviewed and updated. They don’t know how to respond, communicate, and formulate a new plan if the situation during a critical event or disaster changes suddenly. It is important to note that written policies and procedures do not guarantee preparedness (Morrow, 2007). Policies and procedures should be viewed as one of the elements of preparedness activities aimed at improving disaster response and increasing nurses’ awareness of tasks that require them to respond during disasters (Ansal et al., 2009; UN, 2003).

Previous studies have emphasized that nurses must know the relevant disaster plan so they may be familiar with and recognize their role when an event requires them to respond (Al-Khalaileh et al., 2011; Al-Thobaity et al., 2015; Duong, 2009; Hammad et al., 2011; Whetzel et al., 2011). Hammad et al. (2011) found that almost all nurses were confused about their disaster planning role. Hence, clear disaster policy and procedures will inform nurses of their chain of command and assess the nurses’ role in disasters. Whetzel et al. (2011) found that, while most respondents knew that their hospital had a disaster policy and procedures, few knew where it was located, and others did not know of the location of a hospital disaster plan or show awareness of the disaster policy and procedures. Whetzel et al. concluded that preparedness involves nurses not only knowing the location of the disaster plan but also knowing their roles in it.

Understanding hospital policy and disaster plans may improve nurses’ knowledge and skills and, consequently, their preparedness to manage disaster events (Jagim, 2007). French et al. (2002) investigated the needs and concerns of the nurses who responded during Hurricane
Floyd. Findings revealed that hospital policies were inadequate to deal with valid concerns of nurses. French et al. were unable to conclude why nurses did not understand their role after reading the hospital disaster plan, and the authors suggested further investigation. It may be reasonable to suggest simplifying the policy and presenting nurses’ role in a clear way (Powers & Daily, 2010). Many researchers have recognized that more research is needed in hospital disaster preparedness plans and policies. Therefore, in this study PI intended to determine whether nurses are aware of hospital disaster policies and procedures and whether those policies and procedures address the needs and concerns of the nurses who have worked during disaster events.

**Previous Research Designs**

Instrumentation to measure nurse preparedness for disasters remains a driving force for adequate assessment on a micro and macro level. A study by Garbutt et al. (2008) determined the education and training needs of Wisconsin nurses. Garbutt et al. examined the Emergency Preparedness Information Questionnaire (EPIQ) survey with 776 nurses. The EPIQ is a 44-item instrument that measures nurses’ familiarity with emergency preparedness using eight dimensions. EPIQ also includes a self-reported measure of overall preparedness for a large-scale emergency event. Garbutt et al. concluded that the questionnaire was a reliable and valid instrument for assessing nurses’ familiarity with emergency preparedness. Garbutt et al. expanded the EPIQ to include the 28 nurses’ self-reported familiarity with emergency preparedness competency dimensions. They suggested further investigation studies done to examine nursing preparedness and emergency preparedness curricula.
A study by Hammad et al. (2011) examined Australian registered nurses’ knowledge and perceptions of their disaster response role. The researchers distributed a self-designed questionnaire to 152 ER nurses. The questionnaire incorporated five main areas of questioning: demographics, knowledge, awareness, previous disaster response experience, and roles of nurses in disasters. Hammad et al. concluded that the nurses would benefit from more appropriate disaster education and training and suggested a need for further research into the appropriateness of education and training.

Al-Thobaity et al. (2016) developed a new disaster competency tool consisting of questions in scale measure. The tool has established psychometric properties to evaluate nurses’ competencies in disaster response. Al-Thobaity et al.’s study demonstrated that this tool is valid and reliable in assessing competencies and might be useful for nursing education. They also identified three core factors in preparedness: competencies in disaster nursing, which focuses on the acute response phase; barriers to disaster nursing (crucial for preparedness); and nursing roles in disaster management (important for planning, education, and drills). The availability of this new disaster competency instrument is a recent development, and Al-Thobaity et al. concluded that it might help improve disaster preparedness in the KSA in the future. The last tool, used in nursing assessment for over 10 years, is the Disaster Preparedness Evaluation Tool (DPET). Bond and Tichy (2007) originally developed the DPET to assess nurse practitioners’ preparedness for disasters and to measure knowledge and skills in all phases of disaster management. The development of the DPET stemmed from suggested disaster preparedness competencies from the American Association of College of Nursing Essentials of Master Education (1996) and the nurse practitioners’ competencies of the National Organization of Nurse Practitioner Faculties (NONPF, 2002). The DPET instrument has 47 Likert-scale items with six response options.
ranging from strongly disagree to strongly agree. The tool is divided into three phases: 25 items related to the preparedness phase, 26 items related to the response phase, and six items related to the recovery phase.

Overall, the development of disaster nursing curriculum in the KSA and many other countries continues to lack a universally accepted tool for assessing disaster nursing competencies. A thorough search did not identify an existing survey tool that would suit the purposes of this study. This study uses a qualitative approach to hear nurses’ voices and provide essential information on their perceptions of disaster preparedness, awareness, and ability.

Gaps in the Literature

Although the existing literature covers the topics of disaster preparedness, significant gaps in the practice of disaster preparedness worldwide are well documented (Ben-Ishay et al., 2016). A wide range of institutions have developed training programs to prepare nurses to respond to disasters. However, the competencies are neither consistent nor evidenced based (Banajah, 2018). Because there are gaps in general knowledge around disaster preparedness, it is not surprising that there is limited knowledge about Saudi nurses, specifically, and no existing systems in place to assess and improve their disaster preparedness. There are no clearly defined guidelines, standards, or existing protocols in KSA to understand the needs of disaster training (Al-Thobaity et al., 2015; Banajah, 2018; Bin Shalhoub et al., 2017). There is limited in the literature about required competencies or how to best prepare to be a disaster health care provider. There is no comprehensive curriculum for responders. National response plans and annexes call for establishing alternative, nonhospital, field medical facilities, staffed by volunteers, to treat thousands of victims of large-scale events (Slepski, 2007). Federal planners
assume that trained and competent health care workers will volunteer to staff these facilities. Yet no studies have addressed whether volunteers are prepared and competent to function in these roles (Slepski, 2007).
Summary

In this chapter PI provided a comprehensive review of the literature related to disaster nursing. This study covered the existing research on disasters, including health system responses and nursing roles during disasters. This study explored existing theoretical and conceptual frameworks that provide the basis for this research, and PI examined previous research designs for quantifying disaster preparedness. Finally, PI identified gaps in the research body and paths forward. There are limitations in many of the studies presented in this review. Most important, disaster preparedness itself has not been well defined. Disaster training, required to achieve preparedness, has neither been standardized nor validated. The appropriateness of what constitutes disaster knowledge is unclear, and the lack of understanding of what constitutes disaster preparedness is not evident.

Disaster preparedness has continued to receive less attention in Saudi hospitals even though preparedness has been identified as a critical factor in a disaster event. Previous studies have examined why the lack of disaster preparedness exists and attempted to mitigate the gaps. For example, Al-Thobaity et al. (2015) and Bin Shalhoub et al. (2017) demonstrated that hospitals suffer from an insufficient level of preparedness and revealed weakness in hospital disaster management, including confusion over roles and responsibilities, poor communication, lack of planning, and suboptimal training. The literature has also shown that ER workers, such as nurses, are the first line of response in disaster situations and must understand the national disaster management cycle. Without nurse integration at every phase, hospitals and communities lose a critical part of the prevention, preparedness, and network. During major disaster events, the demand for nursing care is greater than the demand for any other health care professional. Yet research does not clearly demonstrate why nurses remain unprepared for disaster events.
More information is needed to advance the understanding of why nurses remain unprepared for disasters. Understanding, from Saudi nurses’ perspectives, the reasons for lack of preparedness in three specific areas awareness of disaster policy and procedures, disaster knowledge, and disaster training may lead to increased preparedness and improve the current disaster management situation in the KSA. Other variables, such as demographics, work experience, disaster experience, and education, are equally important to determine barriers to preparedness, develop a more precise picture of what predicts preparedness, and leverage individual strengths to improve preparedness.

It is clear that emergency health care providers, including nurses, are largely unprepared to respond to and manage major disaster events (Baack & Alfred, 2013; Fung et al., 2008; McKibbin et al., 2011). Crucial information is needed from the nurses’ perspective to advance the understanding of which areas of disaster preparedness need improvement. The literature has revealed gaps in disaster preparedness worldwide (Ben-Ishay et al., 2016). There is limited research concerning disaster preparedness of Saudi nurses, and there is no existing system in place to assess and improve Saudi nurses’ disaster preparedness. Finally, there are no clearly defined guidelines and standards or existing protocols in Saudi Arabia for understanding the needs of disaster training. This study’s results will enhance the role of nurses in disaster preparedness, develop strategies to improve disaster knowledge, and identify training needs.
Chapter III

Research Methods

This chapter presents the research methodology and procedures used in conducting the research for Exploring Saudi Emergency Room Nurses’ Perceptions About Their Disaster Preparedness. It also describes the research questions, sample participants, inclusion and exclusion criteria, protocols, and informed consent considerations for the study. The chapter closes with a data analysis plan.

Research Design

A basic qualitative approach allows for flexibility in study design in response to findings. This study explored Saudi nurses’ perceptions, in their own voices, of their level of disaster preparedness, gaining an in-depth and improved understanding of the nurses’ role and practice in disaster preparedness.

Qualitative research involves an inductive approach of exploring participant perspectives through interviews, providing rich insight through dialogue (Creswell, 2013). The qualitative approach helps make sense of the meanings people bring to a phenomenon (Thomas, 2011) and helps to provide a preliminary understanding of the phenomenon (Sandelowski, 2003). In this case, the phenomenon under investigation was disaster preparedness among Saudi ER nurses. Qualitative research methods have been previously used to gather data and understand health care workers’ perceptions and practices regarding hospital emergency and disaster preparedness (Pope & Mays, 1995).
A basic qualitative design was selected to explore nurses’ perceptions about disaster preparedness in detail; assess their level of training; their level of awareness of policy, procedures, and their knowledge in disaster preparedness; and gather in-depth narrative responses to perceived barriers. This method was selected to provide insight into which barriers persist and which have been overcome.

**Sample Participant and Selection Criteria**

The study participants in this research were Saudi nurses who were working in ER. Participants who met the selection criteria were invited to participate in one-on-one phone interviews. Selection criteria were designed to screen for Saudi nationality, Saudi licensed ER nurses with sufficient experience to inform the research questions. The Saudi Commission for Health Specialties is the source of verification for Saudi health care providers such as practicing nurses. To work in Saudi hospitals, proficiency in spoken English is required. Participants had to be 18 years or older to adhere to the Saudi Commission for Health Specialties license requirements and research ethics. Participant inclusion criteria for nurses can be summarized as follows:

- Currently employed in an ER
- Hold a Saudi Commission for Health Specialties license
- Speaking and reading proficiency in English
- Eighteen years of age or older
- Saudi nationality
- More than one year of experience working in an ER

Participants were excluded if any of the following applied:
• Do not currently work in an ER
• Do not hold a Saudi Commission for Health Specialties license
• Lack of speaking and reading proficiency in English
• Under Eighteen years of age
• Not of Saudi nationality
• Less than one year of experience working in an ER

Sampling

This study utilized a combination of purposeful criterion and snowball sampling. Purposive sampling involves selecting participants strategically to understand the central phenomenon in question (Patton, 2002). Criterion sampling seeks participants who are predefined and homogeneous and who meet specific criteria (Creswell, 2013; Patton, 2002). Criterion sampling increases the generalization and applicability of information gathered because of the homogeneity among cases (Creswell, 2013). In this case, purposeful criterion sampling was used to recruit participants—ER nurses in Saudi Arabia—who could best provide answers to the research questions at hand. Snowball sampling was used in asking current participants to identify other Saudi nurses who might meet the criteria for participation (Durdella, 2018).

Qualitative analyses require only a small sample size to attain theoretical saturation—that is, the researcher has obtained enough data to sufficiently address the questions posed (Creswell, 2013). Although there is no recommended set number of participants who should be interviewed for a basic qualitative study, enough participants should be interviewed to allow for rich data to be collected to create themes and understand the essence of the experience (Creswell, 2013). Therefore, for this study, a sample size of about 15–25 individuals were initially selected, and
recruitment continued until data saturation was reached. Data saturation occurs when new information is not being obtained from study participants during interviews (Creswell, 2009) and no new themes are observed by the addition of new participants (Durdella, 2018). A sample size of 20 Saudi ER nurses was set for this study to attain data saturation.

**Setting**

The research was conducted through Zoom and internet-based communications applications similar to Skype.

**Access**

The study was made accessible to ER nurses working at Security Forces Hospitals in KSA (Appendix F). The second method of recruitment was a solicitation flyer (Appendix B) distributed through Twitter’s Saudi Society Emergency Medicine Group.

**Recruitment**

Recruitment followed a tiered approach. The first recruitment strategy was utilized at the intermediary existing Security Forces Hospital in Riyadh (Appendix F). Ethical approval was initially obtained from Seton Hall University and then through the Security Forces Hospital Institutional Review Board (IRB) committee (Appendix G). After receiving IRB approval, the principal investigator (PI) began recruitment through a solicitation flyer posted by the ER director in the ER nursing areas at the Security Forces Hospital and Twitter’s Saudi Society Emergency Medicine group (Appendix B). The second method of recruitment was an electronic solicitation flyer distributed in the Twitter group. Individuals were encouraged to share the solicitation letter with other Saudi ER nurses who met the inclusion criteria (Appendix B). This
type of unlimited referral recruitment, in which respondents may forward recruitment media to any number of secondary recipients, and the secondary recipients are then able to forward the recruitment media to any number of tertiary recipients, is termed exponential snowball sampling (Goodman, 1961). For this study, interested ER nurses contacted the PI via email or phone, and the PI scheduled a brief screening call to ensure inclusion eligibility and complete study enrollment. All interested participants who met the inclusion criteria, as determined during the screening call with the PI, were scheduled for a one-on-one phone interview. Enrolled participants signed a letter of consent (Appendix A) and determined the time and place of the interviews.

**Data Collection**

Data collection occurred through semi-structured interviews with open-ended questions (Appendix E). During the interview process, the PI followed an interview guide with purposefully ordered and structured questions to promote flow and avoid bias. Although each participant was asked the same set of broad questions, each interview’s semi-structured nature allowed for flexibility in expanding on answers. Furthermore, this structure allowed the researcher to probe for clarification and ask follow-up questions. One-on-one phone interviews enabled the researcher to establish rapport with the participants and gain their full cooperation (Sturges & Hanrahan, 2004). Open-ended questions allowed participants to express their opinions and understanding of disaster preparedness and offer more information, providing opportunities for in-depth explanations necessary for generating sound theories (Creswell, 2013).

At the beginning of each interview, the PI obtained verbal permission to record the participant and explained the purpose of the study. Interviews took between 30 and 60 minutes.
At the end of the interviews, the participants were asked what else they would like to add and were thanked for their time. All interviews were conducted, and audio recorded using Zoom. Using Zoom allowed each interview to be transcribed verbatim. Zoom integrates with Otter.ai to provide interactive transcripts in real time and post meeting. Zoom security features include end-to-end transcription, password-protected meeting rooms, and secure local storage of recorded interviews, providing reasonable confidentiality. Once an interview was performed, the PI assigned a participant study code “RN#,” with the number sequentially assigned to maintain confidentiality. The participant study code, and the informed consent of participant identity attached to it (Appendix A), were linked to the participant identity on a master key, secured by the PI, and maintained separately from deidentified interview transcripts. The PI was the only person who had access to identifiable data and the master key. The PI referred to the participants only by their participant study code throughout the recorded interview, data analysis, and within disseminated results. During transcription, the PI redacted any identifying information offered by the participants, such as workplace or names.

Data Analysis

The research was inductive and thematic. Data analysis was ongoing, beginning with completion of the first interview and continuing through attainment of data saturation (Creswell, 2013; Seidman, 2013). Once data saturation had been reached, interviews ceased but data analysis continued (Creswell, 2013).

Transcription

Each recorded interview was transcribed verbatim, one at a time, immediately following the interview. A transcription key was used to capture voice inflection, pauses, and other
mannerisms and emphases participants placed on their words (Creswell, 2013). All personally identifiable information was removed, and confidentiality of the participants was maintained by referring to each participant only by his or her participant number. After transcription, the PI checked the transcripts for accuracy by listening to each interview recording while reading through its transcript multiple times to gain familiarity with the content and discern initial themes (Creswell, 2013; Patton, 2002; Saldana, 2016). Rather than using computer software such as NVivo, the PI coded transcripts manually. As a novice researcher, the PI used this method to give the research a tangible quality. First, conducting independent analysis provided for a better and more insightful understanding of the emerging themes. Second, this method gave the PI a cognitive and literal overview of the data and allowed for connections to be made. Third, there were pragmatic issues to consider, such as the time it would take for the PI to become proficient in using coding software (Welsh, 2002). Finally, Basit (2003) found that using a software approach to coding qualitative research might be more suited to those who wish to ultimately quantify their data. This approach did not match the PI’s objective of using this research as a foundation for further qualitative analysis.

**Coding and Categorizing**

All codes were derived through emerging themes in the interviews (Glaser, 1965). This inductive approach meant that the PI did not need to use a preconceived list of codes, but rather, codes emerged based on how participants responded to interview questions. This approach also allowed for more flexibility in analysis because the codes came from the data (Creswell, 2013; Gale et al., 2013). All of the data from the interview transcripts were initially coded line by line and consisted of a few words to a full paragraph (Creswell, 2013). Because
line-by-line coding was used initially, codes were very specific, with the idea that similar codes could be combined later to create themes (Durdella, 2018). In the second code cycle, the PI reassembled the data and combined similar codes to identify the most frequent or significant ones and to develop categories representing common ideas (Creswell, 2013; Fram, 2013). Codes were checked by the PI and the peer reviewer. The peer reviewer was an individual in the nursing profession with expertise in qualitative data analysis. The peer reviewer reviewed the codes developed by the PI to ensure they accurately reflected the text. If any codes were not agreed upon by both parties, the PI and the peer reviewer collaborated and discussed the meaning of the text to determine which code best reflected its meaning. Once all interviews were completed, there was 80%–90% agreement between the PI and peer reviewer on coding, data saturation was achieved, and the codes were combined to develop overarching themes (Creswell, 2013; Miles & Huberman, 2014).

**Themes**

Creswell (2013) concluded that five to six themes are enough for a qualitative approach to analyze and interpret data. Therefore, after all codes were created, the PI developed categories by combining similar codes that represented a common idea (Creswell, 2013; Durdella, 2018). Grouping similar codes and categories together to create themes allowed the data to be analyzed more efficiently (Creswell, 2013; Durdella, 2018). The PI developed overarching themes by further classifying several categories that formed a common idea and analyzing them to look for consistency and repetition to establish patterns (Creswell, 2013). By the end of this process, [5] themes had been formed and applied to interpret the findings and address the research questions.
Interpretation

The PI interpreted the data using themes to explain findings (Taylor-Powell & Renner, 2003). The disaster management model was used as a lens to interpret findings and explain the results. Any results that could not be explained by this model were noted. The PI noted any results that could not be explained by this model. The interpretation was grounded in the larger research literature on this topic, and the PI reflected on lessons learned in the process of undertaking and analyzing this research (Creswell, 2013).

Trustworthiness

Because this was a qualitative study, trustworthiness standards needed to be established. To establish trustworthiness, qualitative research must meet four standards: credibility, transferability, dependability, and confirmability (Lincoln & Guba, 1985). Each of these concepts is described below.

Credibility

To establish credibility in this research study, the PI used thick descriptions, member checking, prolonged engagement, and peer reviewing. The PI achieved credibility through the following actions:

- **Member checking**—that is, having participants check transcripts for accuracy (Creswell, 2013).
- **Prolonged engagement** between the researcher and participant, allowing them to speak freely about each issue, gain an understanding of the problem, and establish trust (Creswell, 2009; Yin, 2016). Interviews continued through questioning until the speaker
had nothing more to add to the answers. The researcher spent 2 months conducting interviews with the intended participants.

- **Thick description**—that is, collecting and reporting detailed, precise descriptions of data in context to allow judgments about transferability to be made by the reader (Creswell, 2013; Yin, 2016).

- **Peer review** in research development and checking coded data, with 80%–90% inter-code agreement between the PI and peer reviewer (Creswell 2013).

**Transferability**

Transferability refers to the extent to which findings are applicable in other contexts (Lincoln & Guba, 1985). The PI achieved transferability in this study by providing thick descriptions so that those who seek to transfer the findings can judge transferability individually (Lincoln & Guba, 1985). In addition, direct quotations from the interviews are shared to provide context to the themes derived from the data.

**Dependability**

Dependability refers to whether a study and its findings are auditable and that another researcher can clearly follow the decision trail (Sandelowski, 1986). The PI achieved dependability in this study through the following process. First, audit trails were developed by the PI taking notes and recording and transcribing interviews verbatim to highlight thoughts and feelings during the interview process. This process helped the researcher accurately portray participants’ responses and show confirmability of findings (Creswell, 2013). Second, inter-code agreement was established by having an independent reviewer analyze and code transcripts and audit the creation of categories and themes (Creswell, 2013).
Confirmability

Confirmability is established when credibility, transferability, and dependability are all achieved (Lincoln & Guba, 1985; Tobin & Begley, 2004). The PI maintained confirmability in this study by remaining flexible in terms of thought, position, and self-awareness of personal bias throughout the research process.
Chapter IV

Results

The results will be presented in two sections. Whereas the first section includes demographic data, the second section contains the data collection results and analysis, organized by overarching themes. These themes emerged organically from the data during the interview process, and they address the research questions.

Descriptive Statistics

Sample Characteristics

A total of n = 20 Saudi ER nurses participated in the study. Saturation was reached at n=20 participants. Prior to the interviews, the authors generated various descriptive statistics to characterize the sample participants. Following the telephone screening interview, the authors asked participants demographic questions about gender, age, educational level, and the country where they were educated. To gain essential information about professional experience, they asked participants to specify whether they worked at a public or private hospital and to indicate their current clinical position and the number of years spent working in the ER.

Demographics

The participants were mostly male, younger than 30, well educated, and schooled within the KSA. As shown in Figure 2, 70% of the participants were male, while 30% were female. Younger nurses under the age of 30 represented 55% of the sample. The remaining participants were aged 31–40, and no participants were over the age of 40 (Figure 3). A large majority of
participants (80%) held a bachelor’s degree, while 10% held a master’s degree and 10% a diploma degree (Figure 4). Most of the participants (85%) obtained their education in Saudi Arabia, whereas 15% studied abroad (Figure 5).

**Nursing Experience**

Workplace, position, and experience were similarly skewed. All participants indicated they worked in a public hospital setting (Figure 6). Three quarters or 75% of the participants were specialist nurses, followed by 20% senior nurses and 5% nursing technicians (Figure 7). Most participants (60%) had 1–5 years of ER experience, followed by 25% who had 6–10 years of ER experience and 15% who had 11–15 years of ER experience (Figure 8).

**Figure 2.**

*Distribution of Study Participants by Gender*

Note: This figure shows the distribution of the participants’ ages.
Figure 3.

*Distribution of Study Participants by Age*

As shown in Figure 3, there was a good representation of individuals between the ages of 18 and 40.

Figure 4.

*Distribution of Study Participants by Education Level*

Figure 4 illustrates the participants’ highest degree attained, with 80% having a bachelor’s degree, 10% a master’s degree, and 10% a diploma degree.
Figure 5.

Distribution of Study Participants by Location of Education

Figure 5 illustrates where participants obtained their education. For 85% of the participants, this was inside Saudi Arabia, whereas 15% studied abroad.
Figure 6.

*Distribution of Study Participants by Type of Hospital*

Figure 6 illustrates that all participants indicated they worked in a public hospital setting.

Figure 7.

*Distribution of Study Participants by Current Clinical Position*

Figure 7 shows that 75% of the participants were specialist nurses, followed by 20% senior nurses and 5% nursing technicians.
As shown in Figure 8, most participants (60%) had 1–5 years of ER experience, followed by 25% with 6–10 years and 15% with 11–15 years of ER experience.

Themes

In the following presentation of results, the study findings are organized by the emergent themes that have been named and defined according to their relevance to specific research questions. Table 2 lists the overarching themes that emerged throughout the interview and data analysis processes. These themes address Saudi nurses’ perceptions of their own disaster preparedness (DP).
Table 2.

*Data Analysis Themes*

<table>
<thead>
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<th>Themes</th>
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<td>Theme 1: Received insufficient disaster training</td>
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<td>Categories: Drills, Needed more or better disaster training programs, and frustrated with barriers to obtaining DP training</td>
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<td>Theme 2: Lack of disaster knowledge</td>
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<td>Categories: Absence of nursing school DP curriculum and limited sources of information</td>
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<td>Theme 3: Policy and procedures (P&amp;P) existed on paper only</td>
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<td>Categories: Varying perceptions of P&amp;P and lack of awareness of existing DP</td>
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<td>Theme 4: Barriers associated with DP</td>
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<td>Categories: Staffing barriers, communication barriers, organizational barriers, and cultural barriers</td>
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<td>Category</td>
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<td>Lack of psychological preparedness</td>
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Theme 1: Nurses Received Insufficient Disaster Training Programs

In response to the first research question, *What is the Saudi emergency room nurses’ perceived level of training on DP?* Many participants discussed receiving insufficient disaster training. This theme of insufficient training can be broken down into three categories: drills, the need for more and better-quality disaster training programs, and frustration with the barriers to disaster training. The first theme addresses how nurses perceived their disaster training. Participants in the study highlighted the three major concerns about disaster training, including varying perceptions about drills, the need for more comprehensive disaster training programs, and frustration with the barriers to disaster training.

**Category: Drills.** Most participants reported dissatisfaction with the disaster drills, namely because they were limited, infrequent, unrealistic, and the instruction was poor. One participant (P20) said, “to be honest with you it is not efficient because of those who do the training programs, especially in the safety measurement. They’re not qualified enough, and the feedback is not good enough.” Some, such as P15, described the drills as infrequent and lacking in substance:

Ah, the drills. Ah, yeah, I can’t recall the last time I did it. I may tell you, but I think, as I’ve told you, it's like a casual gathering. We’ll share some information and we’ll just you know—we have done this for the records.

**Category: Need More or Better Disaster Training Programs.** Participants shared the belief that training programs require a more serious approach. P4 said, “Seriousness, that’s . . . I think the only word that can explain my thoughts, they need to be more serious about training. . . . Put the good people, the knowledgeable people in positions of having or fostering the knowledge.” Some participants asked for more practice sessions and access to disaster courses.
P12 said that as “the factor for having sufficient training programs I would suggest drills. . . . The drill is always sufficient, which is a [good] practice, always giving skills to staff.” In addition, P20 addressed the limited accessibility of specific DP training outside of the major cities, saying, “For example, we didn’t have the Canadian triage and acuity scale (CTAS) in our region. . . . If you want to get that you must go to Riyadh or Jeddah. We must go far away, about 500 kilometers.”

**Category: Frustrated With Barriers to Obtaining DP Training.** Participants reported several barriers to disaster training, including expense, poor quality, the lack of qualified teachers, general training that was unrelated to disasters, and inferior online training platforms. P20 explained,

Courses are so expensive … you will not find it like role play, only passive education, like videos and lectures, not like psychomotor training methods. I mean, we are not applying it . . . like, you can say that you are not really prepared by practice as in real life, that’s it. So, it is all passive education methods.

Some participants reported a scarcity of quality DP courses and raised the need for more regular, frequent training sessions. For one participant, the fact that disaster training was offered only once yearly meant that employees hired at any other time of the year went without crucial knowledge. P7 explained:

In my hospital usually during Hajj time, we have this duty, but only for this time; they gave us this training only. So, for me, I would prefer to do training for more than once a year for like a week. And sometimes also because the yearly training [had already] happened, the new staff didn’t know that they had to wait until next year.

Moreover, DP coaches may not stay abreast of current best practices, meaning the courses they
offer may not be evidence based. Some participants also discussed nursing school itself as a barrier in that the faculty may lack DP knowledge, or nursing schools may not offer disaster training at all. P18 said,

To acquire this knowledge, I think the barriers our nursing college in Saudi Arabia is limited in [regard to] the disaster, and only focus [on training] for general nursing, surgical and medical nursing. . . . I think we have [to focus on disaster] by [opening] some specialty in the nursing college by [focusing] on the ER and [including] the disaster. They’re not bringing professional teachers or professors to the university.

**Theme 2: Lacking Disaster Knowledge**

In response to the second research question, *What is the Saudi emergency room nurses’ perceived level of knowledge of DP?* the participants suggested that most nursing schools in Saudi Arabia lack DP content in their curricula. Additionally, the participants reported that only limited sources of DP information were available to them. Saudi nurses lack DP knowledge because of these two factors.

**Category: Absence of DP Content in the Nursing School Curriculum.** All participants reported the absence of disaster knowledge and of DP curricula in their nursing education. They described their nursing school education as based on a medical foundation unrelated to disaster management. One participant (P12) said, “we didn't have anything called disaster class . . . it’s all about unstable things about patients.” Some, such as P7, addressed how the absence of disaster training in their schooling affected their work:

I really suffered at the beginning of my career, my first 6 months, it was a disaster for me in the ER. But Alhamdulillah, with time I get better because I started as an ER [nurse]
during Hajj time and you know that area. It’s considered a disaster and you need to be prepared [for] everything.

Some participants suggested an open specialty track for graduate studies in disaster management, noting that no such track exists in Saudi schools as it does in the United States and Canada. P15 explained:

Really there is no direct teaching or chance given to deal with . . . disasters, as disasters, naturally or unnaturally. Other things, I just told you to open the tracks for emergency management’s academics to be studied through. I think in the United States, there [are] a lot of universities who offer this track, but yeah, I wish to see this one here in Saudi.

Owing to the lack of formal disaster knowledge in the school curriculum, participants struggled to seek out other sources of this knowledge. The second category that arose was limited sources of information.

**Category: Limited Sources of Information.** Participants acquired disaster knowledge from the following sources: ER experience, self-learning, and workplace policies and procedures. When asked where they learned about DP, as one participant (P32) said,

The practical side is the area I have learned the most from and after that, I decided to read more about disasters. The second source is reading and searching in the references about disaster management. The third source was attending this specialized course.

Some participants addressed the lack of availability or encouraged nurses to attend disaster training in the workplace; for example, P2 said, “I try to prepare myself. So, yeah, this is actually not forced or by a suggestion from my manager no, this I do for myself. I’m the one who registered myself in this program . . . I am the one.”
The absent or inconsistent sources of knowledge led to a profound variation in the participants’ definitions of disaster. Addressing this lack should be the initial step for disaster planning and the development of a disaster nursing curriculum in Saudi Arabia. The aim of this study is to identify the nurses’ perception of DP. In this study, participants had varying perceptions of disasters and named examples of different types of disasters during their interviews. Most participants perceived their DP as insufficient in that they defined disasters solely based on their personal disaster experience. They felt that they lacked knowledge about disasters in general, and more specifically, lacked knowledge about biological and chemical spillage information, about the management of bioterrorism, and about infectious and airborne diseases such as COVID-19.

Additionally, most participants labeled disasters based on the number of victims. In Saudi Arabia disasters include road traffic accidents (RTAs), floods, stampedes during Hajj, and infectious disease outbreaks like MRSA and COVID-19, which are all events that can result in mass casualties. One participant (P2) characterized disasters by the number and variety of victims affected, saying,

Like in my hospital. If more than 10 critical patients come in . . . {redacted workplace}. (Laughing) You know, all the crisis in Saudi Arabia is a car accident, it will be a bigger problem. Even if you have to prepare even for all the ages because you don’t know what you [will get] all the criteria will come.

Some participants, such as P1, addressed how they struggled to handle unexpected events:

What am I supposed to do? What if there are 100 [patients in] a major building collapse. . . . We [wouldn’t] know how to manage it because you didn’t get training, you didn’t have
knowledge about it. . . . What [if] these disasters came all of a sudden, we [wouldn’t] know, not at all!

Moreover, some participants described how the unpredictable nature of disasters or novel diseases with no currently available treatment interfered with preparation and how their training failed to cover the broad spectrum of disasters. P9 said,

So, disaster, in general, [is] like a huge event. So, we are not really well prepared . . . but we don’t have enough information about disaster events like biological, nuclear, [or] pollution disasters [to know] how to treat well. . . . Disaster means a huge event [that is beyond] my capability and the ability of my hospital. So, all obstacles that prevent me [from helping] the victims well. And beyond my, my train[ing] and my skills.

Regarding a novel disease with no currently available treatment, P2 stated,

As I mentioned before for the car accident for just one scenario, we are really fit, but for the others, still we have really to improve. Because they just focus on the most, you know, the most [common] scenario coming just, but I think after this COVID-19 pandemic. They will change.

Theme 3: DP P&P Existed on Paper Only

In response to the third research question, What is the Saudi emergency room nurses’ perceived level of awareness of P&P for DP? The following theme emerged: DP P&P existed on paper only and was not commonly implemented in practice. This theme comprises two categories: the nurses’ perception that no one follows P&P, and the lack of awareness of the existence of a disaster plan.

Category: Varying Perceptions of P&P. Participants contrasted written policies with the practical application thereof and described P&P as becoming outdated because the written
and documented P&P were only present to obtain certification or accreditation. Also, participants emphasized the need to standardize the language in disaster protocols across all hospitals, and they acknowledged that most workplaces lacked providers with disaster P&P expertise, highlighting the need for formal disaster team guidelines.

One participant (P1) expressed frustration with this discrepancy between policies and practical applications regarding chemical exposure in the workplace, saying “I found a very clear policy and procedure . . . but when I tried to apply it, it was really challenging because it is . . . not compatible with the real situation.” P4 reflected on the lack of coordination between the administration and providers:

Yes, we do have protocols, yes, we have document papers, but it’s not reflected in the reality. Yes, they gave me the paper. . . . They are really perfect on the paper. [P&P] are really nicely outlined easily to be followed. So, even to be memorized. But again, in terms of practice, there is no confidence.

P20 and P4 believed their workplaces had documented P&P purely to obtain approval from JCIA or the CBAHI. P20 expressed frustration that disaster policies are copied from one hospital to another without appropriate adaptation:

You’ll find the same disaster plan; three or four hospitals copy it from other hospitals. . . . Ah, it’s just that this hospital mapping is different from another hospital, and the resources are different, and even the exit doors which is . . . wrong to say—I’m sorry for saying that. So, it is not applicable.

Also, P4 raised the issue of professional liability concerns on the part of the administration, saying “at the end of the day, they just want your signature to be filled and put onto paper and then file your file.” Most participants identified a lack of nursing involvement in the
development and implementation of disaster plans, noting that their institution’s policies were out of date or unclear. P1 stated,

As nurses working in the ED, actually we are the main core of this department. So, the main core and the strongest team are not involved with you! I think we’re supposed to be involved as nurses, and we are supposed to be engaged in order to improve this disaster plan, otherwise, it is not gonna help, we will [make] the same mistakes.

**Category: Lacking Awareness of Existing Disaster Plans.** Some participants were unaware that their workplace had a disaster plan in place at all. P23 explained:

Actually, just recently I [came to] know that we have a disaster department. I was not aware of it. I’ve been working in an emergency [department] for 2 years. I haven’t heard of it. It would be really helpful if they increase[d] training and presentations; they could provide for the staff, not only for the nurses’ positions [but] also for other health care providers as well.

**Theme 4: Barriers Associated with DP**

In response to the fourth research question, *What perceived barriers do Saudi emergency room nurses associate with their preparedness for disasters?* The following theme emerged. The data analysis revealed the theme that barriers exist to DP in nursing. There was no a priori list used when developing themes, but the barriers noted in this study are linked with the previous DP literature on barriers (Hammad et al., 2012; Johnstone & Turale, 2014; Ogedegbe et al., 2012). Participants noted the specific barriers they had to overcome to successfully prepare for disasters. This theme consists of four categories: staffing barriers, communication barriers, organizational barriers, and cultural barriers.
**Category: Staffing Barriers.** Most of the participants addressed the shortage of staff as a factor leading to the lack of DP and the limited time for attending any training courses. One participant (P2) noted the difficulty of attending training in the presence of staffing shortages, saying, “most of the courses will not [be just] for 1 day, so all the courses. It will take time [with] a staffing shortage. Sometimes you will not allow this staff to go for more than 3 days.” Participants also discussed how the difficulty of keeping up with an overwhelming amount of work interfered with DP training. P20 discussed the issue of work overload by explaining: “Sometimes we have more than 8 hours of duty. For example, we are late, we cannot go before finishing the duty in time, so the overload is the first barrier to [being] trained.”

**Category: Communication Barriers.** Communication barriers existed between the ER and other facilities or other departments in the hospital. Participants faced teamwork issues and a lack of communication, which directly conflicted with work during disaster situations. At times, communication broke down between the ER and other facilities like Saudi Red Crescent and EMS. One participant (P12) addressed this issue by saying,

Most of the problems we [do] not hear anything [about] from the wireless. Another issue, most likely, the Civil Defense, they are using the Arabic language and we received . . . the announcement in Arabic, we tried to catch it up and contact them, but the issue [is] that 80% of the staff from the hospital use the English language; we have a high number of Asian nurses working with us, so they can’t understand Arabic.

P1 reflected on the communication breakdown between different types of providers in disaster response:
Most of the physicians that have come to us are only [on] a rotation, so they don’t know what the plan is. So, we are the ones . . . doing the duty every day. We know the basis very nicely. . . . What we are doing is totally improvising honestly.

**Category: Organizational Barriers.** Participants also noted organizational barriers, including organizations not providing access to learning resources. One participant (P9) lamented the lack of access to reliable resources, saying “even the E-library, we don't have it. So, [how] can we get access to enhance our knowledge and skills, by what? By [what] reliable resource? [We try to use] Google and try to google and find the books.”

Other participants named funding and equipment shortages as organizational barriers. The inability to purchase new and better equipment combined with the inability to attend disaster training courses was also discussed in this category. P18 said,

Some items we don’t have, and we are trying our best to buy from our budget. Another factor is . . . human resources: we should have enough staff, for the nurses, for the doctors. This is, I think, more of an important factor. And also, continuous training for all staff.

Expense was also a barrier to attending courses, as P13 said: “Ah, course programs are so expensive actually. If you think [about taking] disaster courses, [you] will find this more expensive actually.” Some participants felt that the nurses had been more poorly supported by the Saudi nursing administration than lab techs, who are incentivized by the administration. Nurses are not similarly rewarded, despite potentially more hazardous duties. P20 stated, “nobody hears us. We don’t get our rights in the right way, compared to lab technicians.” Participants also lacked administrative support in the form of DP practice. P17 called for greater
administrative support, explaining, “we talked many times [about how] we need training programs. Another barrier is not enough coaching, which is difficult to develop.”

**Category: Cultural Barriers.** Cultural barriers emerged as a strong category throughout the interviews. Most participants believed that culturally competent nursing care is “sensitive” to matters of culture, race, language, and gender. P1 noted that culture is being disrespected in the nursing profession:

So, if the culture is not seeing nurses, this [is something] very, like, important and insightful, we as nurses . . . don’t [even have] the courage to speak up. I don’t want to say anything more about our culture in regard to nurses. But I was thinking of the disaster. I believe if you [give] nurses a good role, and [it’s] an important role, and you give them what they deserve, they can manage all the disaster.

Regarding gender bias, two male participants, P12 and P20, expressed a belief that women are poorly suited to disaster and ER nursing. P12 said,

If you are looking for nurses this [is] 90% from the female. Most of the time they are pregnant, most of the time they are, you know, post-pregnancy. And, you know, we cannot put them in this disaster situation because you don’t want to hurt anyone helping you or helping patients. So, I prefer to push the male staff always in the emergency department to pull and to carry and to take and to handle patients. You need somebody with good, you know, good physical [strength].

Another participant agreed that the female gender interfered with nursing duties. P20 said, “we used to be 60 nurses; the vast majority were Saudis, female Saudis, and you know female Saudis, some of them were married or may be pregnant. So, they don’t come to attend to their duties.”
Despite the cultural barriers, the participants addressed how the nursing profession plays an important role in hospitals in general and in disaster situations specifically. The participants believed that nurses serve as a vital human resource and hold a varied range of responsibilities related to DP.

All participants emphasized the important role of nurses as frontline providers, first responders, and leaders in disasters. However, nurses face challenges in determining their roles, including conflicts with physicians and the administration and vague definitions of their roles and responsibilities. During the interview, nurses shared their pride in their profession and emphasized their roles in disasters while addressing the obstacles because they often believed that they had been left out of disaster policy development. P2 explained,

The nurses are a big part of the hospital; they have to be involved in the policies. . . . Any plan in the hospital is dependent on the nurses. They make something, and they will not ask the nurses. It’s really useless. . . . I’m ready all the time. Nurses are lifesaving, so . . . I will receive this case 100%, this is my responsibility.

However, some participants did not know what their roles should be during disasters because of the limitations placed on their duties by their institutions. P17 said,

Okay, actually sometimes there are some roles in the code or in the disasters that I told you are not assigned for, [such] as patient triage. So, there will be only one senior staff nurse . . . [who] will be identifying the patients in some way that we don’t know about. So, I think we need to know and learn these things. I mean, it’s a specific role, but also we need to learn this, and we don’t need to wait until we become a senior or after 2 or 3 years to be trained for these things.
Theme 5: Insufficient Psychological Preparedness

Upon reflection, a fifth theme emerged from the participants’ words throughout the study. The fifth theme was not related to any particular research question but arose through the interviews. Insufficient psychological preparedness was a theme that was pervasive.

Category: Lacking Psychological Preparedness. The majority of participants experienced psychological stress during their work in disasters. Some of the participants felt burnout, fear, and anxiety. Participants emphasized the psychological needs of staff and the relevant counseling support services.

Some participants experienced the risk of disaster during the COVID-19 pandemic and witnessed how colleagues were emotionally unprepared and endangered and how the atmosphere of panic negatively affected the nurses’ skills. P2 stated,

I had observed, for example, my colleague during the clinical situation. One time, I [had] one nurse [panic]. I sent her outside for triage and I [got] another one because . . . she was really in a panic situation. She didn’t know even how to search for simple things at that time.

Some participants asked for psychological counseling support service for staff. P17 addressed this need during the COVID-19 outbreak:

I think it would be very helpful if they start or if they make the staff more aware of the psychological clinic. . . . If you’re stressed and if you are depressed, you cannot provide good care to your patients Ah, that’s it . . . psychologically it’s affecting us. So how to cope, how to manage.

This participant also addressed how this outbreak affected their personal life, being apart from their family and spiritual life during Ramadan, saying,
Honestly, as I mentioned before, leaving our family, it is one of the hard things we face. . . . This has really affected us. We are not having enough time to eat or read. . . . Also, watching patients fight—but [then] they can’t make [it] at the end and we lose them, and the mortality rate has increased. So, these [problems] have stressed us out.

In the next chapter the author will discuss the results of the data analysis; give meaning to the themes; and explain the discussion, interpretation, and implications of these findings.
Chapter V

Discussion and Conclusion

This chapter interprets the study findings in light of the relevant literature. The meaning of the findings is then discussed in relation to the Nursing Perception of Disaster Preparedness Conceptual Framework that guided this research. The final section describes the limitations of the study based on the design, protocols, and methods. Finally, this chapter provides guidance, implications, and suggestions for future research based on the study findings and interpretations.

The first part of the discussion pertains to themes interpreted within the conceptual framework. The conceptual framework used to guide this dissertation and developed from the disaster management model framework of disaster nursing competencies that the International Council of Nursing (ICN) and the World Health Organization [WHO] ICN & WHO, 2009). The PI selected this conceptual framework to guide the research because of its separation by phase: pre-disaster (preparedness), response, and recovery. The researcher’s particular interest is in the preparedness phase. Disaster preparedness has many aspects, including organizational and interpersonal, as well as individual and teamwork applications. The researcher’s interest is at the intrapersonal level, focusing on the emergency room (ER) nursing profession because ER nurses are at the center of disaster preparedness within a hospital and on the front line.

Applying this conceptual framework nursing perception of disaster preparedness emphasizes the importance of preparing nurses through training, knowledge, psychology, and awareness of policy. Although these elements of disaster preparedness have been identified in the literature, the literature does not organize them as a conceptual framework in regard to this phenomenon, and these activities are considered an integral part of disaster preparedness. The
literature focuses on the identified general lack of disaster knowledge and training programs with no in-depth examination of existing barriers. This study investigates the barriers and challenges Saudi ER nurses experience based on their own perceptions while revealing possible improvements and directions for further study.

It is imperative that the nursing industry take research on disaster preparedness like this seriously to improve disaster preparedness by selecting, tailoring, and implementing appropriate intervention; monitoring knowledge and training; and updating policies and procedures. Because many nurses regularly face disasters with limited resources, they must be physically and psychologically prepared to evaluate outcomes and identify best practices. The information collected in this study provides insight into barriers to acquire knowledge and translate training into action. This research, in conjunction with the established literature, provides a better understanding of Saudi nurses and their perceptions and demands further research to address these barriers that health-care professionals face daily (Al-Thobaity et al., 2015; Slepski, 2009).

This research uses the Nursing Perception of Disaster Preparedness conceptual framework as a guide to organize the themes that emerged into a new framework. The conceptual framework provides a lens of support and solutions to improve nursing practice and prepare for disasters. The conceptual framework explains some of the findings. The theme of psychological preparedness was developed during the data analysis and corresponds to the rest of the elements of the disaster preparedness framework highlighted in Figure 9.
Figure 9.

_Nursing Perception of Disaster Preparedness conceptual framework_

**Themes Interpreted with Conceptual Framework**

![Themes Diagram]

*Note.* This figure illustrates the conceptual framework for this study as a guide to organize the themes that emerged into a new framework, the Elements of Disaster Preparedness.

The second part of the discussion interprets the findings by their relevance to the recent literature. The section is divided by research questions and major themes.

**Interpretation and Conclusions**

Five major themes emerged from the study findings:

Theme 1: Received insufficient disaster training

Theme 2: Lacking formal disaster knowledge
Theme 3: Policies and procedures existed on paper only

Theme 4: Barriers associated with disaster preparedness

Theme 5: Insufficient psychological preparedness

Research Questions Answered

There were four research questions in this study, which were developed to address a gap in the literature. The research questions were developed for the purpose of the study and the conceptual framework. They helped create the interview guide. Throughout the interviews, each research question was answered by participants through the process of transcribing, coding, and thematic development.

Research Question 1

Research Question 1 was as follows: *What are Saudi ER nurses’ perceived level of training in disaster preparedness?* The participants described the training they received with varying perceptions. The findings revealed that although most of the participants received infrequent disaster training, some had never received any disaster training. Similarly, some new nurses have not had an opportunity to receive training in disaster preparedness. This finding supports the literature. Bajow and Alkhalil (2014) evaluated hospital disaster preparedness in the Jeddah region of the KSA, revealing that although the hospital had the tools and quality indicators for emergency preparedness, employees still lacked proper training to manage the disaster. Bajow and Alkhalil called for the development of a disaster nursing curriculum or disaster training programs that adequately addresses nurses’ gaps in knowledge and learning needs. Other studies similarly showed a lack of disaster nursing programs and inadequate training offered in the existing Saudi nursing curriculum (Abosuliman et al., 2014; Alraga, 2017;
Participants believed that drills are best practice for disaster preparation. However, participants asked for more serious training programs, frequent practice, and a variety of additional disaster-related courses such as Canadian Triage Acute Scale (CTAS), simulation, and psychological services. Additionally, participants identified training barriers they experienced. They noted inferior training platforms and passive training methods such as video, WhatsApp, and lectures without hands-on components. Oztekin et al. (2014) found that exclusively hands-on training in place of lectures and videos may increase undergraduate student nurses’ skill levels in disaster response in both Istanbul and Miyazaki. Regarding the variety of training courses, Loke and Fung (2014) found that participants believed disaster management training and drills to be useful. They agreed that disaster training should include certain additional courses, such as first aid, basic and advanced cardiovascular life support, infection control, advanced trauma care nursing, and post-traumatic psychological care. Simulation is important to provide basic preparation for managing disaster events and is beginning to be used more frequently in training and planning efforts. Some participants emphasized the need for simulation to realistically practice for disasters. Morrison and Catanzaro (2010) conducted a disaster simulation exercise and found that disaster experience was important, recognizing nurses’ ability to apply nursing
skills from previous courses to the disaster situation. To achieve effective disaster preparedness in the hospital setting, Setyawati and Lue (2020) recommended offering ongoing disaster drills, training, and professional development while also integrating a formal disaster education program into the nursing curriculum.

Lack of time and staff shortage contributed to the barrier all participants faced to attending training. Staff shortage is also a significant barrier to ensuring adequate staffing levels during a disaster. McHugh (2010) suggested that the nursing workforce shortage affects the nation’s emergency preparedness. Hospitals that are inadequately staffed with nurses will face unnecessary risks, and public health and safety may be needlessly compromised. Waeckerle (2010) found that disaster training and educational efforts lack standardization, application, and specific instructor expertise. Hospital ER nurses should be adequately trained and prepared to provide an effective response and help reduce the number of mortalities and loss among victims during disasters. Both Waeckerle’s (2010) study and the present study suggested the need for further research; the present study corroborated the need for standardized drills and training programs and further raised the need for equitable distribution of these training programs throughout KSA hospitals.

**Research Question 2**

Research Question 2 was as follows: *What are Saudi ER nurses’ perceived level of knowledge of disaster preparedness?* Participants shared that they perceived their knowledge based on three sources: ER experience, self-learning, and hospital policies and procedures. Participants felt challenged to adequately source and acquire disaster-related knowledge and acknowledged how this limited their disaster preparedness.
Most participants reported that they received disaster knowledge by practicing in real disaster situations. Some participants believed this learning method is risky because of their lack of prior disaster knowledge. For example, participants named several types of disasters about which they received no training, including biological, chemical, nuclear, and radioactive disasters. This study finding confirms recent literature that has highlighted the importance of the work and the responses of nurses during different types of disasters (e.g., typhoons, earthquakes, and hurricanes). Nurses perceived their disaster preparedness as insufficient, and they felt they lacked knowledge about disasters in general as well as biological information about the management of bioterrorism (Özteki’n et al., 2014; Özteki’n et al., 2016) and infectious diseases and living conditions (Strauss et al., 2017). Regarding the experiences of nurses who responded to a disaster, Shipman et al. (2016) found that nurses suffered from a lack of prior knowledge about volunteering and about what to expect during a disaster response.

Participants believed the limitation of acquiring knowledge is due to a lack of disaster in nursing schools. All participants reported the absence of disaster training in nursing curricula and the lack of formal knowledge. This finding extends the current literature’s recommendation that the syllabus be regularly updated throughout the implementation process of the nursing program, should focus on different types of disasters, and should ensure consistency of education within individual national plans and health-care systems (Cooke et al., 2012; Labrague et al., 2018; Loke & Fung, 2014; Rivera-Rodriguez, 2017). The literature suggested that an improvement in disaster preparedness in terms of knowledge can be achieved through education and by enhancing the undergraduate nursing curriculum. It is important to enhance and increase the resources available to support nurses in preparing for and facing disasters (Yin et al., 2011).
As the findings of the study have shown, new nurses enter the profession lacking the critical knowledge necessary to keep themselves prepared, and only some receive training after 1 year of experience. In the workplace, lack of knowledge is compounded because hospitals fail to make comprehensive continuing education programs available to nurses. Participants in this study addressed this issue by calling for mandatory undergraduate and postgraduate disaster preparedness programs and adding a specialty track for disaster management.

Moreover, the study findings revealed that nurses sought self-learning to supplement their disaster knowledge. They did this by taking the initiative to learn independently completing coursework, attending workshops, and reading recent research online. However, nurses believed that self-learning is not an effective way to prepare for disasters, but rather a response to a lack of administrative support for disaster training. Participants noted limited and infrequent courses isolated to major cities like Riyadh, Jeddah, and Damam. Nurses emphasized the need for facility preparedness, including drills and courses containing theoretical and practical exercises. Studies have emphasized the importance of drills and emergency exercises (e.g., advanced simulations followed by appropriate program evaluation to continuously and effectively improve education and training). Previous studies have addressed how effective education and training are believed to be fundamental in preparing to deliver disaster care and in sustaining a prepared and confident nursing workforce (Labrague et al., 2018; Shipman et al., 2016; Yin et al., 2011). However, this study’s participants demonstrated poor implementation of such education and training at their workplace or nursing school.

The final category in this study was the perception of disasters and disaster preparedness. All study participants mentioned this category. During the initial stage of the interview, participants shared their perception of what disaster and disaster preparedness meant to them
personally. The most important finding was related to what events the nurses considered to be disasters. Nurses perceived disasters to include anything from a major road traffic accident to the COVID-19 outbreak to extreme weather events to a stampede during the Hajj. The focus of this category was not on determining nurses’ preparedness for disasters, but rather their perception of what constitutes a disaster (Fung et al., 2008).

Additionally, most participants perceived their disaster preparedness as involving assembling resources, protocols, staff, and equipment. However, nurses perceived these resources, including staff, capacity, planning, and equipment to be insufficient. They felt that they were lacking in knowledge about disasters in general, about biological and chemical spillage, about decontamination, and about management of bioterrorism and infectious and airborne diseases such as COVID-19. Similarly, Fung et al. (2009) identified nurses’ perceptions of disaster, specifically whether they considered some of the events that have occurred in Hong Kong to be disasters. The study emphasized that understanding how nurses perceive disaster and the likelihood of disastrous events is the initial step in undertaking disaster planning and developing a disaster nursing curriculum in Hong Kong. Nurses worldwide should be prepared with knowledge and skills for disasters. This study provided information and implications for related research and recommended implementing a disaster nursing curriculum in education to meet the global demand for disaster preparedness.

The results of Abosuliman et al. (2014) and those of the present study emphasized a need for better quality research to improve disaster preparedness, specifically related to nursing in the KSA. In this study findings, nurses reported difficulty finding relevant research articles and information and expressed difficulty accessing relevant resources such as an e-library in the workplace.
**Research Question 3**

Research Question 3 was as follows: *What are Saudi ER nurses’ perceived level of awareness of the policies and procedure for disaster preparedness?* Participants described varying perceptions of policies and procedures, lack of awareness of a disaster plan, and lack of involvement of nurses in policies and procedures. Most participants believed that the writing of policy contrasts with its practical application and identified a gap between understanding a plan and implementing a plan. Other participants blamed the administration for a lack of seriousness and the lack of a standardized national disaster plan. Although they agreed that their workplaces possess well-written documents to meet JCAHO and the Saudi Central Board for Accreditation Healthcare Institution (SBAHI) standards, they felt those documents were difficult to follow, or they had no time to read them. This finding extends the study by Shalhoub et al. (2017), which focused on 13 major private hospitals in the KSA. Shalhoub et al. found that all the hospitals had documents to prove they were prepared to face a disaster event and to meet the standards of JCAHO and those of the SBAHI. However, there were apparent weaknesses in education and training. Nurses were unaware of policies and procedures. None of the hospitals conducted unannounced exercises or training events for employees. Further, Saudi nurses’ perceptions of their learning needs concerning disaster management was not assessed. Further, the recent study by Alyami et al. (2021) found that although some government sources claim there is ongoing development and future planning for disaster relief and support, there is no evidence of their existence. The lack of governmental transparency in the KSA combined with the lack of local expertise makes it difficult to assess whether disaster policies are having their intended effect. This lack of transparency is a significant barrier to the further research and development of a national disaster management strategy within the KSA.
Major disaster policy issues continue to indicate the inadequacy of nursing integration into disaster policy planning in the workplace. Many nurses indicated a lack of awareness of what disaster policies and procedures entail, or they did not know how to execute them because of a lack of knowledge of the chain of command, of the disaster team and guidelines, of and involvement in implementing disaster plans. According to Alzahrani and Kyratsis (2017), nurses perceived their disaster preparedness as insufficient in that they felt they lacked knowledge about the disaster policies, plans, and role of hospitals during disasters. The WHO (2009) has recommended workplace policies and procedures that will allow nurses to respond effectively to major incidents. Nurses’ lack of awareness about hospital disaster preparedness policies and procedures leads to their inability to prepare for and manage disasters in hospitals.

Additionally, the study findings revealed that nurses lacked awareness of policies and procedures. Some participants were not aware of the existence of a disaster management department at their workplace, whereas others addressed their lack of involvement in disaster policies and procedures and the lack of qualified experts to implement the disaster plan. This finding supports and extends Whetzel et al. (2011), who found that although most participants knew that their hospital had disaster policies and procedures, few knew where it was located, and others did not know of the existence of a hospital disaster plan or show awareness of the disaster policies and procedures. Whetzel et al. concluded that preparedness involves nurses knowing not only the location of the disaster plan but also their roles. Understanding hospital policy and disaster plans may improve nurses’ knowledge and skills and, consequently, their preparedness to manage disaster events (Jagim, 2007).

French et al. (2002) investigated the needs and concerns of nurses who responded during Hurricane Floyd. Their findings revealed that hospital policies were inadequate to deal with valid
concerns of nurses. French et al. were unable to conclude why nurses did not understand their role after reading the hospital disaster plan, and the authors suggested further investigation. In this case, it may be reasonable to suggest simplifying the policy and presenting nurses’ role in a clear way (Powers & Daily, 2010). Many researchers have acknowledged that more research is needed in hospital disaster preparedness plans and policies. This study revealed barriers that nurses faced with their perceived disaster policies and procedures. Participants viewed themselves as the mainstays of hospitals and emphasized their roles as first-line providers in disaster settings. Nurses equated their lack of involvement in disaster plans with the inability to improve their response in a disaster. Nurses believed their involvement in disaster planning would eliminate confusion about their role. Some of the participants complained about disaster policies and procedures that were not kept up to date and about lack of expertise in disaster field.

Finally, the results of Abo Gad (2014) and those of the present study emphasized that all staff members should be familiar with the disaster plan. It is not enough to develop a policy, assess vulnerabilities, and prepare a disaster plan without training and education or without soliciting employees’ experiences with disaster in their own voices.

Research Question 4

Research Question 4 was as follows: What perceived barriers do Saudi ER nurses associate with their preparedness for disasters? Participants discussed barriers associated with disaster preparedness. The barriers noted in this study are closely linked with the previous disaster preparedness literature on barriers (Hammad et al., 2012; Johnstone & Turale, 2014; Ogedegbe et al., 2012). However, unlike prior research, which only discussed the general presence of barriers, participants noted specific barriers they had to overcome to successfully
prepare for disasters. Finding ways to overcome these barriers made it easier to help nurses feel prepared for disasters.

Regarding staffing barriers, a nursing workforce shortage has threatened the KSA’s emergency preparedness. In disaster situations, there is always a shortage of nursing staff and lack of resources, which compromises public safety (McHug, 2010). In this study, nurses believed their nursing role in the ER required being prepared for disaster situations. However, nurses perceived that staff shortage led to a lack of time to attend training, improve knowledge, become aware of policies and procedures, and prepare for disasters. Nurses described facing the COVID-19 pandemic as frontline workers under extraordinarily stressful situations; lacking PPE and other resources compounded that stress. Nurses viewed the pandemic as an example for hospitals of how staffing shortage and lack of training can leave nurses ill-prepared. According to McHugh (2010), to address the problems of nursing workforce shortage and inadequate disaster preparedness, sufficient national investment in nursing education and workforce infrastructure is required—which in turn requires financial investment and significant political interest.

Regarding communication barriers, nurses largely discussed the problem of the lack of communication, whether within the hospital departments or with other facilities or the MOH. The other barrier was a lack of support from administrators. This finding revealed that communication in ERs is complex. Conversely, ineffective communication was a major concern for participants. Nurses believed that communication is the most important area in the ER, where care is coordinated between other departments or other facilities. However, nurses indicated that communication between the ambulance and facility is challenging, particularly when a lack of notification interferes with nurse preparation, efficiency, and coordination. Nurses expressed that
paramedics lacked knowledge and skills and would at times convey inaccurate information about patients to secure transfer. Some nurses raised concerns about a lack of crucial information during disasters, including unreliable and outdated notification systems and miscommunication between Arabic speakers and foreign nurses. Reay et al. (2016) similarly found that nurses did not fully trust information from the emergency medical services and, at times, felt they were given misleading information. Further, participants mentioned the poor communication among other government agencies such as Civil Defense, Red Crescent, police departments, and ERs, resulting in negative consequences for patients. According to IOM (2011), inadequate communication between responding authorities, combined with inconsistent professional education on preparedness and response strategies, precedes victims’ arrival at a hospital.

Regarding organizational barriers, most nurses in present study blamed their institution for not preparing for disasters. Nurses discussed the lack of organizational access to learning resources including e-libraries, funding, and necessary equipment. Nurses working in rural areas or on the borders complained about not having organizational or MOH support for sufficient bed capacity, equipment, and training. Because of small hospitals, decreased surge capacity, limited resources, lack of health-care professionals, and greater distance from other resources, it is important to address the needs of rural health-care providers and deliver specific disaster training to all providers (Manley et al., 2006). Rural health-care facilities also face unique challenges regarding a lack of space, staffing in all departments, reliable communication systems, and transportation equipment (Leow et al., 2012). Scott et al. (2013) identified barriers prohibiting health-care providers from participating in disaster preparedness training, including unclear disaster duties of the provider, unmet training needs, low training standards, poor quality training curricula, lack of courses, lack of instructors, lack of staff interest, time constraints, and financial
barriers. Finally, the results of Scott et al. (2013) and those of the present study emphasized that the availability of resources enhances and supports nurses in preparing for and facing disasters.

Additionally, the nurses in this study addressed administrative barriers. Nurses felt they lacked administrative support for disaster preparedness. Most participants expressed concerns that the administration did not support nurses in attending training courses to develop knowledge and improve practices to prepare for disasters. Some participants reported never receiving disaster training, whereas others reported attending such training only once. The current study supports the finding by Alzahrani and Kyratsis (2017) that hospital management and the Ministry of Health need to support and encourage the involvement of ERs in disaster exercises. One in five study participants reported that they had never been involved in disaster exercises, and four out of 10 reported having been involved only once. Furthermore, nurses revealed a lack of confidence in their ability to respond to disasters because of limited preparedness. The nurses who were confident were more likely to have had experience of disasters or to have sought self-training. Similarly, Baack and Alfred (2013) found that most nurses did not feel confident in their ability to respond to disaster events and suggested that administrators support and encourage nursing disaster preparedness education to promote hospital readiness, including innovative training methods to provide community care delivery in the event of a disaster.

Cultural barriers within the nursing profession emerged as a strong theme throughout the interviews. Most participants believed that culture plays an important part in nursing. The present study found that cultural barriers hindered the nursing role in disaster preparedness. In Saudi Arabia, historically, the nursing profession as a whole is not attractive enough to facilitate the recruitment of large numbers of male and female nurses owing to the social perception of nurses, shift schedules, and salaries. Despite efforts to professionalize nursing, the number of
Saudi nurses has remained small and predominantly female. It has been estimated that a minimum of 25 years is required to build up a national workforce to meet 30% of the nursing needs in Saudi Arabia (Gazzaz, 2009). A study by Alyami et al. (2021) demonstrated that there is a perception in the culture that some career avenues are unimportant and not worth developing, including the nursing profession. Thus, the country heavily relies on foreign skilled workers’ expertise (Maben et al., 2010). However, the Saudi Arabian government is attempting to increase the involvement of Saudi Arabians in the labor workforce. In 1995, a “Saudization” initiative was initiated, which intended to substitute non-Saudi nurses with skilled Saudi citizens by boosting workplace training and pressuring the private sector to nationalize jobs (Alzalabani, 2002). However, Al Turki (2018) suggested that more needs to be done because it is fundamental that young people across the KSA be encouraged to consider nursing as a career by providing suitable education and financial and employment incentives. Further, media cooperation is essential to increase cultural awareness regarding the importance of nursing and its pivotal role in providing community care as well as care to the population as a whole.

In this study, nurses perceived that Saudi culture undervalues their work. Nurses felt disrespected and unseen by the culture at large and felt a desire to be valued and appreciated. A lack of cultural awareness can prevent a nursing professional from offering effective care to patients and can cause them to offend the patient or jeopardize their treatment (Alturki, 2018). Additionally, this study noted the effect of gender on perceived competence, ability, and level of physical activity. The number of Saudi men entering the nursing profession in Saudi Arabia has been notably increasing over the past decade, resulting in a more equalized gender distribution across the nursing workforce (MOH, 2018). However, Saudi nurses of both genders still form 20% of the workforce in the KSA, despite the decades long Saudization effort. Of the Saudi
nursing workforce, 38% are male and 62% are female, and 90% of foreign nurses working in the KSA are female (MOH, 2018). Although specific data regarding gender distribution or nursing professionals in different departments are unavailable in the KSA, participants stated that most nurses who work in the ER are female. Male participants in particular expressed profound judgment and preference for male ER nurses in the face of a disaster. Of the 14 male participants, five viewed female nurses as fragile and pregnant nurses as a deficit in a disaster, leading to staff shortage. These results indicate that an increase in the recruitment of Saudi males may simply reflect cultural issues, such as gender-specific facilities and the Saudization program’s nondiscriminatory approach to the employment of both genders in nursing (Alboliteeh et al., 2017). Conversely, a culture of sexism within the Saudi nursing profession may interfere with coordination and communication during a disaster. More recent research has focused on challenging rigid gender roles inherent in Saudi Arabian society and the reluctance of the Arabian people to consider careers in nursing despite steeply rising population levels and the resultant increasing demand for nursing staff (Almutairi & McCarthy, 2012).

Though participants raised issues of cultural barriers, they also offered suggestions to improve outcomes. These suggestions included a call for updating disaster plans, improving or adding disaster training to mandatory orientation programs, and integrating disaster management into nursing curricula as well as offering specific graduate track studies. Additionally, all participants emphasized the importance of their role in the ER as the largest number of healthcare providers on the front line in any disaster. Nurses felt confident that they could successfully implement a disaster plan if they were involved in its development as valued members of the response team. Nurses still faced challenges about their role in disaster preparedness, perceived their disaster training as insufficient, and lacked definition of their own
roles during disasters. The ICN-designated Steering Committee was charged with reviewing the global nursing workforce and providing clarification of nurses’ roles in disasters (Hutton et al., 2016).

Research has demonstrated that nurses continue to have a vague understanding of their roles and duties during a disaster. This study’s findings support the previous literature while showing that nurses experience conflict with other health-care providers because of a lack of clarity. It is vital that nurses receive clear, concise, and current information about best practice nursing care in disaster response (Ruiz-Fernandez et al., 2020).

The focus of this qualitative study was on obtaining a deeper understanding of the perceptions of Saudi ER nurses about their preparedness for disasters and on understanding from their perspective the barriers associated with facing disasters. The aim of a qualitative study is to understand or clarify the deeper meaning of the experience the participants have in common (Creswell, 2013). During transcript analysis, four themes emerged in response to the specific research questions. Additionally, there was one overarching theme developed that was not specific to any one research question. This theme was insufficient psychological preparedness for distress related to facing a disaster.

**Pervasive Unanticipated Emerging Theme : Insufficient Psychological Preparedness**

Psychological support needs emerged as a pervasive theme throughout the interviews. Some participants felt workload burnout, felt overwhelmed, felt fear, and felt anxiety. Most participants experienced psychological stress, especially with the increasing prevalence of COVID-19. Nurses not only experienced an increase in the volume and intensity of their work but also needed to rapidly accommodate new and evolving protocols.
Some participants during COVID-19 experienced disaster work as risky and viewed their colleagues as emotionally unprepared. This lack of preparation led to staff shortage; endangerment; and a panicked atmosphere, detrimentally affecting nurses’ skills; and insufficient or difficult access to PPE. Nurses also felt concerned for their personal and family health and safety because of a lack of PPE and administrative support.

Recent evidence on COVID-19 and other infectious respiratory disease outbreaks has reflected high concern among nurses for their personal and family health status in the face of direct contact with a potentially deadly virus and the stress of balancing this concern with the ethical obligations of continuing to provide care (Jiang, 2020; Khalid et al., 2016; Kim & Choi, 2016; Nickell et al., 2004). Other literature has raised concerns about staff and resource shortages, including PPE, and about unfamiliar settings or systems of care and lack of organizational support (Kim, 2018; O’Boyle et al., 2006; Shih et al., 2009). Additionally, psychological conflicts between nurses’ responsibility to care for COVID-19 patients and their right to protect themselves from a potentially.

Participants emphasized psychological needs and counseling support services for staff and insisted that it should be the initial step in preparing for disasters. Some researchers recommended assessment of preparedness and the suitability of new staff for the first responder role before beginning work to ensure that their personality and mental health status could handle the stress of the role and emphasized the importance of being prepared for the potential psychological impact of the job as well as incorporating mental health training and debriefings (Brooks et al., 2016). With limited literature in Saudi Arabia in regard lacking psychological preparedness. This research highlighted importance of psychological preparedness for nurses for facing disaster and there is a need for further research to investigate in this dimension.
Implications for Practice

Much of the current research is quantitative in its approach, but the present study is anticipated to bridge the current gaps in situations of disaster preparedness based on a small group of Saudi ER nurses’ perceptions and identify barriers that limit their ability to respond effectively in disaster situations. This study provided suggestions to reduce morbidity and mortality in disasters. It emphasized important information regarding Saudi nurses’ perceptions concerning disaster management preparedness, and it focused on understanding the limitations of Saudi nurses in responding effectively to disasters. The important step this study provides is that it documents that Saudi ER nurses have disaster management education and training needs and suggests further study is to determine if this is an isolated need or an industry need.

Furthermore, formal education and training on disaster management practices need to be expanded to include high-fidelity simulation or realistic role-play in the undergraduate nursing curriculum. Consideration should also be given to the design of the curriculum of basic nursing education based on a multidisciplinary approach, integrating clearly titled theory and practice courses about disaster and emergency preparedness with respect to nurses’ learning and training preferences. Further, disaster policy should clarify interprofessional roles and responsibilities and employ strategic tactics to ensure successful collaboration across different professions. However, a recent study by Alyami et al. (2021) stated it is difficult to really assess the success of such policies because of a lack of transparency in government reporting.

Limitations

There are limitations to this study. First, the sample was a convenience sample because this study intended to understand the perspective of one group of Saudi nurses working in the
ER. The sample’s views are not generalizable to the views of other health-care providers or nurses outside the ER in the KSA. Additionally, all data were self-reported. Data were collected in two steps, with a prescreening survey for general demographic information and in-depth one-on-one phone interviews. The participants provided this information directly, and there was no way to verify whether data were honest and accurate. However, the PI asked participants to review the transcripts of their interviews and suggest any corrections that would make the data more accurate, to limit the effects of temporary participant biases (e.g., from transient personal distress).

Finally, in regard the demographic findings that participants in this study were predominantly five years or less experience working in the ER, there was greater representation of males than females. 14 of the 20 participants in this study were male, and all participants in this study were from public hospitals. Therefore, this information may not be as representative of females as it is of males, years of experience, and may not represent all hospitals in Saudi Arabia. To better understand the gender, there is a need for a survey research takes this finding out into a larger population for a more in-depth understanding of these differences in gender and to explore how does that demographic fit with the existing demographic and whether those findings are supported by a larger population of ER nurses in Saudi as perhaps that are responses more female as if that’s that what the today population. Last, because of the limited sample, the results are not generalizable beyond the sample used within this study.

**Suggestions for Future Research**

Continued research on disaster preparedness training, knowledge, and awareness of policy for nurses is recommended. The present study found that nurses perceived they were not
prepared for disasters in four areas: lack of knowledge, lack of training, lack of awareness of policy, and lack of psychological prepared nurses. Further research can be conducted that continues to explore the barriers addressed in this study in a larger population of ER nurses within Saudi Arabia via survey research to see if this study's findings are supported by a larger population or if there are other issues that emerge. In addition, this study revealed that gender plays an important role in the perceived competence of ER nurses, which may be magnified in the face of disaster response. Further research would benefit from investigating the impact of sexism on the collaboration required in disaster response. Although ER nurses would most likely be the first to encounter patients from a disaster event, medical–surgical and critical care nurses possess specialized skills and may be a valuable resource to support patient care during a disaster event and may have distinct needs for disaster preparation. Investigating disaster preparedness in non-ER nurses could assist nurse administrators and educators in understanding learning needs and create education programs aimed at non-ER department nurses. Further investigating disaster preparedness in other locations and comparing between accredited versus non-accredited hospitals about their readiness may be beneficial in determining best practices as well as supporting the overall development and justification of disaster preparedness education and training programs for nurses, especially those employed in small or rural hospitals.

This finding indicated the key takeaways as important within the Saudi health system through introducing an intervention strategy through an education training module could help assess the impact of disaster preparedness. Serious consideration needs by education administration in nursing school to be given to building core disaster concepts into undergraduate- and graduate-level nursing programs, including a specialty track at the graduate level. Disaster nursing is at present not generally taught in nursing schools in the KSA. This is
not an area that nurses seek out; instead, they gain experience on the job. The KSA needs a national nursing workforce familiar with concepts of disaster nursing and emergency management. Further research is necessary to maximize nursing education and nursing quality in these critical areas.

Moreover, as this study focused on individual level, future directions is need for Interprofessional Education (IPE) through employment of strategic tactics by implementing the strategic work and the presence of interdependency across interprofessional which prepared for collaborative practice learned to work in an interprofessional team through effective training in interprofessional education and where the tactical work is the work to do to implement the design created by strategic work Professionals. Thus, future directions need to move forward to look at it from the team level in the ER as interprofessional nature within the environment for readiness, as opposed to looking at it from the nurses perspective and how is the team respond, how prepared are they, and who are the teamwork to ensure that ultimately the situation is managed as the best as possible.

Conclusion

The findings in the present study supported previous literature that revealed that nurses widely report feeling underprepared for disaster response and do not feel that education and training on the topic readily exist. Nurses revealed the absence of formal knowledge in the nursing curriculum. The study further demonstrated that the current literature did not reach a consensus on what type of disaster education and training would be most appropriate for nurses. Thus far, the literature on disaster preparedness has been quantitative in its approach. This research is qualitative and thus starts to fill the research gaps using one small group of
Saudi ER nurses’ perception of disaster preparedness. The participants of this study illustrate that they need to assess their disaster training, improve their knowledge, their awareness of disaster policy and procedures, and prepare them psychologically before disaster occurs. This study sets the stage and provides a starting place for larger scale research into nurses experiences in the KSA in general.
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Appendices

Appendix A. Informed Consent Form
Informed Consent Form

This consent for contains information about a research project titled, “Exploring Saudi Emergency Room Nurses’ Perceptions about their Disaster Preparedness.”

The Principal Investigator (PI), Fadiyah Alshahrani, is a full-time doctoral student at the department of interprofessional Health Sciences and Health Administration, School of Health and Medical Sciences at Seton Hall University. The PI is conducting this research as partial fulfillment of a Ph.D. degree in Health Sciences.

The purpose of the study is to explore how Saudi emergency room nurses perceive their disaster preparedness.

This is a qualitative study and the PI will be interviewing participants who meet the inclusion criteria. Interviews should take approximately 60-90 minutes to complete. The interview will be audio-recorded, and those recordings will be stored on a password protected USB drive in a locked cabinet in the office of the PI. All interviews will be transcribed by the PI, and the transcriptions will be stored on a password protected USB in the same locked cabinet. Any printed transcriptions will also be stored in the same locked cabinet. The PI will have access to all the data for a period of three years. After three years, all data will be destroyed.

Participation in this study is voluntary and confidential, and there is no penalty for not participating.

The privacy of participants is important, and measures will be taken to ensure confidentiality. A participant code is assigned once participants qualify and are enrolled. The participant code will be used throughout the interview and on all published results. Personal names will not be used to identify participants in any reports or publications which result from this study.

The risks in this study are minimal risks anticipated include participants’ discomfort with particular questions, psychological and emotional risk.

To minimize potential discomfort with questions: participants may skip any questions they do not wish to answer and may include only voluntary information.

To minimize psychological and emotional risks: participants may stop or postpone the interview if they are too fatigued to continue.

There are no direct benefits for the subject’s participation in the study. Nurses may feel satisfied to have the opportunity to comment on their experiences. They will be able to speak in their own words about the strategies such as development nurse’s disaster curricula, and to assess their own preparedness regarding disaster events.

There is no compensation for participation in this study.

School of Health and Medical Sciences
Department of Interprofessional Health Sciences
and Health Administration
Interprofessional Health Sciences Campus (IHS)
340 Kingsland Street, Building 123, Nutley, NJ 07110

What great minds can do.
Contact Information
If you have any questions concerning this study, or your rights as a participant, please contact me, the PI, at Fadiyah.alshahrani@ststudent.shu.edu

Pertinent questions or concerns about the research, research participants’ rights, and/or research related injuries to participants should be directed to Seton Hall IRB at email irb@shu.edu or phone at (973)313-6314

Your signature below indicates that this study has been explained to you and that you agree to take part in this study voluntarily. You will receive a copy of this signed form.

Participant's Name (printed): ________________________________

(signature of Participant) (Date)
Appendix B. Solicitation Flyers
Dear Saudi Emergency Room Nurses:

You are invited to participate in the study, “Exploring Saudi Emergency Room Nurses’ Perceptions about their Disaster Preparedness”

This study is for Saudi emergency room nurses who are currently working in Saudi Arabia. To participate in this research, you must:

- Be a nurse who is working in the Emergency Department (ED)
- Be an English-speaking and English-reading individual
- Be 18 years of age or older
- Be of Saudi nationality
- Have at least one year of experience working in ED

**Purpose of the Study:**

The purpose of the study is to explore how Saudi emergency room nurses perceive their disaster preparedness.

**Expected Duration of Participation:**

The study will take place by one-on-one phone interview and will require approximately 45 to 60 minutes of your time. The interview will be audio recorded.

**Voluntary Nature of Participation:**

Participation is completely voluntary; you may decide to withdraw from the study at any time without penalty.

**Confidentiality:**
No personal data will be collected, names will be replaced with a study code. Your answers will be kept confidential.

If you are interested in participating in the study or you have questions, please contact:

Fadiyah Alshahrani
Interpersonal Health Science and Health Administration
Seton Hall University
WhatsApp: 554131372
Fadiyah.alshah@gmail.com

Thank you. Your opinion will contribute to the success of this study.
Appendix C. Telephone Screening Script
Appendix C. Telephone Screening Script

Hello, thank you for calling to find out more about my research study. Before we begin, I would like to provide a brief introduction about myself and the study. My name is Fadiyah Alshahrani, and I am a doctoral student at Seton Hall University in the School of Health and Medical Sciences. I am a medical Technologist, and I am completing this research study as part of my graduation requirements for my Ph.D. in Health Sciences.

The purpose of the study is to explore how Saudi emergency room nurses perceive their disaster preparedness, but before enrolling people in this study, I need to determine if you may be eligible to participate. Is it okay if I ask you a few screening questions?

- Are you a nurse who is working in the Emergency Department (ED)?
- Can you speak and read in English?
- Are you 18 years of age or older?
- Are you a Saudi national?
- Do you have at least one year of experience working in ED?

(If respondent does not meet inclusion criteria, explain, thank them for their time and end call.)

Thank you. It does seem that you qualify. I will send you the consent form. The consent form will detail things about the study. Here is a summary.

Participation in this study is voluntary and confidential, and there is no penalty for not participating. During the interview, you can skip any questions you do not wish to answer. Your privacy is important and is ensured. You will be assigned a participant code once enrolled which will be used throughout the interview and on all published results. Personal names will not be used to identify participants in any reports or publications which result from this study. Are you interested in enrolling?

(if respondent is not interested in enrolling, thank them for their time and end call.)

Great. Here are the next interview date(s) and time(s) I have available. Which works best for you?

I will send the digital consent form to read and have sign and send it back to me with confirmation of the interview date and time.

Conclusion

Thank you for agreeing to participate in my study. Do you have any last questions or concerns for me?
Appendix D. Interview Script
Hello, and thank you for taking the time to participate in my doctoral study. Before we begin the interview, I would like to provide a brief introduction to myself and to our discussion today. My name is Fadiyah Alshahrani, and I am a doctoral student at Seton Hall University in the School of Health and Medical Sciences. I am a medical Technologist, and I am completing this research study as part of my graduation requirements for my Ph.D. in Health Sciences. Over the last several years, disasters lead not only to the loss of life and destruction of public infrastructures but also resulted in consequent health care delivery concerns. Research is showing that Nurses are critical direct care providers. Yet research also shows that they lack the basic knowledge and skills to respond to disasters. The purpose of this study is to explore the current situation of disaster preparedness among Saudi emergency nurses through their perception. This study is anticipated to bridge these research gaps, to assess preparedness based on nurses’ perceptions, and to identify barriers that Saudi nurses face in disaster preparedness. This study may fill gaps in the literature on policy and guidelines knowledge, leading to a better prepared Saudi ministry of health.

If at any point in the interview you no longer want to continue, please let me know. There is no penalty if you decide you do not want to complete the study. Do I have your permission to continue with the interview and record it?

Before I begin with the interview do you have any questions?

Appendix E provides the Interview Guide for disaster preparedness perception among Saudi emergency room nurses. Questions #1-9 will be asked with probing questions asked as needed.

Conclusion

Thank you for taking time to participate in my study. Would you be willing to be contacted to look over your transcription to ensure accuracy?

Before we conclude, do you have any last comments or questions for me?

Again, thank you very much. Your responses will remain confidential. Your name and contact information will not be used in any reports or publications. If you have any questions or concerns about your participation, please feel free to contact me.
Appendix E. Demographic Question + Interview Questions
Appendix E
“Exploring Saudi Emergency Room Nurses’ Perceptions about their Disaster Preparedness”
Interview Guide

Section I – Demographic characteristics

<table>
<thead>
<tr>
<th>Step</th>
<th>Demographic information</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Gender  Male  Female</td>
</tr>
<tr>
<td>2</td>
<td>What is your age? .......</td>
</tr>
<tr>
<td>3</td>
<td>Educational Level</td>
</tr>
<tr>
<td></td>
<td>Diploma  Bachelor’s  Master’s  Doctorate</td>
</tr>
<tr>
<td>4</td>
<td>Where education was obtained?</td>
</tr>
<tr>
<td></td>
<td>Saudi Arabia  Outside Saudi Arabia</td>
</tr>
</tbody>
</table>

Section II: Employment history

<table>
<thead>
<tr>
<th>5</th>
<th>Employment history</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Type of hospital</td>
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<tr>
<td></td>
<td>Public  Private</td>
</tr>
<tr>
<td></td>
<td>What is your current clinical position?</td>
</tr>
<tr>
<td></td>
<td>Nursing Technician  Specialist Nurse  Senior Nurse  Consultant Nurse</td>
</tr>
<tr>
<td></td>
<td>How many years have you worked as a nurse in the emergency department? ..........</td>
</tr>
</tbody>
</table>

Section III - Interview Questions

1. To start, will you tell me about yourself and your experience as a nurse?

2. What can you tell me about your perspective on disasters in general?
   a. What is an example of something that might be a disaster situation?
   b. What can you tell me about the disasters you have been involved in?
   c. What more can you tell me about those experiences?

3. One of the terms used a lot in disasters is disaster preparedness. What do you think that means?
   a. What are areas of disaster preparedness where you think you are well prepared?
   b. What can you tell me about those areas?
   c. What areas do you think could benefit from more disaster preparation training?

4. What disaster training preparedness have you had?
   a. What kind of disaster drills does your organization have?
   b. How would you describe the quality of disaster drills at your workplace?
   c. What are the different types of disaster drills that you experience?
d. What do you think overall about the training you have received?

5. What factors do you think are essential in making training programs sufficient to prepare you as a nurse to respond to a disaster?
   1. What do you suggest for training programs to have to respond to disasters?
   2. What are barriers you as a nurse face to be trained for disasters?

6. How do you feel about your personal knowledge of disasters concerning disaster preparedness?

a. What are the main challenges you as a nurse face in acquiring disaster knowledge?

7. What are the main sources of disaster knowledge you received in regard to disaster preparedness?
   1. What did you learn in your nursing school curriculum about disaster preparedness?
   2. What more can you tell me about disaster curriculum in school?
   3. Were your disaster preparedness lessons voluntary, part of a specialized course, or were they integrated into your studies?

8. As a nurse, what do you think about the hospital’s policy and procedures when it comes to disaster preparedness?
   1. What can you tell me about the policy update process?
   2. What do you think are the benefits from being involved in the review and update the hospital policy and procedures?
   3. What prevents you from being involved in the review and update the hospital policy and procedures?

9. What else should I know about nurses and disaster preparedness?

*Please contact the author for permission to use.*
Appendix F. Letter of Permission
Dear Ms. Alshahrani,

The research committee in Security Forces Hospital is constituted and functions in accordance with the National Committee of Bio Ethics (NCBE) in Saudi Arabia, Accreditation number (H-01-R-069). The Committee has reviewed the research proposal for compliance with national requirements and the approval of this research is conditional upon your continuing compliance with this document.

I am pleased to confirm a favorable ethical opinion for the research on the basis described in the documents submitted with your proposal titled "Exploring Saudi Emergency Room Nurses’ Perceptions about Their Disaster Preparedness". Based on this approval, you can collect the required data from Security Forces Hospital, Riyadh, KSA.

As evidence of continuing compliance with each research approved by the committee, the primary researcher is responsible to send documents to the research committee in Security Forces Hospital about his ongoing research every six months and on the time of publication.

For more information please do not hesitate to contact me.

Best regards,

Dr. Marzooq Abdullah Albadie
Chairman, Institutional Review Board (IRB)
Chairman, Research Committee
Security Forces Hospital Program, Riyadh, KSA
Tel: 00966118024425

Academic Affairs Rania
Appendix G. SHU IRB Approval
March 31, 2020

Fadiyah Alshahrani

Rec: Study ID# 2020-062

Dear Ms. Alshahrani,

The Research Ethics Committee of the Seton Hall University Institutional Review Board reviewed and approved your research proposal entitled “Exploring Saudi Emergency Room Nurses’ Perception about their Emergency Preparedness” as resubmitted. This memo serves as official notice of the aforementioned study’s approval as exempt. Enclosed for your records are the stamped original Consent Form and recruitment flyer. You can make copies of these forms for your use.

The Institutional Review Board approval of your research is valid for a one-year period from the date of this letter. During this time, any changes to the research protocol, informed consent form or study team must be reviewed and approved by the IRB prior to their implementation.

You will receive a communication from the Institutional Review Board at least 1 month prior to your expiration date requesting that you submit an Annual Progress Report to keep the study active, or a Final Review of Human Subjects Research form to close the study. In all future correspondence with the Institutional Review Board, please reference the ID# listed above.

Thank you for your cooperation.

Sincerely,

Marc C. Peduto, PhD, OTR
Associate Professor
Co-Chair, Institutional Review Board

Office of the Institutional Review Board
Presidents Hall · 400 South Orange Avenue · South Orange, New Jersey 07079 · Tel: 973.275.4654 · Fax 973.275.2978 · www.shu.edu
WHAT GREAT MINDS CAN DO