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Pharmacists' Responses to Medication Management Following Disasters

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Abstract

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by

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MBA, University of Phoenix, 2005

BS, Xavier University of Louisiana, 1992

Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

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Abstract

Disasters, both natural and human made, can cause emerging health threats in the United States and the Caribbean. The disasters that pharmacists experienced and reported for this study included hurricanes, snowstorms, ice storms, flooding, and a pandemic. The purpose of this research was to investigate the challenges and outcomes associated with pharmacists' medication management practices during and following disasters. This generic qualitative study focused on pharmacists' experiences and their responses to disaster planning and medication management activities. The ecological model of disaster management was the conceptual framework used to investigate the pharmacists and their responses and actions used to address the current disaster or event while employed. Fifteen pharmacists volunteered to participate in the study and were asked 10 semi structured interview questions. Recruiting through social media and referrals resulted in 14 participants who worked in community pharmacies and one participant who worked in a hospital pharmacy. After interview transcription and analysis with a thematic approach, nine emergent themes were defined. The pharmacists' responses exemplified how they applied their roles to ensure that patients received necessary medications during and after disasters, eliminating gaps in care while using medication management practices. The study demonstrates social change and contribute to research involving pharmacists, medication management practices, and pharmacists' experiences in disaster planning and responses.

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Dedication

I am grateful to God that I achieved this milestone in my life. I dedicate this dissertation in memory of my mother, Ernestine G. Washington. This dissertation is also dedicated to my husband, Darrell, father, Freddie L. Washington, and sisters, Mary Stephanie Stroud, Cynthia Colton, and Freda Bredy.

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I acknowledge my chair, Dr. Hasan Sapci, who demonstrated patience, kindness, and understanding, and Dr. Heba Athar, who immediately stepped in to help me complete the process. I want to express gratitude to my former committee member, Dr. Diane Stark-Ekman, for her assistance and guidance. I thank Dr. Egondu Onyejekwe, my University Research Reviewer. I thank Nimna Perera, Altamese Stroud-Hill, and Carey Little Brown for assisting with proofreading and editing.

I am thankful for my sister, Mary Stephanie Stroud, who also assisted me with editing, listened to me, and inspired me to remain motivated to achieve my goal. I also thank my immediate family, extended family, close friends, and my Turner Chapel AME Church family for the support and encouragement to achieve this accomplishment.

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Chapter 1: Introduction to the Study

Introduction

Research emphasizing the impact of disasters is essential due to disasters' environmental and economic consequences and potential concerns involving community health. In 2017, the U.S. Gulf Coast and Puerto Rico experienced destructive hurricanes that became the most expensive natural disasters, resulting in an estimated $265 billion in damage (Smith & Sow, 2019). Hurricane Harvey affected 30% of Texas that year; Hurricane Irma affected 85% of Florida, and Hurricane Maria devastated the Puerto Rico territory (Smith & Sow, 2019). Tornadoes occur throughout the United States, both as single phenomena and concurrently with storms (including hurricanes), injuring or killing approximately 1,000 individuals annually (Fricker & Elsner, 2020). In the last 10 years, cities within Alabama, Arkansas, Georgia, Mississippi, Missouri, South Dakota, and Texas have experienced fatal tornadoes, which have led to catastrophic socioeconomic devastation (Fricker & Elsner, 2020). Historically, disasters and their outcomes have prompted efforts to address disaster and health care emergency planning.

Other recent disasters have included the events of 9/11, the California wildfires, and the coronavirus (COVID-19) pandemic. Although the entire community is affected by a disaster, the most distressed are vulnerable residents with chronic diseases (Mak & Singleton, 2017). The response becomes complicated when acquiring necessary medications for medical conditions during and immediately after disasters. With limited access to prescriptions, medical supplies, devices, and medical information, it becomes challenging for pharmacists to manage medications and patients' wellbeing. Large-scale

disasters can damage properties, impede the accessibility of community pharmacies, and hinder patients from receiving vital medications.

The main objective of this research was to investigate challenges and outcomes associated with pharmacists' medication management practices after disasters. Disaster management consists of four phases: prevention, preparedness, response, and recovery (Watson et al., 2019). However, the phases of disaster management emphasized for this study were response and recovery by community pharmacists. The aim of the research was to describe the pharmacists' role as public health providers and health professional team members during these two phases of disaster management.

This chapter addresses the background, problem statement, purpose, research questions, framework, nature, assumptions, definitions, delimitation and limitations, and significance of the study; it also summarizes information and presents a conclusion of the chapter content. Each section of this chapter provides details regarding the foundation and the importance of the research. The findings of the study may result in positive social change by demonstrating pharmacists' vital role as they plan for, prepare for, and respond to disasters while providing medication information and health care to patients.

Background

Due to disasters' frequency of occurrence and their colossal impact on communities, it was vital to conduct more research on challenges and pharmacists' experiences with medication management and patient medication compliance in postdisaster communities. Myriad studies have applied theories emphasizing disaster preparedness practices, experiences, human behavior, and efforts to educate individuals regarding disaster awareness and emergencies (Ejeta et al., 2015). Melin and Rodríguez-

Díaz (2018) discussed the challenges of managing and accessing medications used by patients with chronic diseases following a hurricane. Melin et al. (2018) analyzed pharmacists' ability to perform medication management activities after a storm presented personal and professional challenges in Puerto Rico. Moore and Kenworthy (2017) described the pharmacist's role during relief efforts as providing patient care and medication distribution with limited resources. This study serves as the foundation for pharmacists' necessary involvement in the delivery and management of medication during disasters. Mak and Singleton (2017) studied pharmacy operations and pharmacists' ability to continue providing services within the community after the effects of bushfires in Tasmania, Australia. Adding to the knowledge gathered by the above studies, this research expanded on how pharmacists have conducted medication management practices after the impact of disasters in the United States and the Caribbean.

Problem Statement

Several studies have focused on disasters and their impact on humans and the environment. The Center for Research on the Epidemiology of Disasters (CRED) classifies natural disasters as either geophysical, meteorologic, hydrologic, climatologic, or biologic (Ejeta et al., 2015). Disasters are widespread occurrences that result when typical response systems are irresolvable during an emergency activity and can be natural or human made (Adelman et al., 2019). Disasters in both categories have impacted the lives of countless communities throughout history.

Worldwide meteorological events caused 70,834 deaths, and climatological effects caused 47,235 deaths between 2010 and 2017 (Teknős, 2018). The outcomes of

such disasters can be natural, technological, biological, or nuclear (Moss, 2015), and such impacts have the capacity to disrupt the natural order of life within seconds. Natural disasters occur with tornadoes, hurricanes, tsunamis, blizzards, earthquakes, flooding, and climate change. Terrorist acts and events such as floods and fires caused by human actions are examples of human made disasters. Adding to this, infectious bacterial and viral diseases can cause epidemics and pandemics due to the evolving relationships between humans and the natural environment (Bradley & Bryan, 2019).

Disasters can cause havoc for an entire community, state, or country. For example, the United States experiences approximately five disasters each year at a $20 million cost for residential property damages (Elliott & Howell, 2017). Furthermore, disasters lead to medical emergencies, demand for medical assistance, and potential public health crises in affected communities. The impact of disasters may also impede the delivery of medication and care to consumers for their health-related treatments. A disruption in social functions can occur, including providing medical care, food, water, sanitation, energy, communication, and education, that can affect pharmacists' ability to deliver optimal services (Epp et al., 2016). These events experienced by community-based pharmacists may lead to consequences that result in challenges to medication management that, in turn, may affect the overall health and wellbeing of their community.

Medication management refers to pharmacists' ability to ensure patient adherence to medication regimens and to support medication management activities (Siebert & Schwartz, 2017). Pharmacists should verify that patients receive proper prescriptions, accurately fill orders, and monitor patient adherence to treat acute conditions and chronic

diseases (Siebert & Schwartz, 2017). However, the overall estimated cost of healthcare services per year in the United States is $100 billion, and one-quarter million fatalities are due to nonadherence to medication therapy (Kini & Ho, 2018). Therefore, pharmacists should have a plan to ensure that medication management standards are followed before, during, and most significantly after the impact of a disaster.

Pharmacists advise patients and them with information to help them manage medication to improve their quality of life. They are customarily responsible for preparing and implementing medication plans for patients while counseling them on how to take medication. They provide further assistance on how medication controls, prevents, and treats medical conditions and diseases (Chandrasekhar et al., 2019). The American Society of Health-System Pharmacists (ASHP), a pharmacist professional organization, has expressed that all pharmacists must promote health by incorporating initiatives into practice on all levels, from personal to global standards. Given pharmacists' typical responsibilities, emergency disasters may present challenges that hinder their ability to effectively perform routine duties according to pharmacy and public health standards.

Purpose of the Study

Through this research, I aimed to identify challenges and outcomes experienced by pharmacists and to investigate their medication management practices after emergency disasters. As residents within the community experience disasters while also managing diseases, pharmacists, physicians, and other health professionals have a duty to care for patients and persons in need. However, immediately after disasters, pharmacists may encounter challenges that inhibit their ability to perform management tasks, deliver adequate patient care, and provide medications and medical supplies.

The study participants were community pharmacists who resided and worked in the United States. Pharmacists identified and described challenges, their apparent responses to those challenges, and their ability to perform the necessary tasks to ensure that patients received medication. The study further investigated pharmacists' intervention and mitigation efforts that addressed the interruption of patient care and medication distribution. The responses of the participants in this study may provide valuable information on how communities and public health professionals can support pharmacists in their roles as medication managers during a vulnerable period.

Research Questions

The research questions guided the objective of the study. The research questions for this study were as follows:

RQ1: How do pharmacists respond to disasters and maintain medication management practices in the immediate postdisaster phase?

RQ2: What are the key system changes that influence pharmacists' medication management practices during and immediately after a disaster?

RQ3: What responsibilities and roles do pharmacists recommend implementing or improving in regard to medication management and related procedures during and immediately after a disaster?

The study consisted of steps necessary for identifying themes and patterns that influence pharmacists during medication management activities.

Framework of the Study

I applied the ecological model of disaster management as a foundational principle in this study. The model indicates that disaster management systems are continually

changing, and everything connects to everything else (Beaton et al., 2008). The model explains human behavior concerning responses to challenges presented by disasters' impact (Beaton et al., 2008). The ecological model of disaster management provides a foundation to investigate pharmacists' medication management practices performed at professional and community levels in the aftermath of disasters. The model identifies disaster management elements that result in the prevention of adverse health outcomes or consequences.

The ecological model of disaster management identifies specific disaster management phases. These phases are planning, preparedness, response, and recovery (Beaton et al., 2008). Each stage impacts how pharmacists manage medication activities and respond to disasters. The model explains the relationships between medication management practices and the elements of emergencies, including the inability to access medications and data, which influence the relationship between system changes and pharmacists 'responses.

Nature of the Study

I applied a qualitative methodology in this study to investigate and understand conducted semistructured interviews with the participants who met the necessary criteria for the study by telephone. The interviews consisted of open-ended questions based on relevant published literature and the research questions to gather rich data. The community pharmacists provided historical, social, and cultural details for evaluation (Mohajan, 2018). The qualitative methodology and design were appropriate for this research focusing on pharmacists' experiences, challenges, and responses following a disaster.

The study was investigative and helpful in understanding how pharmacists maintain or improve patient adherence and safety once disasters have impacted and potentially resulted in a loss of social functions. Pharmacists shared their experiences and challenges during such vulnerable times as they performed their duties and responsibilities for the patients in the community. They also discussed disaster preparedness and how prescription medications treat chronic diseases such as diabetes (Tolley, 2016). The information in the study demonstrates how pharmacists react to a disaster immediately after and up to 30 days after the impact. The information involving medication management is considerably helpful for pharmacists to prepare and respond during and after disasters.

Definitions

Disasters: Disasters are widespread occurrences that result when routine response systems cannot overcome an impact during an emergency activity (Adelman et al., 2019).

Emergencies: Events or incidents that occur spontaneously but may conclude with a standard emergency response within the local area (Adelman et al., 2019).

Immediate postdisaster: For this study, the time representing the early recovery from the first day to 30 days after the disaster.

Medication management: Medication management is a complex practice and involves instrumental activities conducted by pharmacists, including communicating with providers regarding prescriptions; the interpretation, filling, and distribution of drugs; and the consumption of medications as prescribed for daily living (Siebert et al., 2017).

Pharmacist: According to Porwal et al. (2016), a pharmacist is a health professional who manages and provides professional services, including medication

reviews, patient profile assessments, and disease management programs, individually and collaboratively with other healthcare providers.

Social functions: Epp et al. (2016) summarized social functions as elements for survival: public health, medical care, water and sanitation, shelter and clothing, food and nutrition, energy supply, public works, social structure, communication, the economy, and education.

Assumptions

The study encompasses several assumptions regarding the targeted population and the research topic. The study population consisted of 15 participants interviewed to share their experiences. I can only assume that the responses provided reflect the pharmacists' most accurate and truthful recollections regarding managing medications during and immediately after the impact of a disaster. The participants shared responses that were assumed to be correct and without bias. In addition to the criteria met by the participants, the answers can reveal and uphold new principles.

Scope and Delimitations

The research involved registered pharmacists who worked in community or retail pharmacies; such pharmacies generally have an average of no more than two full-time pharmacists on duty at any given time during regular business hours. The study used a qualitative design; therefore, correlational analysis was limited or absent. The research results help in understanding the pharmacists' responses to medication management following disasters as the participants expressed during the interviews. The study followed disaster responses; hence, I excluded any mention of emergency responses from the final analysis. Retrieving rich data from the respondents' interviews can aid in

revealing unknown findings. The study does not represent hospital pharmacists or pharmacists who work in nuclear pharmacies or pharmacy management (PBM) affiliations. The study involved a subjective evaluation within the scope of qualitative research.

Limitations

The study necessitated interviews as a source of data collection. The data collected may have affected the concise and logical analysis (Mohajan, 2018). Limitations related to the study might have occurred if respondents gave only generalized and superficial responses to the interview questions. Such generalized information might include responses to common reactions to living through emergencies unrelated to medication management. The findings of the study may result in positive social change by demonstrating pharmacists' vital role as they plan for, prepare for, and respond to disasters while providing medication information and healthcare to patients.

Recruiting participants was challenging because the selection criteria required community pharmacists who responded to disaster events; however, I ultimately obtained a sufficient number of participants. Qualified respondents could reject an invitation to participate in the study. Obtaining an adequate number of participants who met the study criteria and shared experiences relating to the impact of disasters was challenging. However, the sample of participants recruited for this study resulted in rich data.

Significance of the Study

A qualitative inquiry was necessary to address and understand the responses provided by pharmacists regarding medication management following the impact of disasters. Disasters cause havoc in the distressed community by damaging houses,

businesses, and infrastructure while increasing the expenses for business, personal assets, healthcare resources, and disaster aid (Moa et al., 2018). Disasters also result in significant challenges in managing illnesses, mainly for people who rely on medication. Pharmacists are medication experts, immunizers, and educators who can also perform their duties as public health servants and emergency respondents (Hennessy, 2017). Therefore, the lack of studies regarding medication safety management after natural disasters warrants an investigation of the challenges and outcomes that pharmacists may experience.

The study is significant because the findings may unveil strategies to maintain and improve medication adherence following disasters. Additionally, investigating the response and acting on the results may enhance the presence of pharmacists during a community event in the public health sector. During disasters throughout the United States, community pharmacies experience significant challenges concerning the accessibility of medications and the ability to manage medication adherence to control chronic diseases (Melin & Rodríguez-Díaz, 2018). Pharmacists are healthcare professionals in communities who are easily reachable immediately after disasters and whose role involves maintaining medication adherence (Jiménez-Mangual et al., 2019). The information obtained from this study may provide a means by which pharmacists can contribute to social change by improving the community's health and advancing professional practices, particularly when faced with challenges after disasters.

Summary

The chapter's sections summarized the rationale and the objective of the study. The chapter provided details on the background, problem statement, significance, social

change implications, conceptual framework, definitions, scope, delimitations, and limitations as precursors of the next chapter. Chapter 2 provides a review of literature on several types of disasters, emergency responses, and pharmacists' role in managing medications and overcoming challenges, along with methods to provide continuous services and communicate with residents. Exploring the feelings and expectations of the pharmacists who respond to the impact of a disaster and their emergency disaster preparedness was essential for this research. In the next chapter, I analyze the published literature on the above-discussed matters while identifying a gap in research for this study.

Chapter 2: Literature Review

Introduction

In this chapter, the literature review provides background on the impact of natural disasters, emergency responses, and challenges encountered by residents and health providers in affected communities. The literature review includes relevant published research to set the groundwork for the study's focus on medication management practices employed by pharmacists who provide patient care during specific postdisaster periods. The study addressed pharmacists' typical responsibilities and the challenges and methods used to address medication management after the impact of disasters. Furthermore, the chapter depicts the search strategies used to retrieve articles related to the topic of the study and identifies a gap in the literature.

Disasters can severely impact the distribution of vital medicines and medical supplies and the provision of patient care. The impact of disasters may impede the delivery of care to consumers and the distribution of medication needed for health-related treatments. Consequently, the severity of the impact can disrupt social functions, including medical care, food, water, sanitation, energy, communication, and education, which affect pharmacists' ability to deliver optimal services (Epp et al., 2016). Residents and patients require medications and supplies to maintain and treat chronic and acute conditions; thus, accessibility of medication and continuity of care are essential for treating medical conditions and illnesses in the face of disasters.

The objective of this qualitative research was to investigate pharmacists' responses to medication management after disasters. The interpretation of responses identified the phenomenon provided by a volunteer group of 15 community pharmacists

in the United States and the Caribbean. I used a qualitative approach to examine the medical management practices employed by these pharmacists during specific postdisaster periods.

Various factors affect community health, including funding, regulations, and technical assistance resulting in disaster preparation and recovery, due to key system changes. These factors simultaneously affect the ability of pharmacists to perform professional and personal responsibilities sufficiently during and following the impact of disasters. The Center for Preparedness and Response under the Centers for Disease Control is one organization that helps maintain and improve the preparation for and response to community public health issues by recognizing these factors (Centers for Disease Control and Prevention [CDC], 2020). Public Health Emergency Preparedness (PHEP) supports public health departments with grants to recognize and respond to disasters and threats. These groups or individuals also skillfully assist and enact potential regulations for disaster preparedness. The responses described by the pharmacists in this study can provide valuable information on how communities and public health professionals can support pharmacists in their roles as medication managers following disasters.

Literature Search Strategy

The literature review entailed retrieving background sources related to medical management practices employed by pharmacists during disasters. I searched relevant literature via the Walden University Library, which provided access to databases including CINAHL, MEDLINE, Ovid, PubMed, SAGE, ScienceDirect, and ProQuest. I also searched for sources on Google Scholar. Published studies that served as the

foundation for this study were retrieved using multiple keywords targeted for the research. These keywords included inclusive word combinations; applying Boolean operators (AND, OR, NOT, or AND NOT) provided focused results by eliminating irrelevant results and reducing the overall search time. The following keywords were identified initially for this research: *pharmacist*, *pharmacy*, *disasters*, *natural disasters*, *medication management*, *medicine*, *hurricanes*, and *tornadoes*. The search terms included *emergency preparedness*, *community pharmacy*, and *patient adherence*. The keyword *ecological* was recognized in the CINAHL database.

The literature review involved retrieving articles published between 2015 and 2020 and including peer-reviewed articles, full-text articles, and documents with statistical information and definitions. Although there were limited studies regarding pharmacists involved in disaster management, I retrieved empirical or seminal articles—recent articles from news and professional association websites.

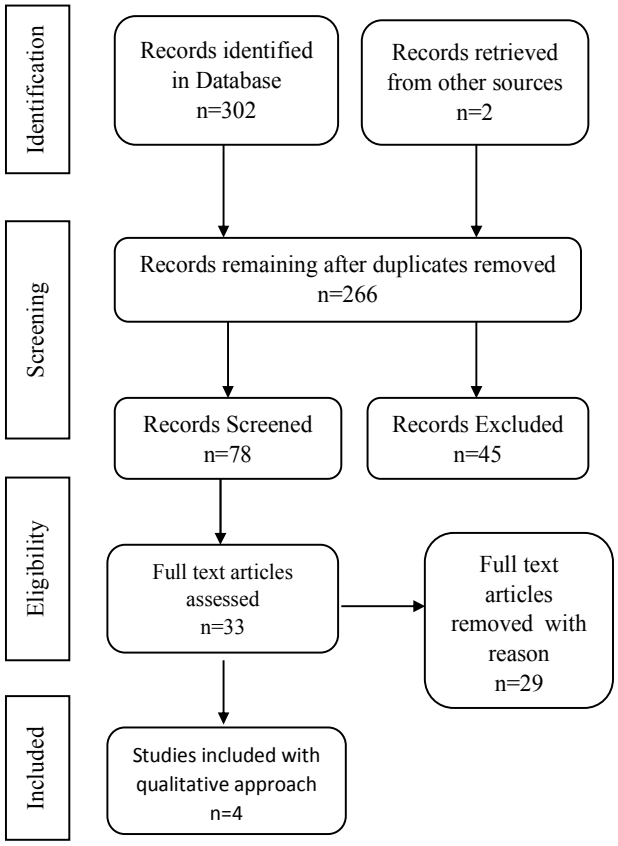
The subsequent search supported the idea that there is a gap in the literature as specified in pharmacists' responses to medication management following disasters. The study of medication management is essential for the community and medication adherence as a public health concern. This study fills this knowledge gap and provides valuable information for future research.

Figure 1 shows the classification, the number of references, and the actions taken to retrieve sources and organize the literature review. Initially, records identified the topic in the library database and other sources. I retrieved and screened records from the sites. The screening process included scanning and reading articles to remove duplicates and nonessential articles. The selected articles for the literature review were peer reviewed,

available in full text, and contained eligible information. The last step was the inclusive process to keep all studies necessary for this qualitative study.

Figure 1

Process Flowchart



Note. From "Preferred Reporting Items for Systematic Reviews and MetaAnalyses: The PRISMA Statement," by D. Moher, A. Liberati, J. Tetzlaff, D. G. Altman, and The PRISMA Group, 2009, *PLoS Med 6*(6), Article e1000097 (https://doi.org/10.1093/ptj/89.9.873). Copyright 2009 by Moher et al. Reprinted with permission.

Theoretical Foundation

Theories are ideas used for explanation or justification. Several theories were evaluated and eliminated due to unsuitable characteristics. Ejeta et al. (2015) explained the various theories that can apply to disaster preparedness procedures, experiences, and human behavior, as well as to efforts to educate individuals regarding disaster preparedness and emergencies. Human behavior demonstrates a shifting to the survival mode that includes the storage of food and water and planning requirements to restore damaged structures and properties in the face of a disaster. Considering all factors, I determined that the ecological theory and model were the most suitable theoretical base for this study.

Ecological Theory and Model

The ecological model of disaster management was the foundational principle of this study. The ecological theory describes systems that are continually changing and within which everything connects to everything else (Beaton et al., 2008). The approach identified and explained human behavior related to the responses to and challenges of disasters (Beaton et al., 2008). Because this study focused on the responses of pharmacists regarding their professional responsibilities after the impact of disasters, rather than the actions of patients, this model was applicable to this study.

The ecological theory can relate to human behavior in the workplace and the community. Bronfenbrenner (1977) initially established that the theory of an ecological framework has human relationships and interactions aligning in multiple layers of organizational complexity (Beaton et al., 2008). Human development in the context of ecological sensibility necessitates individual personalities, interactions, and behavior

among family members, a family within the community, and the community that reflects the influence of macrosystem factors, including social policy, legal structure, and social changes (Tregaskis, 2015). Beaton et al. (2008) supported the ecological model of disaster as an investigational framework. The model identifies disaster management elements that result in the prevention of adverse health outcomes or concerns.

Beaton et al. (2008) described disaster planning phases and applied a hypothesis regarding potential events and interactions on familial (personal) and global (professional) levels. Their hypothesis established a way for pharmacists to include organizational and other underrepresented elements in disaster planning within community pharmacies (Beaton et al., 2008). The ecological model of disaster management describes specific disaster management phases (Beaton et al., 2008). Each phase impacts how pharmacists manage medication activities and, most importantly, explains how pharmacists respond to disasters. The ecological theory applied to this study because the concept behind the method is that systems are continually changing, and everything connects to everything else (Beaton et al., 2008). The ecological model also explains the relationships between medication management practices and the elements of disasters, such as the inability to access medications and data, which influence the relationship between system changes and pharmacists' responses.

In this study, the ecological model of disaster management was used to guide the development of disaster management plans based on the responses of the pharmacists to medication management following the impact of disasters. These emergency response plans consisted of prevention, preparedness, response, and recovery (Watson et al., 2019). During the prevention or mitigation phase, the presentation of threats minimized

health risks. Efficient and effective response plans were enacted during the preparedness phase. The response phase characterized the actions taken during the disaster. The final phase, recovery, occurred when everything returned to normal. I evaluated pharmacists' responses to determine if and how each phase of disaster management related to medication management and disaster planning.

Beaton et al. (2008) also noted that the model assumes the significance of disaster recovery efforts influenced by sustaining and rehabilitating elements. Pharmacists within the community can continue to introduce strategies to continue and improve medication management and adherence during disaster recovery. As noted by Jiménez-Mangual et al. (2019), pharmacists are the healthcare professionals in communities who are considered the easiest to reach immediately after disasters. The information obtained from this study may provide a means by which pharmacists can contribute to social change by improving the community's health and advancing the practices of the profession, particularly when faced with challenges during disasters.

The Correlation of Theory and Methodology

The concepts of a phenomenon are often revealed in qualitative studies, derived from new and multiple perspectives (Kegler et al., 2019). The ecological model of disaster management describes the need for pharmacists to provide ongoing services after a disaster; however, little information is available about the experiences of these health professionals in disaster responses and how the responses may impact their ability to manage medications. Jiménez-Mangual et al. (2019) were the first researchers to study patient medication following a natural disaster. They noted the need to study the accessibility of medications in disaster response planning, the health of the most

vulnerable patients with chronic illnesses, and the use of medication maintenance. Therefore, focusing on these aspects, this study probed into the experiences and practices of pharmacists after a disaster.

The study used a qualitative approach as the analysis method, and the data gathered were descriptive. The qualitative approach was appropriate because it allowed me and the respondent to focus on experiences, challenges, and responses to the impact of a disaster. This measure enabled me to understand the importance of the pharmacists' ability to continuously deliver quality health care to manage medications and ensure patient medication adherence. The theory for this study provided the framework upon which the following research questions depended:

1. How do pharmacists respond to disasters and maintain medication management practices in the immediate postdisaster phase?
2. What are the key system changes that influence pharmacists' medication management practices during and immediately after a disaster?
3. What responsibilities and roles do pharmacists recommend implementing or improving in regard to medication management and related procedures during and immediately after a disaster?

In response to semi structured interviews, the pharmacists who served as respondents provided historical and social details for evaluation. The qualitative descriptive nature of the data is useful for researchers to understand how pharmacists maintain or improve patient adherence and safety once disasters have impacted and caused a loss of social functions. Furthermore, the information demonstrates how

pharmacists react to a disaster while practicing medication management and ensuring adherence 30 days after impact.

Preview of Major Research

The relationship between the changing environment and population health is nationally recognized. More explicitly, the study's interest recognizes the essential link between people and the environment (Lewis & Townsend, 2015). The environment continuously deteriorates, potentially due to climate change and disasters that lead to changes in human health and environmental protection (Lewis & Townsend, 2015). The association of natural and human made disasters requires attention to the type and adequacy of medical responses and medication management.

Medication management is a complex practice when pharmacists conduct instrumental activities, including communicating with a provider regarding a prescription; interpreting, filling, and distributing medications; and taking medications as prescribed for daily living (Siebert et al., 2017). Disaster preparation and treatment begin at the origin of the disaster and consist of medical preparation, triage, first aid, and the conveyance and stabilization of injured people (Alexandra Nola, 2018).

Researchers have highlighted various types of disasters and the results of their impact on residents and the community. Jenkins (2015) remarked that a natural disaster is an occurrence, or a catastrophe caused by nature, including hurricanes, cyclones, blizzards, earthquakes, and flooding that affect human populations. Natural disasters are related to phenomena, including weather or geologic events (Adelman et al., 2019). Natural hazards originate from atmospheric, hydrologic, oceanographic, volcanological, and seismic sources, resulting in catastrophic events; these occurrences disrupt daily

living routines (Glade et al., 2020). According to the International Disaster Database Guidelines of the Centre for Research on the Epidemiology of Disasters (Brussels, Belgium), a disaster that involves 10 or more reported fatalities and 100 or more affected people is declared a state of emergency or warrants international assistance (Saulnier et al., 2017).

Disaster response phases include mitigation, preparedness, response, and recovery, with each phase presenting various challenges (Adelman et al., 2019). Figure 2 displays these phases. Among these phases, both preparedness and response are essential for pharmacists to ensure sufficient health care and medications for the affected community.

Figure 2

Disaster Response Phases

Mitigation: The initial phase when the community identifies the types of disasters in the community to prepare for a natural or human made disaster. This phase addresses the prevention or reduction of disasters' impact by implementing public health attributes to develop a stronger community.
Preparedness: The phase when educating and training are necessary to respond to and recover from a disaster by strategically planning pre-disaster activities, response, and rescue by operational teams and community members.
Response: This phase entails implementing of preparedness actions to prevent extensive property damage and fatalities. During this phase, the distribution of resources, the restoration of infrastructure, support from organizations, and significant clean-up.
Recovery: The phase that demonstrates restoring and returning to normalcy. Infrastructure and sustainability are essential during this period.

Note. From "Disasters: Who Responds When?" by D. S. Adelman, C. Fant, L. Wood, and C. Zak, 2019, *Nurse Practitioner, 44*(10), pp. 50–55. (https://doi.org/10.1097/01.NPR.0000580788.51732.59). Copyright 2022 by Ovid Technologies, Inc. Reprinted with permission.

Several agencies serve to guide and support the necessary authorities through the disaster response phases during and after a disaster. The Federal Emergency Management Administration (FEMA) and the Department of Homeland Security are among these agencies that address the incapability or inaccessibility to reach victims after the impact of disasters (Adelman et al., 2019). These organizations assist with developing plans and laws to use as guidelines for addressing emergency planning for disaster responses. The communities are responsible for creating disaster and emergency preparedness strategies,

including building capacity and identifying and filling gaps to enable the best methods to respond to disasters (Adelman et al., 2019). This study may reveal how the pharmacists react to the consequences that potentially occur during each phase of a disaster, emphasizing the response and recovery phases.

Emergency Responses to Historical Disasters

In 2017, during the aftermath of Hurricane Harvey, Hurricane Irma, Hurricane Maria, and the wildfires in California, the access to prescriptions and existing medical treatment plans were disrupted. Although the disasters occurred in different regions and territories of the United States, the commonality of the need for the community to function through the continuation of medical and patient care was remarkable (Sledge & Thomas, 2019). For example, the residents of Puerto Rico stated that while the pharmacists were the most convenient health care providers to contact, the challenges presented included the lack of functioning telecommunication systems, gasoline shortages, and the exacerbation of chronic diseases due to the inability to obtain maintenance medications and treatments during the first seven days following the impact of the storm (Jiménez-Mangual et al., 2019). Residents of the communities that experienced disasters in Texas, Florida, California, and Puerto Rico with chronic diseases and consumers who required regular medications, treatments, and procedures, faced challenges after disasters that inhibited accessibility to supplies needed for medication adherence, procedures, and treatments including, vaccinations, blood transfusions, and dialysis (Jiménez-Mangual et al., 2019).

Pharmacists responding to emergencies often work under constrained conditions. Thompson (2013) described an incident following a tornado that destroyed a medical

center in May 2013, during which a lead pharmacist volunteered at one of the Heart to Heart mobile medical units in Moore, Oklahoma. Pharmaceutical supplies were donated and delivered to the site, including inhalers, injections, and other supplies. The operation of the pharmacy began with pharmacists volunteering to cover necessary shifts. Although the temporary mobile unit was small, the necessary equipment was available along with a small-sized refrigerator. The medical group provided antibiotics, corticosteroids, and other medications for acute and minor injuries. A relief effort resulted in funds totaling over $3000 from pharmacy related sources, including the Oklahoma Society of Health-System Pharmacists (Thompson, 2013).

Earthquakes present grave challenges to the communities and healthcare providers. These challenges include maintaining the stability of infrastructure for storing medicine, accessing power sources, and communicating with patients who may be physically and mentally traumatized (Alexandra Nola, 2018). An earthquake near Salt Lake City, Utah, resulted in power outages to thousands of residents and disruptions in air and rail transportation (Cappucci, 2020). The earthquake transpired in March 2020 and was considered the strongest to strike since 1992 (Cappucci, 2020). During an earthquake, shelter, food, water, and medication are prominent human needs that impact public health with potential long-term health consequences (Alexandra Nola, 2018). Thus, it is essential to have an evacuation plan in the disaster preparedness design to continue medication distribution.

Another devastating disaster is the occurrence of floods. Floods have affected approximately 2.3 billion people internationally, with 157,000 fatalities over the last 20 years. (Saulnier et al., 2017). Floods specifically cause several health issues due to

contact with water and debris. Such complicated health issues include transmission of infectious diseases, physiological stress, malnutrition, as well as inaccessibility to places that offer preventative and curative health services (Saulnier et al., 2017).

Moreover, necessary responses to floods result in structural and infrastructure damages, inaccessibility to health care facilities, the need for evacuation and displacement, overcrowding, animal and insect control, and insecure living conditions. In 2015, in Richland County, South Carolina, a natural disaster disrupted residential activities in community homes and access to basic needs and medical care. The disaster, a torrential rainfall, caused 16 inches of floodwater and became known as the "1000-year flood" (Gainey et al., 2018). Twenty-thousand residents were displaced, 40,000 people were without water, and 941 shelters were utilized statewide (Gainey et al., 2018). Health professionals performed wellness checks after identifying the medically vulnerable, seniors, and disabled residents for safety (Gainey et al., 2018). Massive impacts on basic human needs such as the above scenario present significant challenges to public health practitioners, including pharmacists, who are bound to care for the affected community and protect them from unsafe concerns.

Many people who live in disaster-frequent communities require constant assistance with managing chronic diseases, accessing medications, temporary housing, and home visits for checkups (Gainey et al., 2018). Addressing such issues, the Mobile Integrated Health (MIH) and Community Paramedicine (CP) providers assist in disaster response by informing citizens on the need for personal emergency readiness, including a sufficient supply of medications, durable medical equipment, and evacuations plans. The MIH training for pharmacists consists of environmental and socioeconomic patient

evaluations, medication reviews, chronic disease management, medication compliance evaluations, counseling, and self-care instructions (Gainey et al., 2018).

The Role of Pharmacists

Pharmacists are essential members of health care teams. They improve medication management necessary in all health care settings, including hospital emergency departments (ED). Pharmacists provide services and help manage medication reconciliation, prescription information, education, and drug supply (Weeks et al., 2014). They also work collaboratively with healthcare providers such as physicians for efficient medication management and patient care.

Pharmacists are essential healthcare providers who contribute to patient care practices for optimal patient outcomes, including distributing medication to the patients and attending to the overall treatment outcomes for chronic diseases that require continuous medical attention (Powal et al., 2016). Moreover, they play an essential role in public health interests. They are indispensable regarding expanding and improving responsibilities during disaster preparedness. Pharmacists fulfill public health goals by providing immunizations, health education, patient counseling, and other activities (Aruru et al., 2020). Research reveals that patients have indicated their trust and confidence in services delivered by pharmacists based on expertise and training.

In addition to providing patient care and safety, community pharmacists also play a vital role in collaborating with health teams, particularly in public health emergencies (Aruru et al., 2020). The pharmacy emergency preparedness and response framework contain operations management, public health education, professional training, evaluation, research, and dissemination for impact and outcomes (Aruru et al., 2020).

All healthcare providers, including pharmacists, who support emergency response activities must understand the standards of care. They are required to educate themselves and the workers on the laws related to disaster preparedness and the duties of health professionals. The pharmacy emergency preparedness and response framework contain operations management, public health education, professional training, evaluation, research, and dissemination for impact and outcomes (Aruru et al., 2020).

In addition, according to Adelman et al. (2019), when the state governor or the president declares a state of emergency following a disaster, the provider must recognize the declaration and expiration and prepare to respond based on the most current situation. Pharmacists aim to respond within the first 24 to 48 hours following the impact of a disaster since this is a crucial period to provide health care. It is a necessary part of their responsibilities to provide detailed information and awareness to patients and the victims of the disaster or the emergency.

Melin and Rodríguez-Díaz (2018) discussed the challenges regarding managing and accessing medications used by patients with chronic diseases following a hurricane. Melin et al. (2018) analyzed pharmacists' ability to fulfill medication management activities after the hurricane presented personal and professional challenges in Puerto Rico. Moore and Kenworthy (2017) described the pharmacist's role during relief efforts by providing patient care and the distribution of medication with limited resources. In Tasmania, Australia, pharmacy operations and the pharmacists' ability to continue to provide services within the community after the impact of bushfires were investigated (Mak & Singleton, 2017).

Summary and Conclusion

The literature review provided a detailed analysis of published literature on the ecological theory, the ecological model of disaster, the correlation of theory and methodology, and historical disasters with an emphasis on community pharmacists and medication management. The reviewed studies encapsulated the significant role of the pharmacists during and after a disaster. Each study provided background information formulating a dialogue to engage the study participants with former research positions. I will investigate how the pharmacists' roles and responses are essential in medication management involving a disaster. The next chapter describes the qualitative methodology, the researcher's role, and other segments of the data collection process.

Chapter 3: Methodology

Introduction

The objective of this qualitative research was to investigate the responses of pharmacists to medication management after disasters, to identify the challenges and outcomes experienced by them in the community. The study focused on the immediate postdisaster public health impact and the disruptions and changes that influence pharmaceutical care within public health. The previous chapter provided a literature review on several types of disasters, emergency responses, pharmacists' roles in managing medications, overcoming challenges, methods to provide continuous services, and ways to communicate with residents during and after a disaster. Chapter 3 described the study's qualitative approach by explaining the nature of the research, the aim of the research, my role as the researcher, the participant recruitment process, and the process of collecting and analyzing data with ethical considerations.

The impact of disasters increasingly results in structural and financial crises. CRED classifies disasters as geophysical, metrological, hydrological, climatological, and biological (Ejeta et al., 2015). Reports categorize disasters by the number of fatalities, declaration of emergency, individual consequence, and requirements for international assistance. The United States experiences approximately five disasters each year, with a cost of $20 million for residential property damages (Elliott & Howell, 2017). The impact of natural or human made disasters has the potential to disrupt the socioeconomic functions of a community, state, or entire country for a considerable period.

Essential services in a society, especially medical care, and treatments, are undoubtedly affected by the impact of disasters. Pharmacists, physicians, and other health

professionals care for patients and people in need of medical attention during such times. However, during and immediately after disasters, pharmacists may face challenges that inhibit their ability to perform management tasks, to deliver adequate patient care, and to provide medications, medical supplies, information, and so forth. For example, the accessibility of prescriptions and medical supplies becomes limited, resulting in significant issues in regulating treatments for acute and chronic diseases (Melin & Rodríguez-Díaz, 2018). Moreover, the storage of medications, particularly those that treat diabetes and cardiac arrests, requires refrigeration facilities, which presents a challenge during a disaster. Emergencies can disrupt the availability of electricity and water, which is necessary to maintain historical medication activities while also inhibiting communication between pharmacist and patients.

The gravity of these issues when both natural and human made disasters occur more often and more severely is apparent, and this study explored pharmacists' responses and activities following a disaster that affected health care in the community. According to the U.S. Census Bureau (2017), approximately 211,000 pharmacists serve in the country. They supply medications for consumers and manage medications before, during, and after disasters. Pharmacists are also key players in maintaining and restoring the production and distribution of drugs and medical supplies to the community. This study explored how pharmacists professionally and personally reacted and responded to the aftermath of disasters. Their responses may provide valuable information on how communities and public health professionals can support pharmacists in their roles as medication managers during a vulnerable period.

Research Design and Rationale

The qualitative methodology or design was appropriate for this study, given the focus on the experiences, challenges, and responses of the study participants. According to Jones et al. (2019), a qualitative research method is an appropriate methodology to use when programs and projects target individuals and their lived experiences. The design is rich in meaning and explanation (Rahman, 2017). The analysis begins in the field instead of waiting for the end of the data collection (Tolley, 2016). Qualitative studies provide rich contextual data (Tolly, 2016). They reveal the factual objective of the data and evolve throughout the process, highlighting patterns, themes, concepts, and meaningful categories. The topics are connected and analyzed throughout the study for enhanced consideration.

Even though both qualitative and quantitative designs mandate rigor and credibility, and the meaning behind either method requires understanding, a quantitative method was not suitable for this research because it is designed for statistical analysis (Creswell, 2013). The data involve variables measured with numeric values to casual projections and complex group differences (Jones et al., 2019). Using the design and interpretation of conventional surveys, the quantitative model is primarily generalized to an entire population or a subpopulation (Mohajan, 2018). The misinterpretation of complex phenomena often occurs in quantitative studies (Mohajan, 2018).

Qualitative research design is applied when it becomes difficult to capture or understand complex phenomena with quantitative research (Mohanan, 2018). These studies are subjective, and they mandate adherence to ethical guidelines before data collection occurs. Qualitative research also requires the researcher to understand the

participants' desire to share how they interpret and interact with the world that surrounds them (Tooks, 2016).

Qualitative methods apply to researching how emergency healthcare responders perform after disasters (Johnson & Vindrola-Padros, 2017). Human behavior is demonstrating during community-level emergencies and disaster response operations (Johnson & Vindrola-Padros, 2017). The qualitative method helps describe human behavior by analyzing how the participant views and expresses a lived experience. As such, qualitative methods apply to researching how emergency healthcare responders perform after disasters (Johnson & Vindrola-Padros, 2017). In addition, using a qualitative approach for the descriptive data gathered in this study provided insight into how pharmacists react to a disaster while practicing medication management and ensuring adherence up to 30 days after impact.

Multiple techniques for creating and conducting health-related studies exist. The data analysis in qualitative studies follows transcribing interviews and making detailed notes from observations (Rahman, 2017). A pilot study is appropriate when considering the sample size and the degree of engagement of the study.

Role of the Researcher

The researcher is known as a contributor to public health outcomes and plays an integral part in meeting the goal of the study. The researcher interprets information, forms partnerships with participants, and explores the social understanding of reality (Tolly, 2016). However, the researcher has no personal relationship with the participants. The researcher works with the participant by listening to the language used to share

experiences and thoughts as raw data to develop research questions and concepts (Tolly, 2016). My role was to serve as the primary researcher for this study.

Qualitative research contributes to social inquiry, which involves striving to understand human behavior (Bradbury-Jones et al., 2017). Therefore, the researcher can use the participants' experiences to explain human reasoning, develop new theories, and construct interventions. The researcher applies assumptions, decisions, actions, and conclusions in qualitative inquiries (Raskind et al., 2019). During the research process, the researcher can assess the potential use of beliefs and judgments and their influence on the research. It is essential to exclude any biases or assumptions in a standard generic research approach during such assessments.

As the researcher in this study, I interviewed and engaged the interviewees to share feelings and emotions to form an official response or an accurate view of reality by both parties. The information was obtained with sensitivity while respecting common sense and responsibility, which affected the depth and quality of the interview material and data (Karagiozis, 2018). Thus, I avoided using leading statements or questions to avoid biases or predetermined responses and followed these guidelines to obtain valuable data. I have a pharmacy background and did not interject any personal feelings or experiences to lead the participants' responses in any manner.

Nature of the Study

A qualitative methodology was applied in this study to investigate and understand the community pharmacists' responses to medication management following disasters. The study was a basic qualitative study to capture the lived experiences of pharmacists through descriptions. This research began with the intention of utilizing

phenomenological interviewing, which is an informal process to obtain a comprehensive and descriptive account of a phenomenon's lived experience (Cypress, 2018). However, for this generic study, sessions with participants were held using semistructured interviews. Based on former literature and the research questions, I asked open-ended questions to obtain rich data during the interviews. The information involving medication management, preparation, and response during and following a disaster is helpful for pharmacists.

Public health research conforms to issues that concentrate on cultural context (Tolley, 2016). Naturally, people within communities overcome challenges and issues that are formed among members of social groups. These challenges also include disaster preparedness and prescription medications used to treat chronic diseases such as diabetes (Tolley, 2016). In response to semistructured interviews, the pharmacists provided historical, social, and cultural details for evaluation (Mohajan, 2018). I used the qualitative methodology and design to identify such phenomena that might be presented by the participants, considering the focus on pharmacists' experiences, challenges, and responses following a disaster. The study was investigative and may be useful in understanding how pharmacists maintain or improve patient adherence and safety once disasters have impacted communities and potentially resulted in a loss of social functions.

Research Questions

Research questions are the precursor to the response or solution sought in research. The questions address a gap in research identified through a review of relevant published literature. In this research, I sought a better understanding of the influences on pharmacists' interpersonal, professional, and environmental conditions that will shape

future disaster planning. The research questions developed for this study also mandated the use of a qualitative approach. The theoretical framework of the questions was based on the ecological model of disaster management. The data gathered were descriptive and helped to answer the research questions. Guided by a strong conceptual framework, the following questions led to useful responses for this study.

RQ1: How do pharmacists respond to disasters and maintain medication management practices in the immediate postdisaster phase?

RQ2: What are the key system changes that influence pharmacists' medication management practices during and immediately after a disaster?

RQ3: What responsibilities and roles do pharmacists recommend implementing or improving in regard to medication management and related procedures during and immediately after a disaster?

Phenomenon of Interest

A phenomenon consists of significance and relevance and warrants exploration, explanation, and understanding (Cypress, 2018). The phenomenon of interest in this study is an aspect of public health, and the results of the study can contribute to social change. This study called for a generic qualitative research approach to investigate the narratives of pharmacists and their views of medication management practices following disasters. The study involved community pharmacists who worked in the United States and the Caribbean during a disaster while serving patients and practicing medication management.

Methodology

Participant Selection Logic

The participants in this study were registered pharmacists who worked in community pharmacies throughout cities within the United States where disasters had occurred. Pharmacists were selected based on their experience in dealing with disaster emergencies that caused interruptions in daily operations and their ability to ensure that community residents received the necessary medications to maintain and treat acute/chronic diseases. The sample size of a study is adequate when collecting enough data. The study sample consisted of 15 participants. Saturation occurs when retrieving no added information and is an indicator of comprehensive data collection. The geographical locations targeted in this research were those where the following types of disasters had occurred: tornados, hurricanes, floods, fires, earthquakes, blizzards, droughts, or epidemics/pandemics.

Procedures for Recruitment and Participation

I followed the participant recruitment procedure and process that were based on criteria established by the research department of the university. The participants were registered pharmacists who practiced within the 50 states and the Caribbean. The location of the participant and workplace were requirements for participation in the study. Selected participants could include retired community pharmacists if they had experienced and responded to the impact of a disaster while they were employed. A snowball method was used as well by asking potential participants to contact other pharmacists who might meet the study criteria.

More than 12 pharmacists were considered to obtain saturation, and each respondent was asked to participate in a 60-minute interview. The participants were interviewed via telephone with a free conference call application. After confirming the participation of pharmacists employed in the United States and the Caribbean, I provided a brief description of the research and information on the interview process.

I identified the respondent's role and provided an evaluation and an interpretation of all events and actions related to the study. An announcement to recruit participants was sent to relevant social media groups, professional websites, and relevant email contacts (see Appendix A). The potential participants were notified and sent correspondence regarding the study via my Walden University email account.

Sampling Procedures

In-depth, semistructured interviews were the principal method used to obtain data to meet the requirements of this study. Interview questions were designed to elicit detailed descriptions of the responses following a disaster. I intended to gather detailed lived experiences without focusing on any causal explanations or interpretive generalizations (Cypress, 2018). An in-depth interview allows the participant to express thoughts and behavior in a natural way (Tolley, 2016). The goal of the qualitative interview was to reduce the inclusion of predetermined responses in gathered data. In response to the semistructured interviews, the pharmacists provided historical, social, and cultural details for evaluation (Mohajan, 2018). The broad questions could require follow-up inquiry to achieve definitive answers.

Depending on the type of phenomenon, data may be structured or unstructured (Brigitte, 2018). A semistructured interview with flexible questions was the method of

choice for this study. The participants provided as much information as necessary to explain their understanding of situations. The number of participants determines the sampling size, which must provide an adequate number of responses indicating the participants' experiences and views. I recruited 14 community pharmacists and one hospital pharmacist as study participants. To ensure the validity of the sampling procedure, the participants were registered pharmacists who experienced a disaster while employed in a community pharmacy.

Data Collection, Instrumentation, and Sources

After I had evaluated and followed the criteria to select study participants, data collection occurred as a mutual interaction between me and the participants and me. The collection of data in a study is necessary for compiling information that will address the research questions. The steps taken to collect data include interviewing, observing, and analyzing documents and scientific literature. Subjectivity may occur during the data collection process (Nigar, 2020), but the data collection method should ease in collecting information.

A questionnaire was given to participants during the initial recruitment to review and verify their qualifications. The potential participants were notified or sent correspondence regarding the study via a Walden University email account. The questions for the interview were designed to answer the research questions.

The study followed a qualitative approach, and the interview process reduced the inclusion of predetermined responses when gathering data. In this study, the data were derived from the responses to questions in semistructured interviews conducted via telephone sessions. The 30-minute interview consisted of open-ended questions that

allowed the participants to provide a testimony in their own words that incorporated words or images to demonstrate their thoughts and experiences. The pharmacists shared their opinions on how responses to the disasters, planning, and preparedness resulted in positive outcomes, including maintaining medication management and adherence. The questions and answers reflected the pharmacists' skills and practices utilized after a disaster. I asked participants follow-up questions if the participant had to clarify any responses during the interviews. I recorded the participants by audio-recording during the interviews and transcribing responses with the participants' permission. The transcripts from the interviews were evaluated and coded for emerging themes and subthemes (Hilger-Kolb et al., 2019).

Issues of Trustworthiness and Ethical Considerations

The study followed the principles of ethical considerations. The participation in this study was voluntary and the participants had the right to refuse their participation. They were informed about the purpose of the study as well as the measures taken to protect their privacy, anonymity, fairness, and to ensure protection against potential harm. I asked permission to record the interviews and offered a written consent form to the participants before the interview via email or mail which could be returned by similar means. All questions and responses provided by the participants will remain protected and confidential.

Once the participant was approved for the study, the interview was conducted via telephone and the responses were recorded through the software application, FreeConferenceCalling.com used to conduct the interview. Each responder was assigned a number to ensure anonymity. The data will be kept in a locked file cabinet for the time

required by Walden University. There was no compensation, and each participant was notified of the outcome. Once the responses were recorded by software, the information was transferred to a MS Word document per computer, transcribed verbatim, and analyzed. The data analysis entailed coding and determining themes while also identifying potential emerging patterns and current information. Software such as Microsoft Excel and NVivo was used to analyze data.

The Validity of the Study

This study followed the qualitative method with internal validity, which is essential to aim for a particular outcome. Threats of internal validity such as manipulated conditions should be identified and removed (Meltzoff & Cooper, 2018). Data were collected in this study using interviews as an accepted qualitative method of data collection. Appropriate safeguards were employed in the interview process to ensure credibility. Ensuring validity in the study is also essential for future researchers to utilize information.

The quality of the research is determined by credible, transferable, confirmable, and trustworthy. Transcribing and transferring the responses from interviews verbatim and exploring the detailed notes from observations increases credibility (Cypress, 2018). Trustworthiness is enhanced by the researcher's experience, training, preparation, and competence regarding research (Cypress, 2018). Credible data and findings are achieved by techniques used to reduce biases and limitations of a specific source or method (Cypress, 2018).

Limitations and Challenges

There are some challenges and limitations in this study due to several parameters. Recruiting may be challenging because the study requires specifically the pharmacists who responded to disaster events; therefore, obtaining an adequate number of participants who meet the study criteria and are willing to share experiences related to the impact of disasters may be challenging. Moreover, the data collected may affect the concise and logical analysis (Mohajan, 2018). The study may also potentially result in partial responses to interview questions and pharmacists may provide generalized information or standard replies that are insignificant. The concern for privacy policies established by most business entities may also present issues.

Summary

This chapter justified the use of the qualitative methodology for this study. This approach allowed the participants to share their experiences with disaster preparedness, responses to disasters, and the ability to provide professional care. The chapter further explained in detail the research design, the participant recruitment procedures, data collection, analysis, and ethical concerns.

Chapter 4 provides the results of the data collection and analysis. Chapter 4 includes the analysis of the findings and potential patterns, themes, and essential information that could help healthcare professionals and the communities prepare and respond effectively in a postdisaster context.

Chapter 4: Results

The objectives of this research were to investigate the challenges, outcomes, and considerations of medication management practices experienced by pharmacists after disasters. Through this study, I also aimed to identify challenges and outcomes experienced by pharmacists and to investigate their medication management practices after the impact of disasters. As residents within a community manage diseases while experiencing the impact of disasters, pharmacists, physicians, and other health professionals have a duty to provide care to patients and persons in need. However, during and immediately after disasters, pharmacists may encounter challenges that can diminish or inhibit their ability to perform management tasks, deliver adequate care to patients, and provide medications and medical supplies.

Research Questions

The overarching research questions guiding the study were the following:

RQ1: How do pharmacists respond to disasters and maintain medication management practices in the immediate postdisaster phase?

RQ2: What are the key system changes that influence pharmacists' medication management practices during and immediately after a disaster?

RQ3: What responsibilities and roles do pharmacists recommend implementing or improving in regard to medication management and related procedures during and immediately after a disaster?

In Chapter 4, I address this study's research setting, the participants' demographic descriptions, the research methodology used for the data collection process, data analysis, details regarding trustworthiness, and the research findings. Chapter 3 describes how I

collected, analyzed, and identified themes and patterns prevalent in the pharmacists' responses to disasters while identifying medication management activities and any changes. The data was derived from 10 interview questions used to create emergent themes.

Research Setting

I conducted interviews with participants by telephone. I recruited 15 participants, and the interviews ranged from 12 minutes to 29 minutes. After arranging the date and time, I called each participant from my home office. I interviewed participants individually by telephone rather than using focus groups because of the inability to meet participants face to face who were in distant locations throughout the United States. Due to the current pandemic, personal contact was discouraged; this presented a challenge to meeting face to face. Recruiting volunteers to participate in a group interview was challenging due to the various yet stringent work schedules of the participants.

Interview Protocol Design

The data collection process began after receiving approval (#02-22-21-0484380) from the Walden University Institutional Review Board (IRB) to recruit and interview study participants. Prior to interviewing participants, inclusion and exclusion measures were taken to establish the qualification of the volunteers. The inclusion criteria included the following: (a) community pharmacist (retail, independent, community) and (b) experienced a disaster while working as a pharmacist in the United States or the Caribbean. Exclusion criteria applied to those participants who might have experienced a disaster during their employment but did not respond, for example, to return to work after the disaster.

A questionnaire consisting of six questions comprising qualification criteria for the study was distributed to participants to ensure credibility. I began the questionnaire by providing confidential and privacy information regarding storage, the deidentification of participants, and my contact information. This process ascertained that the participants possessed the qualifications necessary to participate in the study. The questions on the form acquired contact information and qualifications for each participant. I began the questionnaire by requesting the participant's name.

Although the participants provided their names for identification purposes, no names were revealed in any part of the study. Additionally, the telephone number and email address for each participant were obtained to contact the individual during the interview and if any clarification of information was needed. Lastly, information on the patient's workplace and type of disaster was requested for study qualification purposes. Each participant provided their credentials and compared them to the requirements of the study.

I used a generic qualitative research design for this study. I posted an invitation with a description of the study on social media, including Facebook and LinkedIn. Each social media website included pharmacists' professional groups that I targeted to recruit community pharmacists. I also invited participants to take part in the study by emailing an invitation to pharmacists referred by colleagues, former coworkers, and members of the professional groups on social media.

Questionnaire Format and Design

After responding to the invitation, potential participants received a questionnaire by email to determine if they met the study qualifications (see Appendix B). A

questionnaire consisting of six questions inquiring about qualification criteria for the study was distributed to participants to ensure credibility. I began the questionnaire by providing confidential and privacy information regarding storage, the deidentification of participants, and my contact information. This process ascertained that the participants possessed the qualifications necessary to participate in the study. The questions on the form were asked to obtain contact information and qualifications for each participant.

I started the questionnaire by requesting the participant's name. Although the participants were asked to provide their names for identification purposes, no names were disclosed in any portion of the study. Additionally, I obtained the participants' telephone numbers and email addresses to contact them during the interview and clarify any information. Lastly, I requested their workplace information and type of disaster for study qualification purposes. Each participant provided their credentials and compared them to the requirements of the study.

Recruitment and Consent

The study's qualifications required that each participant be a community pharmacist who had practiced during a disaster within the United States and the Caribbean. I emailed a consent form for each participant to read. If the volunteer agreed to participate, their response was "I agree" and was returned by email.

I emailed a follow-up message reminding the participant of the purpose of participating in the study and scheduling a date and time for the interview. An interview was scheduled after downloading and printing the questionnaire and consent form. The names associated with the email were blackened out. I recruited 15 pharmacists to participate in the research study.

Geographical restrictions and pandemic regulations limited access to face-to-face interviews. I exclusively conducted interviews by telephone using a web application. I was unable to conduct face-to-face or focus group interviews because the participants were located throughout the United States. Additionally, utilizing the telephone to complete interviews was more appropriate and feasible than face-to-face sessions due to the pandemic. Social distancing, wearing masks, and barriers to virus testing also prevented the normalcy and ease of interviewing in person.

Criteria for Inclusion and Exclusion

The participants for this study were all registered pharmacists employed in the United States who shared their experiences regarding a particular disaster. Specifically, all but one participant of this study were pharmacists who worked in community pharmacies and had experienced and described a disaster in one of the following states: Georgia, Louisiana, Nevada, Tennessee, and Texas. The study consisted of 15 pharmacists with professional experience ranging from 1 year to 29 years. Recruiting became challenging when potential participants stopped responding to the invitations and declined previously scheduled appointments to interview. A few potential volunteers indicated that they were unable to participate due to time constraints and other obligations.

Figure 3

Inclusion and Exclusion Criteria

Inclusion criteria	Registered pharmacist in the United States and the Caribbean
	Practiced in a community pharmacy during a disaster
Exclusion criteria	Nonregistered pharmacist in the United States
	No experience with disaster management while employed
	Pharmacists practicing outside the United States and the Caribbean

Description of Participants

Participants' descriptions, including the location and type of disaster, are provided; however, I have removed all personal identification for privacy.

Participant 1: A registered pharmacist for 27 years who worked for a grocery chain pharmacy in Dallas, Texas, and experienced a snowstorm in 2021.

Participant 2: A registered pharmacist for 27 years who worked for a chain pharmacy during Hurricane Harvey, Category 4, in Texas in 2017.

Participant 3: A registered pharmacist who worked for a chain pharmacy for 17 years and experienced a snowstorm in Atlanta, Georgia, in 2014.

Participant 4: A 15-year registered pharmacist in Houston, Texas, who worked for a chain store pharmacy during a snowstorm in 2021.

Participant 5: A 10-year registered pharmacist who worked the night shift for a chain pharmacy in Memphis, Tennessee, during the novel pandemic COVID-19 in 2020.

Participant 6: A registered pharmacist who worked for 27 years and experienced COVID-19 while employed in a retail pharmacy in Atlanta, Georgia, in 2020.

Participant 7: A registered pharmacist for 27 years, who worked in Atlanta, Georgia, in a community pharmacy during the novel pandemic, COVID-19, in 2020.

Participant 8: A registered pharmacist who practiced for 29 years, experienced flooding in Las Vegas, Nevada, and worked in a chain pharmacy.

Participant 9: A registered pharmacist and manager of an independent pharmacy who had practiced for 27 years; experienced human-caused flooding of the pharmacy in Atlanta, Georgia, in 2020.

Participant 10: A registered pharmacist who worked as a staff pharmacist in an independent pharmacy in Atlanta, Georgia, and experienced flooding caused by human intrusion in 2020. The pharmacist had practiced for 25 years.

Participant 11: A staff pharmacist in a retail pharmacy who had been practicing for 14 years. She experienced the impact of Hurricane Harvey in Houston, Texas.

Participant 12: A registered pharmacist who had practiced for 26 years, was employed in a grocery chain pharmacy, and experienced a snow and ice storm in Atlanta, Georgia.

Participant 13: A registered pharmacist in Lake Charles, Louisiana, who experienced Hurricane Laura in 2020. The pharmacist had practiced for 1 year at the time of the event.

Participant 14: A registered pharmacist who had practiced in Atlanta, Georgia, and experienced a snow/ice storm. She worked for a grocery store chain and had practiced pharmacy for 25 years.

Participant 15: A pharmacist of 26 years who worked in a local hospital in Waterboro, South Carolina. The participant worked during Hurricane Michael. However, this participant was not a retail pharmacist who shared the experience of working with the community pharmacies during the disaster.

Table 1

Participants' Demographic Information

Participant number	Location	Number of years as a pharmacist	Type of disaster
P1	Dallas, Texas	27	Snowstorm
P2	Houston, Texas	27	Hurricane
P3	Atlanta, Georgia	17	Snow/ice storm
P4	Houston, Texas	15	Winter storm/snowstorm
P5	Memphis, Tennessee	10	COVID-19
P6	Atlanta, Georgia	27	COVID-19
P7	Atlanta, Georgia	27	COVID-19
P8	Las Vegas, Nevada	29	Flooding
P9	Atlanta, Georgia	27	Flooding
P10	Atlanta, Georgia	25	Flooding
P11	Houston, Tx	14	Hurricane
P12	Atlanta, Georgia	26	Snow/ice storm
P13	Lake Charles, Louisiana	1	Hurricane
P14	Atlanta, Georgia	25	Snow/ice storm
P15	Waterboro, South Carolina	27	Hurricane

Data Collection

The data collecting process allows a researcher to use collection tools that align with the participants' comfort level and wellbeing to obtain real opinions and experiences (Yildiz, 2020). I recruited fifteen participants by accessing professional pharmacists' groups through social media, by using email, and by networking via telephone. The

groups were targeted to contact individual pharmacists who might not meet the criteria for the study but were willing to participate by sharing their views. The participants were easier to reach because the organization members on social media were registered pharmacists throughout the United States.

Performing interviews was valuable and resulted in rich and detailed data for research. The method also helped in understanding the participants' experiences, their interpretation, and descriptions of their viewpoints (Castillo-Montoya, 2016). Following each interview, a recording of the session was titled and saved on the freeconferencecalling.com website and downloaded on a designated cloud, hard drive, and thumb drive. Interviews were used as data for qualitative research analysis and allowed participants, as nonresearchers, to share their perspectives about a discussion with the researcher in their own words.

I conducted the interviews by telephone and recorded them via freeconferencecalling.com from my home office. Each participant dialed into a session using a designated phone number from my account at their assigned date and time. Freeconferencecalling.com charges a long-distance fee depending upon the telephone provider. However, the platform provides security by providing the account holder assigning the host a four-digit code to manage calls. I managed the calls by viewing the conference call activities while online on the freeconferencecalling.com website. I could view and manage recording options. The account holder or host has a username and password for security and must log on before each phone conference. I provided each participant with the assigned telephone number and a code to enter the conference call. Once the participant called during their scheduled time, the interview was recorded and

stored on my registered freeconferencecalling.com account, managed, and accessed on a dashboard.

I documented each participant's initials, email address, phone number, date, and recording time on paper. I informed each participant of the purpose of the study and confidentiality details and that they could skip a question and provided instructions to ask questions if necessary. If they decided not to participate, the interview process would end. The interviews transpired from 12 to 27 minutes based on the speed and details of the interviewee responses. All interviews took place between 3/15/21 and 6/11/21.

Description of the Interview Questions

The interview questions, listed in Appendix C, were asked, and used to obtain data from the participants' responses. In this study, I am determining whether community pharmacists would respond similarly in disaster situations considering their perceived role in medication management practices and the care of patients. As such, the interview questions were designed to elicit responses for data and evidence that could support or reject the hypothesis. The interview questions correlated with each research question and each response was analyzed to determine emerging themes. The study focused on community pharmacists with similar backgrounds and requisite training; therefore, I analyzed and compared the pharmacist's reported experiences. In total, the interview questions responses address each of the three research questions. My plausible explanation for certain occurrences and expectations supports their actual reported experiences with each disaster and similar experiences and responses.

Data Analysis

I began the data analysis process after listening to the interview recordings and reading the transcripts several times. I began analyzing data by manually defining codes and themes from participant's responses via transcripts. Ryan (2009) recognized Saldana, who characterized patterns and themes from transcripts by similarities, differences, sequence, causation, frequency, and correspondence. I identified patterns and created themes from coded data. I search for key words that were used by several respondents and recorded each on an Excel sheet. Clark and Veale (2018) described a technique used in their study to identify coded data and themes by creating a top 10 list. The list consists of chronological, hierarchical, telescopic, episodic, narratively, or listing from small to much larger outcomes (Clark & Veale, 2018). A table consisting of columns that list the theme, the definition of the theme, and documented evidence of the theme provides a display of the study's findings and the relationships (Clark & Veale, 2018).

I followed the six steps to analyze data as described by Creswell. The steps include organizing and preparing data after transcribing interviews, reviewing the data, coding the data, categorizing the codes to define themes, and interpreting and presenting the findings (Creswell, 2014). I transcribed the interview responses manually, followed by using Microsoft's voice-to-text dictation tool. The interviews were documented using Microsoft Word and stored on the hard drive in a protected file, the Cloud, and thumb drive. I recorded only the participant numbers and initials on the transcripts. The transcription process took an average of two days per interview because I reviewed each transcript multiple times to ensure accuracy. Data was generated from participant's descriptions of their medication management activities and actions during disasters.

I conducted the interviews by telephone from my home office. Each participant dialed into the freeconferencecalling.com using a designated phone number for my account at their assigned date and time. The call is charged long-distance fees by the participant's telephone provider depending upon their long-distance service. I asked each participant the exact ten written interview questions. I informed the participants that the interview recordings and transcripts remained confidential. The interview questions were semi-structured, and most were open-ended (See Appendix 2). I informed each participant of their right to withdraw or discontinue the interview. A few participants requested to repeat or skip questions; however, they all completed the interview.

Although a few interviews were interrupted while in progress, the interview continued after resolution or reconnection. I listened to recordings on freeconferencecalling.com more than once to ensure the dictations were accurate. Each participant was informed about receiving a copy of their interview transcript and later emailed for further explanation and verification. I stored all interviews and study details on the computer hard drive, the Cloud, and a flash drive. Initially, codes were generated based on the responses of the participants after transcribing the interviews.

Interview Questions and Selected Responses

The following is a list of the interview questions and exemplary participant responses with analysis:

Interview Question 1: Refer to Your Most Recent Disaster You Were Involved in as a Registered Retail Pharmacist. Can You Briefly Describe the Disaster?

The participants' responses to question 1 entailed their description and location of the disaster they experienced. The disasters caused by natural events included hurricanes,

snow, flooding, pandemic, and ice storms. Human-caused disasters resulted in flooding. The type of disaster and workplace location was emphasized on the questionnaire.

Five participants (1, 3, 4, 12, 14) reported the impact caused by snow or ice. Four participants (2, 11, 13, 15) in Texas, South Carolina, and Louisiana discussed their experiences with hurricanes. Three pharmacists (8, 9, 10) described flooding in Nevada and Georgia. Three participants (5, 6, 7) discussed the COVID-19 pandemic.

Participant 1 vividly express the concern regarding cold temperatures and the resulting disruption in infrastructure.

> Sure, we had snow and ice and extremely low temperatures in our area a few weeks ago, and there were power outages all throughout the Metroplex area, there was a lot of pipes that burst because of the low temperatures …

Participant 6 expressed that the pandemic presented itself as a new yet significant disaster in the United States.

> Definitely Covid 19, which presented itself as a real disaster. I would say in March of 2020, it was in the news and months before that. But it seemed like it was distant to us because it was happening in another country …

Participants 8 and 13 described the flooding, the consequences of the extreme rainstorm, and the immediate reaction to the disaster. Participant 8 said, “The disaster consisted of severe flooding. A lot of rain came down really, fast, so it was hard to react. It wasn’t expected.” Participant 13 stated,

> OK, so last year, back in August, we had a hurricane with which Louisiana is very familiar with; basically, it is a big rainstorm that could particularly be very dangerous. So, Hurricane Laura was classified as category 4 or 5 …

Interview Question 2: Were You Familiar With Postdisaster Planning Activities That Were Used During the Disaster That You Were Involved in?

Seven of the participants (2,3,8, 10, 11, 12, 14) were not familiar, three were familiar (5,7,15), and five participants (1, 4, 6,9,13) were minimally familiar with postdisaster planning activities.

Participant 2 was minimally familiar with postdisaster activities and said, "Well, as far as on a corporate level, no, but they did get the word down to us as to how we were to handle day to day procedures." Participant 5 demonstrated that they learned about the plan other than by the employer, replying, "Yes, through my own research and through my email." Participant 6 expressed how their employer was a company that established plans for nationwide stores.

> I was familiar with the activities because my company had been involved in other disasters outside of the state of Georgia. I'm in Georgia, but our company has responded to disasters, particularly in Florida, because Florida has so many storms, hurricanes …

Interview Question 3: Are You Familiar With Your Current Emergency Disaster Preparedness and Response Protocol Involving Other Professionals Such as Doctors, Nurses, or Specialists During and Immediately After a Disaster? If So, Can You Describe Some of the Protocols With the Doctors, Nurses, and Specialists?

This question revealed that nine pharmacists (Participants 1, 2, 5, 6, 10, 11, 12, 13, 14) were unfamiliar with emergency disaster preparedness and response protocols involving other professionals. Participant 2 said,

> Not really, as far as statewide basis, I just I knew what I needed to do … and a lot of doctors' offices were closed, hospitals were open at best they could be. Emergency personnel were getting people to where they needed.

Two participants responded that they were familiar with protocols relating to health professionals' ability to reach the workplace after the event. Participant 3 stated,

> Some of the protocols that I'm aware of are just making sure that people, you know, have options as far as where they stay. Some places will rent out hotels for physicians or nurses to get back to their hospital settings that are closer to the facilities in some instances, or they might have places for them to sleep inside of the hospital to accommodate the weather changes outside. Typically, what they'll do is they will ask for volunteers for people that can come in that might be closer to the facility as opposed to those that may be further away.

Additionally, the pharmacists who work closely with nurses ensured the patients could get their medications after the event's impact.

Participant 7 worked directly with nurses in the community setting and was familiar with their protocols regarding responding to disasters. Participant 7 said,

> I was in a retail setting with some nurses, so some of the protocols that the nurses had and I had been similar. I was aware of the nurses making sure that there were proper medications in place, and they were also related to the pharmacist to make sure they were in place and that we had to go to a certain location.

Interview Question 4: Were Any Changes in Regulations Experienced Within Your Pharmacy Since the Impact of a Disaster? What Were Examples of the Changes?

Six pharmacists (Participants 1, 3, 10, 11, 12 and 14) stated there were no changes in regulations since the impact of the disaster they experienced. Four pharmacists (Participants 2, 6, 9, and 11) mentioned changes in regulations that allowed them to provide an extended supply of medication for patients with or without current prescriptions and from the patient's prescriber and the delivery of medicines by mail.

Participant 2 stated, "give a longer day supply; for example, normally for an emergency supply for a patient, you could give three days, but we could give you know in some cases up to 30 depending on where they were coming from." Participant 6 explained, "We were allowed to mail out medications in which we normally aren't able to mail out because of their disaster." Participant 9 noted,

> The new regulations that are built in Georgia. For instance, with the Covid pandemic, we are allowed to give the patient up to a 90-day supply worth of medication. If we cannot get hold of the patient-doctor, we cannot refuse patient medication because you cannot get hold of the patient's physician.

Participant 13 stated,

> So, in Louisiana, the law says for the pharmacist during a natural or state of emergency. Legally you could write a one-month or 30-day prescription for

> patients, so, coming back from the hurricane, once we opened back up, I kind of wanted to come back to help my community during that time, especially during the time of panic. The doctor offices and everything else was closed, so patients were still needing their medications, so we were able to come in. They could bring in their bottles, and we were able to write a one-month supply of medications.

Interview Question 5: How Would You Define Medication Management in the Context of Responding to Consumer or Patient Needs Immediately After a Disaster?

Three pharmacists (7, 8, 13) mentioned the reaction of panic and fear by staff members and patients when responding to patient needs, the patient themselves when unsure if they would be able to get the vital medications, and the pharmacists' ability to provide their medication. Participant 7 stated, "I think … during the process everyone in this pandemic definitely panicked." Other defining terms included the ability to supply medication and counsel as part of their responsibility to maintain medication management.

Two participants (6, 9) stressed their involvement to counsel and to communicate with patients while experiencing challenges due to a disaster. Participant 6 said, "Oh, because patients weren't coming into the pharmacy, we had to rely on a lot of counseling over the phone. I work in a community where there are a lot of elderly patients, retired patients." Participant 9 stated,

> We have this damage, but the patient's health comes first. So as soon as we are able to get back online, which took a few hours, we have to communicate with the

> patient and let them know why the phones were off and why they couldn't reach us and ensure that they don't have that gap in their drug therapy.

Medication management practices are essential for positive patient outcomes when meeting patient needs. Providing medications for patients who experience inaccessibility to regular care is also essential to ensure treatment continues during disasters. Participant 3 noted,

> The things that people mostly seek out during disaster times is food and medicine. So, for us as pharmacists, we need to be able to try to access our place of work or be able to come into work so we can accommodate the needs of the community, but that needs to be done with still some understanding of how to line it for everyone to be safe, you know, about trying to provide care for the community.

Participant 10 stated,

> For example, some of our patients had narcotics prescriptions that were destroyed by the flood. We had to reach out to the physicians to get a replacement prescription filling and make sure our patients are well taken care of. But they could not miss their medication, regardless of what goes on in the pharmacy.

Participant 14 explained,

> Well, I mean, before the disaster what I did was some people who had refills too soon, I gave them a weeks' worth of medication and documented it in the system. Because we did not know when the ice was going to melt and what we could do after the storm, like after Katrina, we had an emergency plan where the claim would go through, and we did that. If it were a regular customer or a customer of mine where something was going on with them, instead of doing three days,

> depending upon what the medication was, I would do seven to make sure that had enough to last until they could get whatever situation worked out.

Participant 12 mentioned the importance of the patient receiving medications when the medications may be destroyed in the disaster, lost, or require an override for financial reasons that present an obstacle to providing care to patients.

> You know how like when an individual if they are in the midst of a disaster-stricken area, they're actually able to override particular maintenance medications for the patient to get. But the thing about it is, what do you do with a cash-paying customer? I mean, do you just write it off or what? To me, it will make sense to allow them to have the same privileges and where you can actually, you know, write off that particular cost, you know at the end of the fiscal year.

Interview Question 6: Explain and/or Describe Your Experience When You or Your Pharmacy Staff Made Changes Relating to Medication Management During or Immediately After the Disaster.

Only one participant (2) noted no changes related to medication management, and one pharmacist (10) asked to skip the question. Three pharmacists (5, 6, and 7) stated that they made changes due to COVID-19 including how medications were ordered, filled, and distributed to the patients. The patients were also required to adjust how they received their medication. Participant 5 stated, "So even from like a management standpoint to an employee standpoint; I think everybody has a personal sacrifice, this level, personal sacrifices. But then in the end, again, the overall day-to-day operations didn't change very much." Participant 6 said,

> In general, we call patients about their medications anyway. Our company got a program that prompts us to call patients before coronavirus. After coronavirus, we got more and more prompts to call more and more patients. It takes more time to call patients, so we, as a staff, had to figure out that some of our patients because we deal with a lot of elderly patients, I had to make sure that we called certain patients.

The participants (4, 6, and 7) stressed the importance of changes in communication with patients and their personal lives. Participant 13 said,

> We still have lives outside the jobs at the pharmacy, we have our personal life, and still trying to do the best that we can to help these people or some type of answers as to or how they could continue their therapy.

Interview Question 7: What Challenges, If Any, Did You Experience Related to Costs or Funding That Impacted Your Ability to Conduct Medication Management Practices During and Immediately After the Disaster?

Five pharmacists (1, 2, 5, 6, and 13) responded that they did not experience any cost or funding issues that impacted the ability to conduct medication management practices. Three pharmacists (9, 10,11) stated the effect of the patients receiving and providing medication with insurance coverage. The pharmacist noted that the business demands changed, requiring more staffing hours and inventory to ensure all patients received medicines in response to the disaster.

Participant 3 expressed personal challenges regarding financial obligations to access work to continue medication management practices.

> I think for me just trying to get back into work was probably the biggest cost for me. For example, in some instances, I had to pay for my hotel, or there was one time where my car broke down.

Participant 4 said, "When you are talking about the funding, I think the company gave us a lot of hours after the disaster because they knew that a lot of customers."

Participants 5 and 7 shared experiences regarding funding for unavailable medications due to the implementation of the effects of the pandemic. Participant 5 said,

> I guess one the largest corporation you know they may have been impacted by fewer sales, but it mostly was due to product, not necessarily the treatment. Like for example, you had less people who wanted emergency rooms because they were scared of COVID. So, we saw less scripts from emergency rooms.

Participant 7 said,

> So, for instance, one of the medications that we had a huge problem with was metformin ER. It went from like $0.36 to almost $2000 to some absurd number like $8000 a bottle because it was coming out of Canada. So, what we did was we tried to implement in a place where we were just getting plain metformin which also went up in price but not so much in price, so we were able to access that because one of the factors that we had also is that we are a 340 B pharmacy, and we're a retail pharmacy that deals with indigent patients.

Interview Question 8: What Challenges Did You Experience When Obtaining Technical Assistance to Operate and Ensure a Continuation of Medication Management Practices?

Five participants (6, 10, 11, 13, and 14) stated they did not experience challenges when obtaining technical assistance. One pharmacist (8) asked to skip the question without response. Overall, most participants expressed the need for technical assistance caused by power outages. Participant 1 stated that the employer has a help desk to call when needed; however, during the disaster, the help desk was unable to provide adequate assistance.

> We have a corporate help desk customer who had a computer help that we call when we have issues. But in this instance, you know they really couldn't do a lot to help us. We have a backup generator for the store, and we just had to wait it out. You know they really couldn't really help us a whole lot in those two days.

Billing became an issue for pharmacists when customers needed to check out. The pharmacist did not charge patients for prescription orders while the registers were offline to prevent a gap in care. Pharmacists realized they had to adapt to medication supplies, computer operation, and operating after addressing the disaster. Participant 3 said, "Yeah, we were unable to function in the pharmacy; we had to work offline, and so that sometimes cause either the power outage or their service outage. We had to work offline; we couldn't charge the patients." Participant 4 explained,

> If we have any technical difficulties, it could be, you know the insurance is not paying and doesn't want to pay for it because it would be too early or not very significant. But maybe insurance companies are thinking insignificantly, so they

> give us a phone number to call that they also give us a number or code with the email.

Participant 5 stated, “Oh, just the software having to be updated. You were having to learn like quickly with regards to the vaccine; we had to learn how to process them.” Participant 7 said,

> The pandemic has taught us to implicate better technical issues such as computers reaching out to our wholesalers early in the morning if we had technical difficulties. So we would have to come in a little bit earlier than usual.

Participant 12 noted,

> As far as what overrides to utilize in order for the claims to go through, and however that was, for instance, like Tricare; you had to talk to someone, and it was really, really difficult trying to get through to talk to someone.

Interview Question 9: What Information/Experiences Regarding Planning Have You Acquired Compared to a Disaster Experienced Since Then (If Applicable)?

Four participants (8, 10, 12, and 13) stated the question was nonapplicable, meaning that their employers did not have established plans or did not know of the current disaster plans. Participants stated no changes compared to previous disasters.

Participant 1 stated the impact of the disaster was the longest in duration compared to other disasters, which required a longer period to respond to the obstacles caused by the disaster.

> Oh, I guess the length of time, but this one was longer than I had ever experienced. We’ve had tornadoes to come through you know we had to lock up the pharmacy and go back in a back room to where it was safe at the back of the

> store itself with all the other employees to stay safe while the tornado passed over but usually after about 30 minutes or so, you go back you know to go back and get back to work. This time, this was longer, this was days.

Participant 2 said,

> Nothing was really too much different as far as disasters that I have dealt with before cause as far as hurricane billing and that type of thing the issues are going to be always the same, it's a matter of making sure that you have electrical power and making sure that people can get into the facility to work and make sure that the patients that you have coming in are going to be safe when they come in so no world major differences.

Participant 3 responded,

> I think for us is for me just being better prepared. So, if I know that there's bad weather, I actually packed like an emergency bag with me, which might consist of, you know, blankets, gumboots (if I must walk in the snow), water. I'm just making sure I have like my own emergency kit and then also I established a safe place for me to go if I'm not able to get home.

Participant 6 explained,

> In typically even near hurricanes or storms, normally those issues, they last for a week or two weeks and after a month or so, start getting back to normal. With coronavirus, one of the hardest things we witnessed was people who had doctor's appointments, who couldn't make those appointments, doctors' offices, just not answering their phones. Or doctors were doing telemedicine, and people did not know how to operate their computers. So, we had so many patients running out of

> refills, and they didn't have their medication, and one of the things that, I guess the state did in instances like that they allow us to make on the spot decisions about things such as refills.

Participant 11 shared that this was the first experience regarding a disaster as a retail pharmacist. She shared the importance of helping patients by educating about the disaster and the best methods to maintain the medications.

> This is my first time experiencing this situation, so as far as being able to, I know, that we can write the emergency prescriptions for the patient versus refills for the patient and just being able to call the insurance to let them know that it's a national disaster when they can adjudicate even if because we have people who lost medication due to their house actually being flooded so they may have gotten their prescriptions three days ago, but their medication was underwater, so they needed to get more medication, not due to the fact that it is just a refill but it's just they literally lost everything in the floods.

Interview Question 10: Should Medication Management Require a Universal Emergency Disaster Plan for Pharmacists? Why or Why Not?

Three pharmacists (2, 3, and 5) stated that there should not be a universal emergency disaster plan for pharmacists. The remaining participants responded positively to the need for a universal goal. They emphasized the need for regulations, rules, guidelines, state, and national plans. Representative responses are listed below that indicate reasoning for a universal emergency disaster plan.

Participant 1 said,

> We could help people you know wouldn't hesitate to help people that need a couple of tablets. But for anything that would like yes like you know insulin or inhalers, or you know that kind of thing is different so if there was some type of regulation nationwide that will cover them if we did have to give medication so like that that would be helpful.

Participant 6 responded,

> Yeah, I definitely think there should be a disaster plan like I said earlier. There should be maybe a mandated CE for all health care professionals that pharmacists, that way, we universally know what to do in a crisis. I think as pharmacists, we figure things out easily. Well, I think if there are set rules and guidelines, we can all do the same thing. So, I think there should be some type of guideline in place for us to follow. Of course, we can deviate as we have the use of clinical judgment in every case, but they're definitely needs to be some type of continuing education, maybe once a year.

Participant 8 stated,

> I would say yes. For best practices purpose is to have some consistency on how things are done. Probably make it clear, so everybody's not doing their own thing. It's important to have some consistency. So that everyone's on the same page, I think each disaster presents its own challenges. But for the most part, you can pretty much have some type of universal standard, so to speak.

Participant 9 responded,

> Yes, I think so. Just as I said, when you have a patient like ours where narcotics are stolen, if that patient was on a narcotic, they couldn't get it. The thief

> destroyed that medication. We have to have the ability to fill a narcotic. There is no rule that says that there is no emergency disaster plan that says that a control prescription, but if it is a disaster that no prescription, mostly those patients can have. Even with the covid going on, they don't get that medication, period. There's no disaster plan for us to take care of the patient and some for-blood pressure medication, yes. Still, there is no plan for pharmacists to override prescriptions when it comes to narcotics or very expensive medications for patients. So, I think that there should be rules that will be clear during a disaster situation; pharmacists should have that leeway to be able to help that patient to get into place.

Participant 10 said,

> Yes. Because first of all, they should be a standard for everybody in terms of disaster, how the patient is going to get their medication without interruption, the cost of replacing those medications should go maybe to the government running the universal plan for medication management, etc.

Participant 12 stated,

> I think there should be some type of universal plan, whereas when something like this occurs, then we'll actually know what to do, or we will know what is to be expected of us to do for these individuals to get the maintenance medication.

Thematic Analysis

The evaluation of the data set included the analysis of responses, identification of repetitive patterns, and recognition of themes. As an exploratory study, the process includes describing and interpreting data while defining codes and themes (Kiger &

Varpio, 2020). According to Kiger and Varpio (2020), using thematic analysis is an appropriate and an essential method to understand a set of experiences, thoughts, and behaviors across data sets. The steps taken for gathering, analyzing, and answering the research questions for this study were similar steps described by Kiger and Varpio (2020). They recommended that researchers: 1) familiarize themselves with the data, 2) develop and organize initial codes, 3) search for themes, 4) Review the themes for supporting data, 5) define and label themes, and 6) produce the manuscript. Each step was followed to ensure the data was appropriately analyzed considering the research questions for this study. A deductive approach concentrates on a specific piece or data of finding that is understood by using a pre-current theory or frame (Kiger & Varpio, 2020).

The Coding Process

The coding process included five steps: (1) applying new and further coding to primary qualification data, (2) code or theme saturation or similarities, (3) the description of codes, (4) application and review of a coding template, and (5) the completion of categories (Roberts et al., 2019). The initial code sources derived from the research literature (Roberts et al., 2019). I wanted to ensure the manual coding process was performed with efficiency and organization. Therefore, I used NVivo software to determine keywords which were later used to define themes. In addition to NVivo, I ultimately used Microsoft Word and extracted keywords from transcripts. The transcripts documented via Word were coded and organized using an Excel spreadsheet. On the Excel sheet, each interview question, participant number, description of the disaster and location, codes, keywords, categories, themes, and subthemes were listed.

In this qualitative study, the pharmacists described their roles and experiences, including adjustments made during and after the disaster. Therefore, a generic qualitative design was appropriate for this study due to the responses applicable to the research questions. The generic qualitative approach summarizes a person's thoughts, beliefs, opinions, attitudes, or reflections about their experiences of things in the world (Percy et al., 2015). I analyzed the transcripts of the participant interviews for trends. Rahman (2017) mentioned that data analysis in qualitative studies follows nascent transcripts from interviews. Extracting quotations from the transcript of each recorded interview session's transcript were necessary to obtain rich data. Table 2 is organized by columns including codes/keywords, categories, themes, and phrases from the transcript.

RQ1: How Do Pharmacists Respond to Disasters and Maintain Medication Management Practices in the Immediate Postdisaster Phase?

Table 2

Codes to Categories to Themes Transition (With Phrases) to Research Question 1

Codes/Keywords	Categories	Themes	Exemplary supporting phrases
Power failures	Infrastructure disruptions	Adapting professionally to challenges	P1: and there were power outages all throughout the Metroplex area
We're getting no response	Positive and negative reactions	Adapting professionally to challenges	P7: you have to be patient with us because we're not getting responses
Doctors' offices closed	Professional assistance interruptions	Adapting professionally to challenges	P2: a lot of doctor offices were closed P1: doctors' offices were closed P4: most doctor offices were closed
Procedural changes	Following standard procedures	Adapting professionally to challenges	P5: access to the procedures about the different stages of the pandemic P6: We need to limit access, especially for nonemergency
Safety issues	Following standard procedures	Adapting professionally to challenges	P1: with all the other employees to stay safe P2 make sure that the patients that you have coming in are going to be safe P3: an understanding that people safety is very important. P4: It's not even safe for the pharmacist or technician to go to the pharmacy P9: to encourage that staff that it is not so bad and that you're pretty safe and that is not it in continuous occurrence P13: the area was declared safe and rendered safe to come back
Working at nearest store (3)	Temporary reassignments	Focusing on accessibility	P1: go to the nearest store to your house

Codes/Keywords	Categories	Themes	Exemplary supporting phrases
			P4: but she lives close to the pharmacy P14:My staff pharmacist lives close to the pharmacy
Stores were inaccessible	Access to work location	Focusing on accessibility	P2: there were many stores that either were inaccessible
Refill too soon	Supplying timely refills	Continuity of care	P1: refills too soon P4: They were out of their medication that you have any refills. P6: what medications needed to be refilled; we had so many patients running out of refills P11: emergency prescriptions for the patient versus refills for the patient
Day's supply	Providing maintenance medications	Continuity of care	P1 :loan them, you know, a couple days' supply P9: I'll just give the patient a few days' supply of the medication P14: so I gave her-7 days' worth P2: emergency supply for a patient you could give 3 days

RQ2: What Are the Key System Changes That Influence Pharmacists' Medication Management Practices During and Immediately After a Disaster?

Table 3

Codes to Categories to Theme Transition (With Phrases) to Research Question 2

Codes	Categories	Themes	Exemplary supporting phrases
Panicking patients	Addressing patient concerns	Communication is key	P13: people were panicking P7: everyone in this pandemic definitely panicked; everyone at that time was panicking trying to access P8: to help people so that they're not so panicked
Alternate service facilities	Necessary relocations	Continuity of care	P1: we would send or refer them to another location 10 minutes away P7: we had to go to a certain location; CDC all came to one select location P12: any other colleagues at any other retail locations P14: them up in a hotel near their location where they worked; Like I was closer put to one particular location
Communication between all parties	Maintaining continuous communication	Communication is key	P1: I think communication is key P4: good communication is the key P6: maybe it was a miscommunication between the doctors' offices and the patient P7: What could've been approved is definitely communication P8:I think the key is communication
Responding to managers	Manager and pharmacists' relationships	Communication is key	P2: getting input from pharmacy managers P6: really reassured the pharmacists and pharmacy managers every week P14: Our supervisor preceded to call the pharmacy managers P4:So, I called the store manager
Media coverage	Broadcasting information	Communication is key	P7: because the media was dictating at one time P9: did a piece on it which was put on TV and the newspaper during that period
Working offline	No internet services	Technological changes	P3: We had challenges with being offline

Codes	Categories	Themes	Exemplary supporting phrases
Contact by phone	Contacting team members	Technological changes	P4: emergency plan in place and have everybody's phone number. P6: talking with nurses on the phone a lot of times in a disaster
Updated software	Infrastructure enhancements	Technological changes	P5:Oh, just the software having to be updated
Access to generators	Infrastructure disruptions	Technological changes	P4: We have a backup generator. P13 we were operating off a generator P14: the pharmacy was on one of the generators
No power outages	No infrastructure interruptions	No technological issues	P11: we were still able to fully function at the pharmacy with no technical issues

RQ3: What Responsibilities and Roles Do Pharmacists Recommend Implementing or Improving in regard to Medication Management and Related Procedures During and Immediately After the Disaster?

Table 4

Codes to Categories to Theme Transition (With Phrases) to Research Question 3

Codes	Categories	Themes	Exemplary supporting phrases
Doctor offices closed	Professional interruptions	Maintaining a rapport with others	P2: hospitals were open at best they could be emergency personnel were for getting people to where they needed to be; for some things that you might have to contact a physician P4: the doctor offices were closed, and you cannot get in touch with the doctor; we faxed the doctor's office, and they didn't fax was back P5: for patients who were out of maintenance medications without getting a doctor approval P6: doctors had to see patients some kind of way, but we were in a COVID-19 pandemic; just talking to doctors and nurses that I came into contact with, doctor offices, just not answering their phone. Or doctors doing telemedicine P7: We also had meeting with infectious disease doctors in detail P9: I couldn't get hold of the doctor; you cannot get hold of the patient's physician P10: We had to reach out to the physicians to get a replacement prescription P11: I know some doctors who were basically on call during this time P12: A lot of doctor offices really weren't opened at all. P13: The doctor offices and everything else were closed P14: like for the doctor offices that were not open,
Nurses as team members	Professional assistance	Maintaining a rapport with others	P3: or nurses to be able to get back to their hospital settings P6: talking with nurses on the phone a lot of times in a disaster P7: I was aware of the nurses making sure that there were proper medications in place

Codes	Categories	Themes	Exemplary supporting phrases
Mobile phones	Lack of continuous communication	Maintaining a rapport with others	P1: at best so those of us who had cell phones at work P6: they were over the phones.
Phone lines down	Maintaining continuous communication	Technological changes	P9: we have to communicate with the patient and let them know why the phones were off
Rule(s)/ Regulations	Plan inclusion	Medication management	P4: something universal so we all can follow the same rules and regulations P6: a lot of the rules are relaxed P8: but follows strict protocols, rules, regulations to help minimize the loss of life. P9: Doctor and let them know there's no rule as what to do
Standards for everyone	Plan inclusion	Medication management	P5: planning on a regular basis to make sure that we're standardizing more P7: There were some standards in place P8: you can pretty much have some type of universal standard, P9: we learn that the standard that we have at that time was not really the best. P10: there should be a standard for everybody in terms of disaster
Maintenance medications	Plan inclusion	Medication management	P2: but with maintenance medications, we could give a longer day supply P5: authorize one time fill for patients who were out of maintenance medications without getting a doctor approval P12: to override, particularly like maintenance medications for the patient to get.
Access to procedures	Plan awareness	Medication management	P7: everyone should have had access to disaster planning
Yes, a universal plan is necessary	Plan awareness	Medication management	P4: I think it should be something universal so we all can follow the same rules and regulations P6: Yeah, I definitely think there should be a disaster plan P8: I would say yes. For best practices purpose to have some consistency on how things are done

Evidence of Trustworthiness

Trustworthiness is essential in qualitative research and consists of concepts to ensure quality findings will include credibility, dependability confirmability, and transferability. *Credibility* is the internal validity that parallels the research findings with reality (Lot Nyirenda et al., 2020). Even though both qualitative and quantitative designs mandate rigor and credibility, the meaning behind either method requires understanding (Creswell, 2013). A quantitative methodology was not used for this research because it does not consist of statistical analysis (Creswell, 2013). This research entails the pharmacist's understanding and perception of an experience expressed profoundly, resulting in a qualitative approach.

Credibility

Credibility enhances when checking participants, iterative questioning, triangulation, saturation, extended engagement, iterative questioning resulting in the elimination of findings to fit predetermined criteria and reflexibility (Lot Nyirenda et al., 2020). Although there was no face-to-face interaction, the interviews resulted in effective communication via telephone conference calling with one-on-one collaboration. Except for a few interruptions in the recording, which had to restart, there were no significant issues while using the network and application to conduct interviews. Having the capability to network and communicate with participants in other areas of the nation increased the possibility of obtaining rich data for analysis. I searched online articles for historical storms and events, notably disasters the participants' experienced.

To ensure credibility and eliminate bias during the interview process, each participant was asked identical semi-structured interview questions and recorded. The

credibility and validation of the response depended on the participant. I did not interject any opinions for answers unless clarifying a response for better understanding.

Transferability

This qualitative study follows a naturalistic generalization. The participant's knowledge is based on their experiences and provides enough context for the reader to judge and apply their concept of the study findings to their world (Lot Nyurenda et al., 2020). Transferability occurs when the responsibility of the original study finding transfers to a different setting, group, or population (Maxwell, 2021). In this study, the findings have no transferred information or sources in any manner. Although internal generalization is more apparent in quantitative research, it is vital in quantitative and qualitative research (Maxwell, 2021). In qualitative research, one cannot research individuals from all areas, doing and having everything, within a solitary case, therefore, being incapable of limiting the parameters of a study (Miles & Huberman, 1984, p. 36; Maxwell, 2021).

Transferability exhibited through the researcher's process requires proper and repeatable measures. The participants for this study provided information transcribed to data that is applicable for future studies. Transferability is necessary for other researchers to consider the current research appropriate and sharable by suitable methods. If applicable, I can use detailed contextual research to use in this study.

Dependability

Dependability, one of the essential processes of quality research, is determined by how the researcher provides adequate contextual information (Johnson et al., 2020). This concept describes how the researcher conducted the study and the ease of replication if

needed. I evaluated the interview used via telephone call for compatibility and similarities for each participant. The participants' responses were conformed and clarified to ensure credibility. Although the interview structure or protocols had the potential for modification, the data collection and analysis processes should contradict initial interpretations and focus and prompt ongoing inquiry (Johnson et al., 2020).

Dependability is apparent by how the researcher provided and reported the proper research steps and methods in detail for assurance. The reader depends on the researcher to adequately achieve this step. Initially, I had planned to use a phenomenological approach; however, a generic qualitative approach was more appropriate for gathering information to understand the participant's responses or views for this study.

Confirmability

Confirmability ensures objectivity and that the researcher avoids any bias. Methods used to manage bias include reflexivity that explains how self-beliefs and experiences can sway the research process, including interpreting and analyzing participants' responses and data collection (Nyirenda et al., 2020).

After interviewing the participants' and transcribing responses, notes were gathered and reviewed for rich data. References from literature and additional findings enhance confirmability. I recorded, transcribed, and created an audit trail which helped refer when coding and developing themes. I used NVivo to preliminary organize data. Subsequently, the interviews were manually coded. I used Microsoft Office Word and Excel sheets to develop an audit trail, code, organize partial responses, and create themes.

Study Results

The research findings are derived from the themes that emerged from the data and are significant for the research questions for this generic qualitative study.

Research Question 1: How Do Pharmacists Respond to Disasters and Maintain Medication Management Practices in the Immediate Postdisaster Phase?

The themes that emerged to address this research question were adapting professionally to challenges, focusing on accessibility and continuity of care. The overall purpose of emergent themes is to answer the study's research question.

Adapting Professionally to Challenges

The participants shared their experiences regarding challenges and changes in the responses to the impact of the disasters. Although most pharmacists were not familiar with postdisaster plans, they indicated their employed methods and activities to continue their roles. Most pharmacists continued to perform their routine duties and responsibilities, mainly when the event caused no significant disruptions. However, pharmacists shared and covered the responsibilities of their colleagues and filled gaps when necessary to ensure patients received their medications and supplies.

The pharmacists identified vital challenges that caused an interruption in the services necessary to ensure patients received medication. These challenges included infrastructure (electricity) complications, inability to speak to doctors due to office closures, failure to process third-party claims for regular and transient patients, and modification in medication delivery and supplies. In addition, the pharmacists mentioned the safety of others and themselves and the failure to obtain patient history when systems were down.

At least four pharmacists (P1, P4, P6, P7) mentioned the closure of doctors' offices and the difficulty of obtaining the necessary refills and patient information to complete prescription orders. According to Moore and Kenworthy (2017), the pharmacist role involves providing care during provider shortages by performing health screening, providing immunizations, ensuring appropriate storage or medications, accessing medicines and services, and bridging a gap in health care during disasters. One pharmacist recognized the use of telemedicine to contact patients by doctors, particularly during the pandemic. However, the service was effective only when the patient had the appropriate equipment and could use the equipment properly during a session. The role of the pharmacist is expanding, mainly when doctors are unavailable and when offices are closed. The most frequently mentioned adjustment was the policy change to provide an extended supply of medication refills to accommodate patients with chronic conditions.

Pharmacists addressed safety concerns for their staff, patient's families, and themselves (McCourt et al., 2020). Abuse and violence in the healthcare environment are daily issues experienced by health professionals and can affect their willingness to work during disasters (McCourt et al., 2020). P1 mentioned the importance of employees' safety. P2 expressed a concern patients' safety while going to and while in the pharmacy. While P4 said it was not safe for a pharmacist or technician to travel to the pharmacy, P9 stated that violence is not a continuous occurrence and encourages the staff to continue to serve patients. P13 noted the importance of how the area must be declared safe to return to the workplace and homes.

Focusing on Accessibility

The procedures used to address accessibility are associated with the pharmacist and other employees' ability to get to the worksite. Accessibility is also related to the power of the patients to obtain the supplies and medications needed to treat chronic and acute conditions. The pharmacists shared procedures involving the means to get to the worksite, including working at sites closest to their residence, providing access for the team, staying in hotels close to the stores, and providing delivery services to patients when face-to-face interaction was limited. Some pharmacies experienced shortages or delay in delivering medications and supplies due to the high demand, mainly felt during the pandemic.

P3 stated, “We need to be able to try to access our place of work or be able to come into work so we can accommodate the needs of the community.” P6 mentioned “trying to get access to the wholesaler.” P6 also recognized a challenge regarding accessibility by stating, “we need to be able to try to access our place of work or be able to come into work so we can accommodate the needs of the community.”

Continuity of Care

The responses shared by the participants suggested the importance of continuity of care. Pharmacists responded as they carried out their day-to-day activities, following a schedule, contacting technicians and support personnel, filling emergency medications to patients with or without communication with their providers, and minimizing a gap in therapy by providing maintenance medications to patients. Emergency medication

supplies reported and filled by pharmacists included maintenance medications; however, they excluded narcotics, controlled substances, packaged medications such as insulin.

Participant 6 mentioned, “So, we had so many patients running out of refills, and they didn’t have their medication.” Participant 14 stated, “before the disaster, what I did for some people who had refills too soon, I gave them a week’s worth of medication.” Participant 11 stated, “This is my first time experiencing this situation, so as far as being able to, I know that we can write the emergency prescriptions for the patient versus refills for the patient.” Participant 9 stated, “The new regulations that are built in Georgia. For instance, with the COVID-19 pandemic, we are allowed to give the patient up to a 90-day supply worth of medication.”

Intuitively, continuity of care is an essential aspect of the practice of pharmacy. The pharmacists revealed the importance of providing medication to patients, particularly during a disaster. The management of chronic diseases, including medication therapy, prevents unnecessary hospital admissions, long-term disabilities may result in diminished quality of life (Nair et al., 2020).

Research Question 2: What Are the Key System Changes That Influence Pharmacists’ Medication Management Practices During and Immediately After a Disaster?

The themes that emerged to address this research question were communication is key, continuity of care, technological changes, and no technological issues.

Communication Is Key

Communication is essential during any aspect of a disaster. During a disaster, the lines of communication are interrupted by a lack of electricity or the internet, disrupting

care. The most fundamental communication and required communication is between the pharmacist and the patient or customer. Communication involves a computer, telephone, or printed sources to inform either party of typical telecommunications or changes. District managers instructed pharmacists to conduct day-to-day procedures, including counseling patients on their medications.

Several pharmacists stated it was challenging to contact physicians to get refills for patients. Many of the physicians in the impacted areas failed to contact pharmacists before the disasters, requiring the pharmacist to either loan medications or provide refills on maintenance medications. Communication with other store employees and technical support personnel was also challenging due to power failure and the lack of internet services. Also, pharmacists experienced long wait times to speak with a technical support representative. The pharmacists mentioned the importance in communicating with patients.

Continuity of Care

This theme emerged for a previous research question, overlapping, and displaying the importance of this subject matter regarding this study. Pharmacists are universally accessible to the public and provide essential care to the community during disasters (McCourt et al., 2020). Key system changes that occurred during the disasters were the ability of the pharmacists to provide care and communicate with patients continuously, including the ability to communicate with the board of pharmacy, the employer, vendors, patients, and stakeholders. Arrieta et al. (2009) identified chronic diseases for medical management precedence following Hurricane Katrina as mental health, diabetes mellitus, high blood pressure, respiratory complications, end-stage renal disease, heart disease and

cancer. Continuous health care delivery to patients, particularly those with chronic conditions, must be provided by pharmacists for optimal health care.

Technological Changes

Technical changes caused by disasters impede the ability of a pharmacy to function efficiently. Pharmacists must resolve and understand the measures taken to manage the purchases of medications. However, third-party concerns regarding the inability to charge and collect payment can happen. A few pharmacists stated they loan medications, particularly for chronic conditions, to avoid a gap in care. There were little or no financial stability losses shared by pharmacists.

The responsibilities and roles that pharmacists demonstrate to perform medication management and related procedures include several anticipated actions. Medication management activities, per the respondents, include:

- Accommodating patients, counseling, and communicating with patients.
- Providing medications for treatment.
- Preventing gaps in care.
- Providing emotional support.
- Providing customer service.
- Providing supplies.

The participants also mentioned that morale or emotional support is necessary after a catastrophic impact of disaster.

No Technological Issues

Most pharmacists were not affected by technical support shortcomings due to plans established before the disaster. Participant 3 stated, “That’s a good question. I don’t

think that we did, not technically from the standpoint of not being able to reach people." Participant 6 said, "I can't think of any real challenge. I would say we could have been ahead of this." Participant 10 stated, "I did not experience any challenges with technical assistance as far as providing medication management for my patient." Participant 11 stated, "we were still able to fully function at the pharmacy with no technical issues."

Research Question 3: What Responsibilities and Roles Do Pharmacists Recommend Implementing or Improving in regard to Medication Management and Related Procedures During and Immediately After a Disaster?

The themes that emerged from data included the following for research question #3: Maintaining a Rapport with Others, Technological Changes, Medication Management

Maintaining a Rapport With Others

Due to the closure of stores after a disaster, operating stores may obtain the workload and prescriptions from the closest locations. There were no changes in funding in medication management except the ability to bill insurance and assist cash-paying customers without insurance who may experience financial burden due to the event. When individuals are confronted with damages, disruption in services can cause inconveniences, including supplementing housing and transportation. Emergency rooms may experience a higher volume of patients when primary doctor offices are closed and increase the volume of prescriptions for an operating pharmacy.

Responses from Participant 9: "cannot get hold of the patient-doctor, we cannot refuse patient medication because you cannot get hold of the patient's physician." Participant 13: "They could bring in their bottles, and we were able to write a one-month supply of medications." These exemplify the relationship between the pharmacist, doctor,

and patient. The pharmacist must also maintain a relationship with the team to collaborate effectively.

Technological Changes

Technological changes are a theme for research question #1. It is not unusual that a similar theme emerges for answering multiple research questions. The theme describes how the pharmacists could continue their responsibilities while experiencing issues, including disconnected phone lines. The pharmacist must learn to communicate with other health professionals and patients to address any medication or health concerns. P7 replied, “To be able to get through definitely on phone lines or to type, so the emails were overflowing.”

Medication Management

Establishing a medication management plan as a part of disaster planning has been recognized as an important segment in the pharmacy practice. The pharmacists expressed the need for obtaining more supplies to operate while experiencing shortages during an event. Most pharmacies with a budget had found themselves ordering more than usual supplies due to adequate stock and delivery challenges. Priorities for the continuation of medication management practices include the safety of the patient and the distribution of the medications and supplies. The pharmacy must maintain adequate supplies as well to function fully. However, pharmacists recognize the challenges of providing more expensive medications, such as HIV, particularly when the patient has no refills on prescriptions or the patient’s insurance is offline.

A medication management plan is essential for disaster planning. The disaster plan should emphasize pharmacists’ specific roles and responsibilities after a disaster.

The plan should display consistency and provide guidelines, rules, or regulations that all pharmacists can follow. This universal plan should include a binder or booklet with the pharmacists' roles regarding medications necessary for both acute and chronic diseases. The planning should partake in company input and government input when applicable. Currently, there is no regulation for dispensing narcotics without a prescription in an emergency. Because narcotic medications are used for chronic diseases, such as cancer, pharmacists expressed providing an emergency supply should be addressed. There should be a national and uniform plan to use due to the impact of a disaster.

Case Discrepancy

Participant 15 was a registered pharmacist who worked in a local hospital. Although she stated she had never worked in a community pharmacy, she experienced working during several disasters. Her participation in the study provided information that could be compared to the participants who met the criteria, specifically, providing her experiences working and assisting the community pharmacies during disasters.

Summary

Initially, I considered a phenomenological process for the study, but a basic (generic) qualitative design was more suitable to analyze the collected data since gathering the data. I facilitated this change due to the participant's responses to the interview questions for this study. Because the participant's responses provided rich data, they were more appropriate to describe necessary elements for the research questions guided in the study.

This research study aimed to document pharmacists' experiences and responses to medication management practices following the impact of a disaster within the

communities. Each participant shared their experience by telephone interviews which served as data. The transcribed data and I discovered emerging themes to answer each research question.

The first research question (How do pharmacists respond to disasters and maintain medication management practices in the immediate postdisaster phase?) was answered by respondents describing the actual disaster they experienced and explained how they continuously supplied medications to patients. In responding to the disasters, pharmacists often changed locations to ensure that pharmacies remained opened. They were providing services after the disaster as an essential service to ensure the delivery of optimal care to the community. In addition, the patient's access to pharmacists and other health care providers to obtain medications was paramount for a continuation of care.

In response to the second research question (What are the key system changes that influence pharmacists' medication management practices during and immediately after a disaster?), a few pharmacists shared examples of changes. For instance, they experienced challenges communicating with patients and other health care providers. The pharmacists who experienced technical issues used alternative methods to ensure medication delivery. Overall, the pharmacists' adjusted medication management practices adequately responded to the impact of disasters when necessary.

For the third research question, the pharmacist responded, "What responsibilities and roles do pharmacists recommend implementing or improving in regard to medication management and related procedures during and immediately after the disaster?" Most pharmacists felt that changes in procedures to respond to disasters needed changing. A universal disaster plan, changes in rules and regulations regarding disasters,

implementation of continuing education programs or training to address planning, responding to, and recovering from disasters were all mentioned.

Chapter 5 provides the interpretation of the study, limitations, recommendations, and implementation of the study: social change, public health matters. Furthermore, take-home messages also capture the purpose of this study.

Chapter 5: Discussion, Conclusions, and Recommendations

Introduction

The purpose of this study was to investigate and identify the challenges, outcomes, and considerations of medication management practices experienced by pharmacists after disasters. As residents within the community manage their diseases while experiencing the impact of disasters, pharmacists, physicians, and other health professionals have a duty to provide care to patients and persons in need. However, during and immediately after disasters, pharmacists may encounter challenges that can diminish or inhibit their ability to perform management tasks, deliver adequate care to patients, and provide necessary medications and medical supplies.

Key Findings

To fulfill my goal of investigating pharmacists' responses to medication management following disasters, the following research questions guided the study:

RQ1: How do pharmacists respond to disasters and maintain medication management practices in the immediate postdisaster phase?

RQ2: What are the key system changes that influence pharmacists' medication management practices during and immediately after a disaster?

RQ3: What responsibilities and roles do pharmacists recommend implementing or improving in regard to medication management and related procedures during and immediately after a disaster?

In Chapter 4, after coding and analyzing responses contributed by the study participants, I identified eight emergent themes. Several themes overlapped and were used to address each research question. I identified the following themes: (a) adapting

professionally to challenges, (b) focusing on accessibility, (c) continuity of care, (d) communication is key, (e) maintaining a rapport with others, (f) technological changes, (g) no technological issues, and (h) medication management.

The themes that emerged for the first research question were adapting professionally to challenges, maintaining accessibility, and continuity of care. The second question produced the following themes: communication is key, continuity of care, technological changes, and no technological issues. The third research question resulted in the following themes: maintaining a rapport with others, technological changes, and medication management. These themes reflected the priorities and the concerns of the pharmacists after disasters.

The key findings that derived from the themes indicated that pharmacists expressed similar responsibilities regardless of the type of disaster experienced and that the pharmacists sought to maintain relationships and connections by communicating with patients despite technological interruptions and accessibility issues. When the pharmacists were unfamiliar with disaster planning activities employed by their workplace, they managed to provide services by adapting medication management practices that were customarily used. After evaluating the participants' responses, I understood that pharmacists realized that their priority was to care for patients even when there was a disruption in the workflow and workplace.

Interpretation of Findings

To confirm that I met the goal of this study, I sought out the similarities and differences in the pharmacists' responses regarding the roles, experience, and services usually provided during and after a disaster. This examination also included the reported

operations and plans that the pharmacists knew and followed to address medication management after a disaster. The study focused on community pharmacists with similar backgrounds and requisite training; therefore, I interviewed each pharmacist and analyzed their experiences regarding disasters and similarities in responses. In total, the answers to the interview questions addressed each of the three research questions. My plausible explanation for certain occurrences and expectations is supported by the reported experiences with each disaster and similar experiences and responses. Because there was little research on medication management by pharmacists, this study was conducted to provide information about the topic.

It was vital to conduct more research on challenges and the pharmacists' experience with medication management and patient medication compliance in postdisaster communities. Melin and Rodríguez-Díaz (2018) discussed the challenges of managing and accessing medications used by patients with chronic diseases following Hurricane Maria. The circumstances related to disaster preparedness procedures, experiences, human behavior, and education regarding disaster preparedness and emergencies have been identified (Ejeta et al., 2015). Moore and Kenworthy (2017) described the pharmacist's role during relief efforts as providing patient care and medication distribution with limited resources. Overall, I addressed the gap in the literature regarding medication management by pharmacists to broaden knowledge in this area of research.

I used a generic qualitative research approach to recruit participants. I applied a generic qualitative inquiry because ethnography, case study, grounded theory, and phenomenology methods were unsuitable due to the type of data collected (Percy et al.,

2015). Specifically, I recruited pharmacists and focused on their experience while employed in a community pharmacy during a disaster. A qualitative approach was most appropriate for this study because it captured the pharmacists' individual experiences and involved sharing data-rich details. I used the participants' responses as data for the analysis. I did not want to concentrate on pharmacists who worked in other areas in pharmacy. I followed the ecological model of disaster management for the framework of this study. This exploratory research involved semistructured interviews in determining the experiences of pharmacists who worked during a disaster.

While the literature search revealed a lack of research examining the medication management practices of pharmacists following disasters, the responses given by the pharmacists in this study provided valuable information on how communities and public health professionals can support pharmacists in their roles as medication managers. This study emphasizes the importance of community health and medication adherence as a public health concern. Therefore, this study contributes foundational information for further research.

The ecological theory applies to the changes that the pharmacists injected to ensure the best outcome for patients. In addition to the pharmacists communicating with staff members, other health care professionals, and patients, they indicated the urgency of ensuring that patients received a sufficient supply of medication to help maintain treatment as they managed their medical conditions.

The ecological theory also supported the themes that emerged from the study. Each theme demonstrates how the pharmacists worked to ensure that patients could receive medication while at the pharmacy. The pharmacists ensured that patients had

sufficient medication to sustain or continue therapy while facing obstacles such as power or technological outages or limited resources. Pharmacists offered this service to regular customers and other patients who could not receive their medication from their traditional stores. In this study, the ecological theory aligned with the actions described by pharmacists.

I interviewed 15 volunteers for the study and asked each one 10 identical research questions. I defined 10 themes from the responses of each pharmacist. Each pharmacist experienced a disaster while working in a community pharmacy within the United States. Most pharmacists provided similar responses, particularly when asked about continuity of care. I interviewed one hospital pharmacist, Participant 15, who shared extensive experiences while working during or after a disaster. Three things were prevalent regarding the experiences: The participant stated helping community pharmacies while they were short of supplies, inaccessible, or closed. The hospital pharmacy supplied medication to patients to last at least 3 days, while several pharmacies were closed when patients reached the hospital.

Themes Linking to Research Questions

The emerging themes included adapting professionally to challenges to medication management. The themes were defined from responses, such as the pharmacists working and communicating with professionals, working in situations with or without operating equipment, and being concerned with workers and patients having access to the pharmacy. Pharmacists demonstrated the ability to adapt professionally following disasters, focusing on continuously serving patients and ensuring optimal patient outcomes.

Adapting Professionally to Challenges

The participants shared their experiences regarding challenges and changes that they made in their responses to the impact of the disasters. Adapting professionally may involve making affective, behavioral, cognitive, and knowledge adjustments (Austin, 2005). Pharmacists were unfamiliar with postdisaster plans adjusted by employing typical roles to address challenges during and after the disaster. Pharmacists demonstrated their knowledge and capability to obtain the information needed to carry out their professional responsibilities.

Focusing on Accessibility

The procedures that pharmacists and other employees used relating to accessibility were associated with getting to the worksite. Accessibility requires a link that establishes the areas that supply ecosystem services and the demand for these services (Fu et al., 2020). Accessibility is also related to the power of the patients to obtain the supplies and medications needed to treat medical conditions. The pharmacists shared procedures that involved ways to get to the worksite. Some pharmacies experienced shortages or delays in delivering and receiving medications and supplies due to high demand, mainly felt during the pandemic.

Continuity of Care

The responses shared by the participants suggested the importance of continuity of care. Pharmacists responded to the impact of the disaster as they carried out their day-to-day activities by contacting technicians and support personnel, filling emergency medications for patients with or without communication with their providers and minimizing gaps in therapy by providing maintenance medications to patients.

Intuitively, continuity of care is an essential aspect of pharmacy practice. The management of chronic diseases, including medication therapy, prevents unnecessary hospital admissions and long-term disability that may result in diminished quality of life (Nair et al., 2020). The pharmacists revealed the importance of providing medication to patients, particularly during a disaster.

Communication is Key

The theme "communication is key" emerged for more than one research question, demonstrating the importance of this subject matter in this study. Communication is essential during any aspect of a disaster. Following a disaster, the lines of communication are interrupted, including electricity and the internet, disrupting care. Communicating involves using a computer, telephone, or printed sources to inform parties of specific information, issues, or changes. During a medication consultation, the most fundamental and required communication is between the pharmacist and the patient or customer. The participants reported that district managers instructed pharmacists to conduct day-to-day procedures, including counseling patients about their medications.

Several pharmacists found it challenging to contact physicians to get refills for patients. Many of the physicians in the impacted areas failed to contact pharmacists before the disasters, requiring the pharmacists to either loan medications or provide refills for maintenance medications. Communication with other store employees and technical support personnel was also challenging due to power failure and the lack of internet services.

Technological Changes

Technological changes caused by disasters impede the ability of a pharmacy to function efficiently. Pharmacists must resolve and understand the measures taken to manage purchases of medications. However, third-party issues regarding the inability to charge and collect payments occurred. A few pharmacists stated that they loaned medications, particularly for chronic conditions, to avoid gaps in care. Although pharmacists provided medicines to patients at no charge, the pharmacists reported no significant financial losses.

No Technological Issues

Most pharmacists were not affected by a lack or disruption of technology during or after the disaster. There were no changes in funding in medication management except the ability to bill insurance and assist cash-paying customers without insurance who might have experienced financial burdens due to the event.

Maintaining a Rapport With Others

Emergency rooms may experience a higher volume of patients when primary doctor offices are closed and increase the volume of prescriptions for an operating pharmacy. Establishing and maintaining a rapport exemplify the relationship between the pharmacist, the physician, and the patient. The pharmacist must also maintain a relationship with the team to collaborate effectively. The participants also mentioned that morale or emotional support is necessary after a catastrophic impact of disaster.

Technological Changes

Technological changes were a theme for Research Question 1. It is not unusual that a similar theme emerges for answering multiple research questions. The theme

describes how the pharmacists could continue their responsibilities while experiencing issues, including disabled phone lines. The pharmacist must learn to communicate in various manners with other health professionals and patients to address any medication or health concerns.

Medication Management

Establishing a medication management plan as a part of disaster planning has been recognized as an important segment in pharmacy practice. The pharmacists expressed the need for obtaining more supplies to operate while experiencing shortages during an event. Most pharmacies with a budget found themselves ordering more than the usual number of supplies due to adequate stock and delivery challenges. Priorities for the continuation of medication management practices include the safety of the patient and the distribution of medications and supplies. The pharmacy must maintain adequate supplies as well to function fully. However, pharmacists recognize the challenges of providing more expensive drugs, such as HIV medications, particularly when the patient has no refills on prescriptions or the patient's insurance is offline.

A medication management plan is essential for disaster planning. A disaster plan should emphasize pharmacists' specific roles and responsibilities before, during, and after a disaster. The plan should display consistency and provide guidelines, rules, or regulations that all pharmacists can follow. This universal planning should include a binder or booklet with the pharmacists' roles regarding medications necessary for acute and chronic diseases.

Pharmacists should deliver continuous health care to patients, particularly those with chronic conditions, for optimal health care. Pharmacists are universally accessible to

the public and provide essential care to the community during disasters (McCourt et al., 2020). Key system changes that occurred during disasters involved the ability of the pharmacists to provide care and communicate with patients continuously, including the ability to communicate with the board of pharmacy, the employer, vendors, patients, and stakeholders. Arrieta et al. (2009) identified chronic diseases for medical management precedence following Hurricane Katrina as mental health, diabetes mellitus, high blood pressure, respiratory complications, end-stage renal disease, heart disease, and cancer and experiencing long wait times to speak with a technical support representative.

Most pharmacists perceived that they could serve patients by providing at least a 3-day supply of medication and perform their specific roles as pharmacists during postdisaster periods compared to daily routines. In Chapter 2, I discussed the community pharmacists' roles in urgently providing patient care, collaborating with health professionals and health teams, providing medications and immunizations, and familiarizing themselves with regulations and laws. Pharmacists in certain states also expressed their ability to prescribe medications, typically refills, while the doctors were inaccessible.

Application of Study Framework

This study aligned with previous studies by revealing how pharmacists worked while facing challenges and managing medications. In several ways, the findings of my research expanded on existing knowledge. First, Melin and Rodríguez-Díaz (2018) revealed challenges, including medication accessibility of patients with chronic illnesses during a specific disaster. I found that pharmacists were intensely focused on overcoming the barriers presented during disasters that affected the distribution of medication to

patients. Second, the circumstances related to disaster preparedness procedures, experiences, human behavior, and education regarding disaster preparedness and emergencies have been minimally identified (Ejeta et al., 2015). My study showed that even though some pharmacists revealed that they were unfamiliar with their employer's disaster plan, they used their knowledge and experience to address the challenges that evolved. For example, one pharmacist used continuing education training to serve patients to ensure that patients had an adequate supply of medication. Behaviors related to preparing or managing medications were revealed and described by the pharmacists in greater detail. Third, Moore and Kenworthy (2017) described the pharmacist's role during relief efforts by providing patient care and distributing medications with limited resources.

The results of this study may encourage all pharmacists and patients to work collaboratively to ensure a stable relationship characterized by a continuation of medication therapy. Additionally, this study highlighted the need for uniform or universal disaster planning, which addresses medication management practices with provisions that consider geographical locales and types of disaster.

Limitations of the Study

The generic qualitative research approach strengthened this study resulting in the investigation and greater understanding of the pharmacist's experiences. The study involved recruiting, interviewing, and using responses of participants as a source of data. The semistructured interviews conducted via telephone were preferred due to the participants located throughout the United States and the current pandemic, restricting face-to-face interaction. When respondents gave only generalized or superficial

responses, their action led to possible study limitations. Such generalized information could include responses of common reactions of living through emergencies that were not related to medication management.

Recruiting was challenging since the drafting prerequisite included only community pharmacists who responded to disaster events, resulting in fewer participants who agreed to participate in the study. Several qualified respondents rejected an invitation to participate in the study. However, I interviewed one hospital pharmacist who reported having the experience working during disasters. Overall, I believe the trustworthiness of the study was uncompromised as enough rich data was obtained for the study.

Implications for Social Change

The findings of this study may result in positive social change by demonstrating pharmacists' critical roles as they plan, prepare, and respond to disasters while managing medications and providing care to the patients. Pharmacists consistently and successfully provided continuity of care which bridged a gap in the medication therapy for patients. The provision to provide care was most important due to acute and chronic disease management despite the challenges subsequent of the disasters. The ability of the pharmacist to adapt to challenges has an implication for patients in the community in terms of how pharmacists are viewed in society as health care professionals and public health advocates.

Most pharmacists knew the importance of providing services by adjusting their responsibilities, such as prescribing when doctor offices were closed, to help manage patients' health care. Pharmacists are essential in the public health sector and are more

visible for their contribution to the population's health care after disasters (Moore & Kenworthy, 2017). The principles of the study emphasize the pharmacists' roles and responsibilities, their impact in society, and the implementation of their roles after disasters to ensure positive health outcomes.

Recommendations

This research study revealed the challenges that pharmacist faced and the familiarity of the pharmacists to respond to disasters. I would recommend research for implementing a universal or standardized plan for community pharmacists to use to respond efficiently when a disaster occurs. A universal program will ensure all pharmacists are familiar with a plan and enhance their knowledge to assist other healthcare workers and patients. Training or providing a consistent strategy for pharmacists regarding disasters is essential for educating pharmacists in their career. Researchers can conduct studies to discuss communication and tools necessary for medication management practices following disasters. Various disasters present various measures necessary to address an impact or outcome of the disaster, therefore, providing the necessary resources for pharmacists to use when a disaster occurs is essential in their workplace, community, and public health sector.

Conclusion

Natural and human made disasters occur and can cause havoc personally, professionally, and in the community. The US Gulf Coast and Puerto Rico experienced destructive hurricanes that became the most expensive natural disasters resulting in costs of an estimated $265 billion (Smith & Sow, 2019). This research study aimed to

investigate pharmacists' experiences and responses to medication management practices following the impact of a disaster within the communities.

The primary focus of this study emphasized the response and recovery phases of disaster planning; however, the participants revealed their degree of preparedness was also a concern. I realized the importance of pharmacists and how they perceived their responsibilities during the impact of a disaster. I also learned how pharmacists are essential in the community following a disaster due to their accessibility to the public compared to other health professionals.

The study findings revealed the importance and how pharmacists adapted professionally to challenges presented during disasters. The pharmacists indicated the need to supply medication to ensure continuity of care for patients and serve patients when doctor offices were closed. The findings were also demonstrated by themes while answering the research questions. The themes were: (1) Adapting Professionally to Challenges (2) Focusing on Accessibility (3) Continuity of Care (4) Communication is Key (5) Maintaining a Rapport with others, (6) Technological Changes (7) No Technological Issues (8) Medication Management.

The study also revealed that most pharmacists expressed the importance of a universal or standard disaster plan to ensure consistency and the knowledge needed to address issues and challenges presented during disasters. Ultimately, the results obtained from this study provide a means by which pharmacists can contribute to social change by improving the community's health and advancing professional practice, particularly when faced with challenges during disasters.

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Appendix A: Recruiting Announcement

I am Rellamichelle Tyree, and I am a Public Health doctoral candidate at Walden University. This is an invitation for community pharmacists who have experienced a disaster while employed within the United States or the Caribbean, to participate in my dissertation research. A disaster includes natural or human made which includes tornadoes, hurricanes, blizzards, floods, earthquakes, fires, volcano eruptions, or a pandemic.

Your participation in the study is voluntary. You will participate in a recorded 90-minute interview by phone or ZOOM. Your identity will be protected, and the interview is confidential. Please contact me at rellamichelle.tyree@waldenu.edu if you are interested in participating in this study. If you choose to participate in the study, more details will be provided.

Appendix B: Participant Questionnaire

Participant Questionnaire for Eligibility

This document will only be viewed by the researcher as a reference for the study. Privacy is a requirement for research studies. The information you provide below will be kept confidential and stored separately from other documents with deidentified information for a period of 5 years. Your information will not be shared or used for any other purpose. If you have any questions regarding this form, please contact Rella Tyree at rellamichelle.tyree@waldenu.edu

1. Provide your name
2. Phone number:
3: Email address:
4. Your location:
5. Name and location (city, state) of pharmacy employed during the disaster:
6. Name/Identity of disaster (if known), type/description of disaster, date (at least season/year):

Appendix C: Interview Questions

The following are a list of interview questions that I asked each participant and relates to the research questions for this study:

1. Refer to the most recent disaster you were involved as a registered community/retail pharmacist. Can you briefly describe the disaster?
2. Were you familiar with postdisaster planning activities that were used during the disaster that you were involved?
3. Are you familiar with your current emergency disaster preparedness and response protocols involving other health professions (e.g., doctors, nurses, specialists) during and immediately after a disaster? Can you describe some of these protocols? In your professional opinion, how could these protocols be improved, based on your own experiences working as a pharmacist during and immediately after a disaster?
4. Were any changes in regulations experienced within your pharmacy since the impact of a disaster? What were examples of the changes?
5. How would you define medication management in the context of responding to consumer or patient needs, immediately after a disaster?
6. Explain and or describe your experience when you or your pharmacy staff made changes relating to medication management during, or immediately after the disaster.
7. What challenges, if any, did you experience related to costs or funding that impacted your ability to conduct medication management practices during and immediately after the disaster?

8. What challenges did you experience when obtaining technical assistance to operate and ensure a continuation of medication management practices?
9. What information/experiences regarding planning you acquired compared to a disaster experienced since then (if applicable)?
10. Should medication management require a universal emergency disaster plan for pharmacists? Why or why not?