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# Experiences of Nurses and Midwives during the Ebola Outbreak in Liberia, West Africa

Erhuvwukorotu S. Kollie

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LOMA LINDA UNIVERSITY  
School of Nursing  
in conjunction with the  
Faculty of Graduate Studies

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Experiences of Nurses and Midwives during the Ebola Outbreak in Liberia, West Africa

by

Erhuvwukorotu S. Kollie

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A Dissertation submitted in partial satisfaction of  
the requirements for the degree  
Doctor of Philosophy in Nursing

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June 2016

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Each person whose signature appears below certifies that this dissertation in his/her opinion is adequate, in scope and quality, as a dissertation for the degree Doctor of Philosophy.

\_\_\_\_\_, Chairperson

Betty J. Winslow, Professor of Nursing

\_\_\_\_\_  
Donn Gaede, Assistant Professor of Global Health and Health Administration, School of Public Health

\_\_\_\_\_  
Patricia Pothier, Associate Professor of Nursing

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## ABBREVIATIONS

HCWs	Health Care Workers
EVD	Ebola Virus Disease
ANA	American Nurses Association
ICN	International Council of Nurses
WHO	World Health Organization
ETU	Ebola Treatment Unit
GTM	Grounded Theory Method
EPPM	Extended Parallel Process Model
PPE	Personal Protective Equipment
CDC	Centers for Disease Control and Prevention

## ABSTRACT OF THE DISSERTATION

Experiences of Nurses and Midwives during the Ebola Outbreak in Liberia, West Africa

by

Erhuvwukorotu S. Kollie

Doctor of Philosophy, Graduate Program in Nursing  
Loma Linda University, June 2016  
Dr. Betty J. Winslow, Chairperson

The 2014 – 2015 Ebola outbreak in the West African region resulted in many deaths and has been responsible for devastating health and socioeconomic upheaval. The decision of nurses and midwives whether or not to render care during outbreaks is vital for the containment of the disease. The purpose of this study was to explore the experiences of nurses and midwives during the Ebola outbreak in Liberia. A grounded theory method based on Corbin and Strauss (2015) and Charmaz (2014) was used, resulting in a conceptual model describing the process involved in the work decisions made by the study participants. A convenience sample of 30 registered nurses and registered midwives were recruited from three hospitals (10 from each hospital). One of the hospitals was private faith-based, one was private faith-based and received funds from the government, and the third was government managed. Using an interview guide, data were collected through face-to-face, semi-structured, and tape-recorded interviews. The core category identified in the data was “living in fear and terror.” Other categories identified in the data were family, professionalism, God and safety, institutional influences, government efforts, and stigmatization. The work decisions of nurses and midwives were primarily influenced by family responsibilities and demands. The nurses and midwives experienced changes in the dynamics of the nurse-patient relationship and

in the nurse-nurse relationship, depending on whether or not they continued working. The findings of this study could be applied to education, practice, research, and health policies related to future disease outbreaks in Liberia and other regions in the world. Nursing curricula should include Ebola nursing care. An intervention study could be designed to test modes of safe touch with patients and the ramifications for practice. The role that faith plays in the decisions made by nurses and midwives should be recognized. Administrators and policy makers need to consider the emotional needs associated with the family, isolation, and stigmatization of nurses and midwives when developing measures and policies for Ebola containment.

## **CHAPTER ONE**

### **INTRODUCTION**

#### **Research Problem**

The recent Ebola outbreak in the West African region resulted in many deaths plus devastating health and socioeconomic upheaval. In recent history other regions of the world have been subjected to disease outbreaks such as human immunodeficiency virus/acquired immune deficiency syndrome (HIV/AIDS), influenza, and severe acute respiratory syndrome (SARS). As a result there is some awareness of the potential of experiencing disease outbreaks in any part of the world. Health care workers (HCWs) are central to the restoration and maintenance of optimum public health, especially in situations such as disease outbreaks (Barnett et al., 2012). The principles for HCWs' training and preparedness have been studied to assure their competent handling of these difficult situations. Studies have demonstrated that the adequate training and preparedness of HCWs, including nurses, is key to the survival of the population in the event of a disease outbreak. Typically, HCWs are equipped with skills for surveillance, communication, reporting, and containment of disease outbreaks (Chiu, Polivka, & Stanley, 2011; Qureshi et.al, 2004).

The willingness of HCWs to respond in situations of uncertainty and insecurity, along with their perceptions and attitudes towards their roles during disease outbreaks, influences their availability and positive response to the need for containment of the disease (Barnett et al., 2012; Devnani, 2012). Influenza epidemics have received attention by scholars and researchers have identified that HCWs were willing to respond or care for the victims during influenza virus epidemics (Balicer et al, 2010; Barnett et al.



2009; Baster, Edwards, & Schulte, 2009). Studies have indicated differences in the rate of willingness of health workers to care for patients who are victims of virulent and life threatening epidemics, pandemics, and infectious diseases. Barnett et al. (2012) and Basta, Edwards, and Schulte (2009) describe the determinants of HCWs higher willingness to respond to include type of disease outbreak (e.g., less virulent diseases associated with higher willingness), and that lower threat perceptions of health care workers are associated with higher efficacy assertion (meaning higher assertion to being competent to handle the situation) by health care workers. In other words, the less virulent a disease outbreak, the lower the threat perception of the disease outbreak, and the higher the assertion of competence to handle the situation. This in turn promotes a higher willingness of health care workers to respond or care for patients during disease outbreaks. During the peak of a disease outbreak, frontline health care workers who must be in very close contact with victims of the outbreak, especially virulent diseases that are of high risk to HCWs, were found to have a high rate of unwillingness to respond (Barnett et al., 2012; Baster, Edwards, & Schulte, 2009).

Despite what is known about HCW willingness to care in other disease outbreaks, research on the willingness of HCWs to care for victims of Ebola has not yet received much attention. The inner experiences of HCWs combating Ebola in a region that has never experienced such an epidemic is not yet understood. It is both timely and vital that a study describing the experience of health care workers and their willingness to care for patients during the Ebola disease outbreak be conducted. It is also important to identify those factors that influenced HCWs to care for patients during the Ebola outbreak.

It should be noted that during the Ebola outbreak in Liberia and West Africa as a whole, not only was there a need to care for patients who had contracted the Ebola virus, but there were other patient populations who needed other health care services. Pregnant women, women in labor for child birth, and postpartum women, children, and other adults with diverse conditions not related to Ebola were constantly in need of health care services.

Coping with a new disease with high mortality within the region, including development of treatment protocols, was a concern in the region. The resources needed including experts and health care workers, who were experienced in treating patients with Ebola, were not readily available. The cause of this inadequacy in Liberia (one of the countries in the region) was that the country had recently emerged from 14 years of civil war which led to lower availability of health resources and dysfunctional health care systems (Buseh, Stevens, Bromberg, & Kelber, 2015). In addition, Ebola virus disease symptoms are not easily differentiated from other endemic diseases like malaria, gastroenteritis, or cholera (World Health Organization [WHO], 2015). The symptoms of Ebola virus disease are indistinct from other infectious diseases and fatal. This led to increased anxiety levels of health care workers, such that every patient who sought care or health care services for other health conditions were treated as suspected cases (Hayter, 2015). Furthermore, WHO (2015) released a statement on the Ebola outbreak in Liberia in which they stated that Liberia had reported the highest number of deaths in the largest, longest, and most complex outbreak since Ebola first emerged in 1976 in the Democratic Republic of Congo. At the peak of the epidemic, which occurred between August and September 2014, the country was reporting from 300 to 400 new cases every

week. During those two months, according to WHO (2015), the capital city Monrovia was the setting for some of the most tragic scenes from West Africa's outbreak. Gates were locked at treatment centers that were overflowing with patients, patients were dying on the hospital premises, and bodies were sometimes not collected for days. Flights in and out of the country were cancelled, and supplies of fuel and food ran low. Public facilities such as schools, businesses, border crossings, markets, and most health facilities were closed. The nation was in fear and uncertainty about the future—for families, for communities, and for the country and its economy. The situation devolved until treatment beds for Ebola patients were exhausted and were no longer available anywhere in the country. This led to the abandonment of infectious cases and corpses remaining in homes and communities. Physicians and nurses continued to play a key role in the management and treatment of patients, even when supplies of personal protective equipment and training on its safe use were inadequate. Altogether 375 health care workers were infected and 189 lost their lives (WHO, 2015).

The International Council of Nurses (ICN), in a 2015 press conference, alluded to the problem the Ebola outbreak posed to HCWs within the West African Region and the entire health systems of the countries affected by Ebola. The ICN (2015) noted that Ebola infections were contracted by health care workers, resulting in devastating effects on the health system, including closure of hospitals, depletion of the much-needed health care workforce, and distrust in the health system. According to the ICN (2015), Ebola exacerbated the pre-existing shortage of health care workers, high rates of attrition, uneven distribution of workers, poor employment conditions, and gaps in occupational health and safety in the three countries most affected within the West African region:

Guinea, Liberia, and Sierra Leone. The ICN reported that health care workers were 21-32 times more likely to be infected with Ebola than were adults in the general population. In the affected countries, nurses accounted for more than 50% of all health care workers infected, physicians and medical students account for 12%, and laboratory workers accounted for 7%. The ICN (2015) recommended that in light of the numbers of nurses who lost their lives, there is need to strengthen safety policies, and provide adequate protection and appropriate training. In addition, the ICN, issued a declaration which called on governments to create safe working environments for health care workers as a prerequisite to the provision of care to Ebola patients; it also called for adequate training and education, availability of protective equipment, as well as nurses taking an active role in policy making regarding the prevention of infection and patient care.

With the high risk to nurses associated with caring for infected patients, there is a need to explore the experiences of nurses and midwives during the Ebola outbreak in Liberia, to gain their perspective on the safety issues, which social processes influenced the situation, and what other measures apart from safety assurance would be needed to develop a more realistic policy that will meet the needs of nurses and other health care workers. There is also the need for a holistic and comprehensive approach to understand what HCWs, specifically nurses and midwives went through during the epidemic while caring for Ebola and non-Ebola patients. It is important to explore the social process involved in nurses' and midwives' decision making about rendering or not rendering care to patients during the Ebola outbreak. We need to understand why those nurses and midwives who continued to care for patients did so, and the decision making of those who chose not to work during the Ebola outbreak. We also need to explore how nurses'

and midwives' willingness to care for patients during the Ebola outbreak influenced the care for patients who had contracted Ebola virus, as well as other patients with other life threatening conditions.

### **Purpose of the Study**

The purpose of this study was to explore the experiences of nurses and midwives, including the decision making process involved in caring for patients during the Ebola outbreak in Liberia, West Africa.

### ***Specific Aims of the Study***

The specific aims of this study were to:

- i. Describe, analyze, and interpret the experiences of nurses and midwives during the Ebola outbreak in Liberia.
- ii. Explore the personal, institutional, and government influences of the work decision process used by nurses and midwives during the Ebola outbreak in Liberia.

### **Definitions of Terminology**

The operational terms used in this study are subjective values and in the context of this study are defined as follows:

- Experiences: the process of personally observing, encountering, and/or carrying out patient nursing care and/or midwifery care activities over a course of time.
- Midwives: certified and registered health care personnel who have at least three years training in midwifery. In addition to their certification, some

have a bachelor's degree in nursing. Midwives work in the obstetrics and gynecology units, labor and delivery wards, and postnatal clinics.

- Nurses: are certified and registered health personnel who have completed at least three years training in a nursing program at the diploma level. In addition to their nursing diploma, some have also earned a bachelor's degree in nursing. Nurses are in almost all care units or wards in the hospital.
- Work decision: are the influences and outcomes of choices made by the nurses and midwives to decide whether or not to continue caring for patients during the Ebola outbreak.

### **Significance of the Study**

This study provides a description and interpretation of the experiences of nurses and midwives who in the face of grave danger chose not to continue to care or who continued to care for both Ebola and non-Ebola patients during the Ebola outbreak. The study showcases the contributions and reasons for the work decisions of nurses and midwives during the Ebola outbreak. The outcome of the analysis describes and interprets the experiences of nurses and midwives, the characteristics of the nurse-patient relationship, and the characteristics of the nurse-nurse relationship during the Ebola outbreak. The outcome of the analysis also provides a conceptual model that explains the personal, institutional, and governmental influences involved in the process of nurses and midwives deciding whether or not to continue providing care. The findings are informative for practice, policy decisions, education, and curriculum development of nurses and midwives on Ebola nursing care. The findings may also lead to further

research on Ebola outbreak management in the studied location and other locations with similar contextual or socio-cultural conditions.

### ***Significance for Practice***

The stories of the nurses and midwives offer understanding into their experiences in the midst of life-threatening circumstances during the Ebola outbreak. From the perspectives of the nurses and midwives who were involved in the care of patients during the Ebola virus disease outbreak, other nurses, midwives, and HCWs may gain insight into the personal, institutional, professional, and government influences on their attitudes and practice. This understanding might be useful for those who will face similar circumstances in the future. These findings have implications for practice protocols regarding the personal preparedness activities, nurse-patient relationship, nurse-nurse relationship, and protective measures of nurses and midwives in the event of an Ebola outbreak in Liberia, West Africa, and other resource-challenged areas of the world.

### ***Significance for Education***

Educational programs for nurses, midwives, and other health care workers could include the derived conceptual model from this study in the curricula. This could be done by including content, concepts from this study in the epidemiological, disaster management, health promotion, and ethics courses that would be taught to the students.

### ***Significance for Policy***

Nursing boards, nursing administrators, hospital administrators, and Ministries of Health could use the findings and strategies recommended from the study in the planning, implementation, and evaluation of Ebola response policies. It could also inform the responsibilities of principals towards nurses, midwives, HCWs, their families, and

patients. Highlighted guidelines and strategies to promote nurses' and midwives' experiences and work decisions during Ebola outbreak could inform policy development and implementation of appropriate Ebola prevention, treatment, and containment methods.

### ***Significance for Theory***

This study identifies concepts that provide the description of experiences of nurses and midwives during the Ebola virus outbreak in Liberia. Data analysis resulted in a conceptual model of the work decision process of nurses and midwives on caring choices for patients during the Ebola outbreak in Liberia. The conceptual model provides a premise for further development of theory.

### ***Significance for Future Research***

The development of a conceptual model provides a premise for further research through which the development of a substantive theory and a formal theory could be achieved. In addition, at any level of theory development, the model could be tested using quantitative approaches in Liberia and other countries within the West African Region. Intervention studies on adequate strategies identified in the data that could be applied to nursing practice to enhance practice and decision process during Ebola outbreaks could be conducted

### **Researcher Perspective and Assumptions**

The researcher is a registered nurse and registered midwife, living in Liberia. The researcher had her training in an undergraduate generic nursing program in Nigeria, a neighboring West African country, which equipped her for nursing, midwifery, and community health nursing practice. In addition she was exposed to further training in a



master's program for nurse educators, with a focus on nursing the growing family in an off-campus satellite program of a university in the United States. The researcher lives and works as a nurse educator and nursing clinical consultant in Liberia, and was living in Liberia during the Ebola outbreak; as a result, the researcher brought her insider perspective of one who is familiar with the social structure, cultural norms, political climate, and nursing professional obligations in Liberia.

The assumptions from integrating of the symbolic interactionism tradition, constructivist stance, and pragmatist world view were combined with the researcher's background. These assumptions will be described in the methods chapter, along with how they fit the research design used in this study.

### **Summary**

This chapter has addressed the research problem including the need for the study, which calls for the use of a holistic and comprehensive design to explain what nurses and midwives experienced during the Ebola epidemic in Liberia while trying to meet the needs of Ebola and non-Ebola patients. In this chapter, we describe the need to explore the influences involved in the decision making regarding nurses' and midwives' willingness to care for patients and the explanation of nurses' and midwives' perceptions and attitudes towards rendering care during the Ebola outbreak. The purpose and specific aims of the study were presented and key terms defined. Experience and work decisions were discussed. The significance of the study and the researcher's background, perspective, and assumptions were also identified.

### *Overview of the Remaining Chapters*

Chapter two includes a critical review of quantitative and qualitative studies conducted on disease outbreaks and health care workers' responses and attitude towards them. Sensitizing frameworks for this study are also described in chapter two. Chapter three addresses the research design and methods for this study, and also includes the sampling plan and setting for this study, the method of data collection, the process and procedure for collection of data, and the method of data analysis used. Chapter four includes the description of the findings from the data analysis. A publishable manuscript that contains the findings from data analysis is embedded in chapter four. Measures used to ensure trustworthiness were also addressed in chapter four. Chapter five provides the discussion of the findings and highlights the strengths and limitations of the study. The application of the findings to nursing practice, theory, policy, and future research are also discussed in chapter five. Appendices at the end of this report include the interview guide, human subjects' approval, consent form, letter of support, and a sample of transcribed data analyzed in the study.

## CHAPTER TWO

### CRITICAL REVIEW OF RELEVANT LITERATURE

#### Introduction to Chapter

This chapter examines the state of science on the willingness of health care workers to provide care during a highly contagious disease outbreak. It also highlights Ebola, its history, its recent effects on the countries directly involved and on the world view about the disease, future expectations as regards to its transmission, treatment, and containment, and current nursing implications. There are a limited number of studies specific to Ebola and the responses to care and attitudes of nurses and midwives. Consequently, I broadened the scope of literature review to glean from the science that exists in other disease outbreaks and the responses and attitudes of HCWs toward providing care.

#### **Ebola: The New Trial for the West African Health System**

The World Health Organization [WHO] (2015) described that Ebola viral disease (EVD) can be up to 90% fatal in humans. Humans contract the virus from wild animals and then transmit the virus to other humans through physical contact. Symptoms begin to manifest within 2 to 10 days after contact with the virus. People are only contagious during the symptomatic period. Early supportive care with rehydration and symptomatic treatment is critical to survival since there is currently no standard pharmacologic treatment to destroy the virus (WHO, 2015, “key facts,” para. 1).

#### *History and Origin of the Ebola Virus Disease*

Ebola virus disease or EVD, as we currently know it, first appeared in 1976 in two concurrent outbreaks in Eastern Africa: one in Nzara, Sudan, and the other in

Yambuku, Democratic Republic of Congo (WHO, 2015). The latter occurred in a village near the Ebola River, from which the ailment takes its name. The recent outbreak in West Africa, where the first cases were identified in March 2014, is the largest and most difficult Ebola outbreak since the virus was discovered. According to the WHO (2015), there have been more cases and deaths recorded in this outbreak than all others combined. It spread between neighboring countries, starting in Guinea, then to Sierra Leone and Liberia, and eventually to Nigeria, the US, Senegal, and Mali. The most severely affected countries were Guinea, Liberia, and Sierra Leone. These countries have very weak health systems, lack human and infrastructural resources, and have only recently emerged from long periods of war and instability. The outbreak in the West African Region became a public health emergency that claimed worldwide concern under international health regulations (WHO, 2015, "Background," para. 3).

According to Borio et. al. (2002) EVD is caused by a virus called Filoviridae, one of the viruses included in the family of hemorrhagic fever viruses which cause severe illness in humans including fevers and bleeding tendencies. These viruses were described in Borio et al.'s (2002) report and the WHO (n.d) to include Arenaviridae, which causes Lassa fever and New World hemorrhagic fever. Bunyaviridae causes Crimean-Congo hemorrhagic fever, Rift Valley fever, and Hantan hemorrhagic fevers with renal syndrome. Filoviridae causes Ebola virus disease and Marburg virus disease. Finally, there is Flaviviridae, which causes yellow fever, dengue, Omsk hemorrhagic fever, and Kyasanur forest disease.

### *Transmission of Ebola Virus Disease*

It is thought that fruit bats are a natural Ebola virus host. Ebola is introduced into the human population through close contact with the blood, secretions, organs or other bodily fluids of infected animals such as chimpanzees, gorillas, fruit bats, monkeys, forest antelope, and porcupines found ill or dead or in the rain forest (Borio et. al., 2002). Human-to-human transmission of Ebola occurs by means of direct contact, such as when broken skin or mucous membranes come into contact with the blood, secretions, or body fluids of infected people, and with surfaces and materials (e.g. bed clothing) contaminated with these fluids. Infected humans are infectious as long as their blood contains the virus, even after they die from the disease (WHO, 2015).

### *Symptoms of Ebola Virus Disease*

The WHO (2015) describes the symptoms manifested by people infected with EVD as starting 2 to 21 days after infection, although they are not infectious until symptoms begin to develop. Symptoms start with the sudden onset of fever, fatigue, muscle pain, headache, and sore throat, followed by vomiting, diarrhea, rash, symptoms of impaired kidney and liver function, and in some cases, both internal and external bleeding (Symptoms of Ebola virus disease, para.1). EVD is difficult to distinguish from other infectious diseases; however, Ebola virus infection can be confirmed through laboratory investigations. These investigations are listed by the WHO (2015) to include antibody-capture enzyme-linked immunosorbent assay, antigen-capture detection tests, serum neutralization test, reverse transcriptase polymerase chain reaction assay, electron microscopy, and virus isolation by cell culture. Samples from infected patients are an

extreme biohazard risk and laboratory testing should be conducted under highest biological containment conditions (WHO, 2015 “Diagnosis,” para. 1).

### ***Treatment and Vaccines***

The treatment for EVD has not yet been developed. However, there is a range of potential treatments including blood products administration, immune therapies, drug therapies, and vaccines which are currently being developed. Supportive care including rehydration with oral or intravenous fluids and treatment of specific symptoms improves survival (WHO, 2015, “Treatment and vaccines,” para. 1).

### ***Risk of Transmission to Health Care Workers***

In the event of epidemic occurrences, health care workers are on the frontline in combating the disease, and have been infected while treating patients with suspected or confirmed EVD. Infection occurs through close contact with patients, especially when infection precautions are not strictly practiced (WHO, 2015). The recent Ebola epidemic in West Africa found health care workers, including nurses and physicians, as frontline combatants while some also became victims of the disease. The situation in West Africa was compounded by the lack of skilled HCWs with experience in preventing and treating Ebola. Other challenges include the lack of adequate protective equipment and environmental aspects that could limit spread (e.g. lack of enough isolation wards in treatment centers and holding centers) The result was that health care workers in the affected countries cared for patients and their families in difficult conditions which in most cases increased their risk of contracting Ebola. The situation warranted courageous health care workers, who despite not having adequate knowledge of the virus they were contending with, were asked to tackle the gruesome challenges. These challenges ranged

from severe workforce shortage, dysfunctional health facilities, inadequate resources and equipment, and colleagues becoming infected and dying daily (Buseh, Stevens, Bromberg, & Kelber, 2015).

### *Nursing Implications for the Management of EVD*

The skills and protocols involved in nursing care for patients with EVD are undergoing development; however, some articles and opinion papers have begun to shed light on the subject. Lessons can be learned from nurses who were involved in the care of EVD-infected patients during the Ebola outbreak in West Africa and returned to the U.S. (Matlock, Gutierrez, Wallen, & Hastings, 2015). The lessons were summarized by Matlock, Gutierrez, Wallen, & Hastings (2015) into five points:

1. “It is possible to care for patients with EVD with much better clinical results than have been experienced in the past because current care techniques have improved.
2. Personal protective gear and equipment are essential to prevent transmission to care providers or environmental contamination.
3. Procedures to care for EVD within isolation units are multifaceted and require intensive training, practice, and observation as well as a chance to experience working in full gear.
4. Repeated, redundant, and detailed communications to all in and around a clinical situation of EVD is vital because the associated fear and inaccuracies in the media exaggerate concerns about personal and community risk.
5. Volunteerism is critical in the first response to this crisis” (p. 23).

Furthermore, there is the opinion that the need for strict isolation has compromised nurses’ ability to touch and provide comfort and human connection to EVD patients

(Connor, 2015). According to Connor (2015), touch is a primary way humans connect and an important part of the nurse-patient relationship and may be one of the central aspects of caring between nurses and patients (para. 2). Nurses touch patients to offer comfort, promote healing, and demonstrate caring. They touch patients in a multitude of ways at every encounter; when taking vital signs, bathing patients, moving patients in bed, helping them leave the bed to walk or sit in a chair (para. 3). The physical touch nurses offer patients, especially in the case of Ebola, tells them they are not alone and reassures them that the nurse is not afraid to be near them. Because skin-to-skin contact is not acceptable when treating EVD patients, despite the layers of protective equipment, nurses need to find a way to provide human touch that is intentional, deliberate, and meaningful to offer comfort, connection, and care (Connor, 2015).

Finally, on the issue of nursing implications for EVD, is the need for development of a curriculum that provides for a better understanding of the knowledge, skills, and attitudes required to care for patients during public health emergencies. For instance, faculty at Emory's Nell Hodgson Woodruff School of Nursing partnered with colleagues at the Centers for Disease Control and Prevention (CDC) to develop and deliver a course entitled, "Introduction to Complex Humanitarian Emergencies for Nurses." The course included instructive presentations and active learning exercises to examine the provision and management of care and opportunities for leadership. This could be replicated and contextualized in West Africa and globally (Downes, 2015).

### **Description of Literature**

Studies in the area of health care workers' attitudes and behaviors towards the recent Ebola epidemic were limited at the time of conducting this literature search.



Therefore the decision was made to expand the search terms to disease outbreaks, medical disaster, health disaster, and public health emergencies. This provided research articles that articulated studies on the experiences, concerns, and determinants of willingness of health care workers to respond or not to respond during a disease outbreak or public health disaster. It was reasoned that lessons from those studies could offer understanding of the phenomenon in the context of the Ebola epidemic. The search terms used were willingness, attitudes, behaviors, infectious disease, disease outbreak, epidemics, health care workers, and nurses. The databases searched include Pubmed, Ebscohost, Academic Search Premier, Cochrane, Psych Info, Global Health, and WHO websites. The type of articles used included quantitative, qualitative, and mixed method studies, systematic reviews, WHO facts and reports, and opinion articles. The search parameters include English language, dates ranging from 2000 to 2016, and full text articles. The literature on the subject matter is discussed under the following headings: Ethical considerations on care, concerns and confidence to care, statistics on health workers' willingness to care (WTC), determinants of WTC, strategies to foster WTC, and experiences during Ebola outbreak.

### ***Ethics on Care for Patients with EVD***

The discussion on the ethical considerations of care focuses on the nursing ethics of care. This is because the researcher's profession is nursing; however, we could assume the same thread or fairly similar considerations run through all health care professionals. The International Council of Nurses (2012) code of ethics has four elements that outline the standards of ethical conduct, concerning nurses and people. One of these is that the nurses' primary professional responsibility is to people who require nursing care, making

it necessary for the nurse to share with society the responsibility for initiating and supporting action to meet the health and social needs of the public, especially vulnerable populations. A second element requires nurses to maintain a standard of personal health for themselves such that the ability to provide care is not compromised. The American Nurses Association (ANA, 2015) code of ethics for nurses also has a list of provisions. The second provision indicates that the nurse's key obligation is the health care needs of the patient, whether an individual, family, group, community, or population (p. 5). This provision explains that when conflicts arise from opposite loyalties in the workplace, including conflicting expectations from patients, families, other health care workers, health care organizations, and health plans, the nurse must examine the conflicts arising between their own personal and professional values, the values and interests of others who are also responsible for patient care and health care decisions, and perhaps even the values and interests of the patients themselves. The nurse addresses such conflicts in ways that ensure patient safety and that promote the patient's best interests while preserving the nurse's professional integrity (pp. 5-7). The American Nurses Association fifth provision states that the nurse is obligated to care for self as well as for others, including the responsibility to promote health and safety, and maintain competence (p. 19). The ANA (2015) further explains that while nurses are obliged to conduct nursing actions such as assessment, intervention, and promotion, among others for the health and safety of their patients and society, they also are obliged to use the same health maintenance and promotion strategies that they teach and render, use health care services when needed, and refrain from unnecessary risks to their health and safety in the process of carrying out their professional and personal activities (pp. 19-25).

Several nurse administrators of the Rhode Island State Board of Nursing, together with physicians holding administrative offices in Rhode Island, wrote on their perspectives on the professional responsibilities for treating patients with Ebola. Their aim was to answer the questions whether health care providers could refuse to treat a patient with Ebola. The administrators examined their perspectives against the ethical principle of beneficence, which means health professionals are to do those things that will be of benefit to their patients. They asserted that a health care provider has an ethical and professional duty to address a patient's needs, as long as the patient's diagnosis falls within the provider's scope of practice. They judged that refusing to address patient's needs is not consistent with the ethical principle of beneficence. Application of beneficence to the care of patients with Ebola was based on the premise that the Ebola virus disease is now understood; that is, the origin, mode of transmission, symptoms, and means of mitigating the risk of contracting the virus during patient care (e.g., use of protective equipment) is now better understood by health care professionals (Twardowski, McInnis, Cappuccino, McDonald, & Rhodes, 2014). These authors further stated that health care providers within their scope of practice are to use this knowledge and their licenses given to them by state licensing boards, which impose upon them obligations and responsibilities to care for patients with Ebola. They categorically indicated that in the state of Rhode Island, licensed health care professionals in active practice are obliged to treat and/or care for patients with Ebola, while minimizing the risk of Ebola transmission to self and others. Their advice to health care providers on this matter was that health care providers must reflect very carefully before declining to care for a patient, because concerns about personal risk (which in the case of Ebola, can be

readily alleviated in their opinion) must be weighed against ethical and professional obligations (Twardowski, McInnis, Cappuccino, McDonald, & Rhodes, 2014).

Sokol (2006), in a more permissive take on health care workers' duty of care during virulent epidemics, stated that more evaluation is needed before stakeholders in health care come to a consensus on the matter. His rationale was that the term "duty of care" was more legalistic, suggesting that the notion was too vague and ethically dangerous to the welfare of health care workers. Sokol reasoned further that the term gave the illusion of legitimate moral justification for health care workers' duty to care for patients despite unclear provision for their safety. It could be a subtle instrument for intimidating and pressuring health care workers into working in circumstances that they consider morally, physiologically, or physically unacceptable. By virtue of their profession, physicians and nurses have more stringent obligations of beneficence than most other health care workers and may be put in danger through the idea of the term, "duty of care." In the opinion of Sokol, the term has no fixed limits but is contingent on various factors in the working environment's normal risks to the health care worker. He recommended that this term be clarified through empirical social science research to illuminate the views and reasoning of physicians, nurses, patients and the members of the public on the limits of the duty of care. He recommended further that research should also uncover infection control measures, staff training and involvement, the role of medical students and volunteers, the triaging of incoming patients, and the logistics of treatment, depending on the severity of the epidemic, as well as the lessons learned from past epidemics.

Coleman (2008), a professor of law in the Center of Health and Pharmaceutical Law & Policy, Georgetown University, added her opinion to the discourse that no social contract requires health care workers (HCWs) to care for patients despite potential health risks. Coleman stated HCWs should not be compelled to work and risk exposure to life threatening disease based on their status as licensed professionals. Volunteerism, as Coleman (2008) stated should be promoted by policy makers to assure the availability of skilled care during disease outbreaks, instead of taking punitive actions on health care professionals who decline to work during epidemics.

Other opinions on the subject of ethics were presented in a reflective article in which the author Reid (2005) stated that many policy makers made unrealistic assumptions about the duty of care, the risks that health care professionals faced during the severe acute respiratory syndrome (SARS) outbreak, and their response of service in the face of these risks. According to Reid (2005), duty of care does not arise from the particular virtues of professionals, not on altruism and heroism, but is based on social expectations that the response to an epidemic be consistent with our values and our needs. This is in recognition of our shared vulnerability to disease and death.

The Institute of Medicine (2012) in a conference held in Atlanta, Georgia in the U.S., delivered a systems framework for catastrophic disaster response called the Crisis Standard of Care (CSC). The IOM suggested that entering a standard of care mode during crisis situations is not optional, but is compulsory, based on incipient situations. Under such emerging situations, failing to make substantive adjustments to care operations—that is, not adopting a CSC—is very likely to result in greater death, injury, or illness to the population. It also suggests that the implications of the CSC to health

care providers entail difficult decisions on care options, and intense trade-offs about personal choices to care. Health care workers may be asked to perform expanded roles outside their specialty through waivers, and additional responsibilities and/or procedures may be obliged on them.

An alternative view presented by Hodge, Hanfling, and Powell (2013) addressed practical ways to ease the ethical and legal challenges underlying standard of care during a crisis. These practical methods were proffered as an alternative to the 2012 IOM recommendations on ethical norms for HCWs during a crisis. Hodge et al. (2013) were of the opinion that the IOM-recommended standard of care in crisis was impractical and coercive. The researchers' recommended alternative practices include incentives for HCWs work attendance, incentives for higher risk work, and incentives to return staff to work. These approaches also include providing preventive and protective measures to foster HCWs willingness to work during infectious disease outbreaks.

Results from a fairly large quantitative design electronic survey ( $N = 908$ ) in the U.S. indicated that most medical center employees felt it was unethical to abandon the workplace during an influenza pandemic. Sixty five percent of the employees did not want to be coerced; they wanted to be able to decide whether or not to work. Seventy nine percent would agree to volunteer on the condition that some incentives and protective equipment with training for its use be given. This study indicates that a high percentage of medical center employees expressed a willingness to care for patients during pandemic avian influenza, with conditions of personal safety and training attached. The limitation of this study was that the researchers reported a low response rate from participants. The response rate was not given in statistical figures; however, this

could lead to the possibility of bias. It is possible that those who responded are inclined altruism. The low response rate may have limited the ability of researchers to identify possible confounding variables; for example, reported gender differences might be due to over representation of one gender (Shabanowitz & Reardon, 2009).

In a smaller quantitative study conducted in the U.K. among hospital staff ( $N = 406$ ) with a responsive rate of 40%, the respondents (83%) of the survey felt it would be unprofessional to leave work during a pandemic influenza event. Most of the staff (79%) felt professionally obligated and would voluntarily work during a pandemic despite high personal risk (Barr et al., 2008). Another quantitative study ( $N = 644$ ) aimed to assess the ethical conflict between professional duties and fear of influenza transmission to family members among health care professionals (HCPs) (Ehrenstein, Hanses, & Salzberger, 2006). The respondents partook in a cross-sectional survey. Of the participants, 28% agreed that it was professionally acceptable for HCPs to abandon their workplace during a pandemic so as to protect themselves and their families. However, 52% indicated they would not choose family over work during a pandemic. Of the sample, 58% did not believe that the decision to report to work during a pandemic should be left to the individual HCP. This finding might suggest that this percentage of respondents felt that HCPs should be required to work regardless of their personal choice. The findings also showed that 77% did not agree that HCPs should be dismissed from work for not reporting to work during a pandemic. The study would have been strengthened had they accounted for gender differences and/or professional differences in terms of clinical or non-clinical HCPs. It would have been valuable to identify the association between

gender or clinical competence and perceptions of ethical obligations to care (Ehrenstein et al., 2006).

A study in Taiwan was conducted using a survey of 172 nurses, with the objective to investigate the relationship among hospital nurses' professional care obligations, their attitudes towards SARS, infection control measures, whether they had ever cared for patients with SARS, and their current health status. The result showed that nurses were willing to provide care for patients with SARS. The study also noted that nurses who were willing to use the personal protective equipment (PPE) and take the vaccine, combined with the fact that personnel were not required to be quarantined, significantly predicted nurses' fulfilling their obligations to care for SARS patients during an epidemic (Tzeng, 2004).

By way of synthesis, it could be concluded that health care workers generally agree that it is their professional obligation to care for patients during an influenza pandemic, despite the risk for themselves and their families. Therefore, we could assume that while it may be a moral obligation for health care professionals to care for the sick, they are not obligated to bear the risk of infection during a disease outbreak. It is the duty of policy makers to put in place appropriate measures to ensure their safety and refrain from punitive measures on HCWs who prefer to stay away from the frontlines of combating epidemics. One way to understand the factors that influence health care workers' willingness to care for patients is to look at the situation from the perspectives of the health care workers. This could inform policy makers and health care administrators of ways to enhance HCWs' willingness to care for patients during an epidemic. It could also guide educational program curricula and redesigns of in-service



training to improve health care workers' perspectives on the subject through mentoring and education.

### *Concerns and Confidence to Care during Disease Outbreaks*

While health care workers, including nurses agree that HCWs are obliged to report to duty in an epidemic, and that their safety is also important, reports from several qualitative and quantitative studies have identified a varied range of concerns that affect willingness of HCWs to work during a disease outbreak. A review of the literature shows confidence issues that also affect willingness to work during public health emergencies. One qualitative study explored health care workers' concerns in the isolation ward during the 2009 influenza pandemic in Hong Kong. Ten healthcare workers, including physicians, nurses and others, were interviewed. The findings showed participants who worked in the isolation ward expressed professionalism and willingness to work. Their concerns included appreciation from employers, efficacy and side effects of vaccines, frequent policy changes, unclear protocols for case management of infected patients, poor facility layout, and duty role stress (Wong, Wong, Lee, Cheung, & Griffiths, 2012). A limitation of this study is that it did not explore the duty concerns of health care workers in other routine wards during the pandemic.

In a quantitative study, researchers compared the concerns of 326 HCWs about the general risks involved in caring for patients with influenza in two community hospitals and one tertiary hospital. Using a survey, the authors reported that the tertiary hospitals had a higher percentage expressing concern that their jobs exposes them to the risk of contracting avian influenza (78% from the tertiary hospital vs 67.5% from the community hospitals). The report also indicated that 90% tertiary hospital staff and 82%

of staff from the community hospitals felt they were better prepared (through infection control training received and protective equipment provided) for an outbreak. Concerns expressed in this study fell mainly into three categories: personal safety, psychological impact, and family safety (Cheong et al., 2007). Another quantitative survey in Taiwan by Hsu, Chen, Chang, and Chang (2006) identified the issues related to the self-confidence of public health nurses in their ability to function safely, and the influence self-confidence had on their willingness to work during an epidemic. Of the 312 nurses studied, 71.9% expressed a general lack of confidence in handling the SARS epidemic. Their confidence was significantly associated with perceived epidemic severity (OR 0.58, CI: 0.31-0.99), daily epidemic updates (OR 2.26; CI: 1.28-3.98), and the number of cases in the community (OR 2.21; CI: 1.13-4.31). A limitation of this study is that the researchers did not report the relationship between the confidence of the nurse and the willingness to work during the SARS epidemic.

The studies on concerns and confidence indicators suggest a varied range of concerns held by health care workers, including nurses, which need to be considered when planning for effective workforce presence during a disease outbreak. These concerns, along with the level of confidence of the HCWs, might have some influence on their willingness to work during a pandemic.

### ***Willingness to Care Body of Evidence***

The studies of health care workers' willingness to care for patients or work during disease outbreaks reflects a wide variation when compared within clinical and non-clinical groups of HCWs. The body of knowledge from quantitative studies reflects dissimilarities in rates of willingness to care for patients during disease outbreaks among

locations categorized as developed societies. No pattern was observed among the countries studied in terms of willingness to care, type of epidemic, population studied (groups of health care workers), or study location or setting.

A study by Barnett et al. (2009) utilized the Extended Parallel Process Model (EPPM) to examine the adaptive behaviors in an event of unknown risk. First proposed by Witte in the early 1990s, the EPPM represents a combination and extension of previous psychosocial models of “fear appeal” (as cited in Barnett et al., 2009, e. 6365). The EPPM proposes that to be effective messages must be comprised of two parts: threat and efficacy. Those who receive the message sequentially perform two appraisals, first the threat, then efficacy. The first part of the message has to convincingly transmit the presence of a threat, leading to concern on the part of the message receiver(s). The second part of the message has to convincingly transmit the existence of efficacious interventions/mitigations, especially those that are self-efficacious (that is, can be performed by the message receivers), leading to confidence. According to this model, the threat and efficacy components must be accepted by the message receivers to achieve the desired behavior or practice (at both individual and collective levels); this is referred to as “danger control” in the EPPM. If the threat portion is not accepted, the message is rejected. If the threat portion is accepted, but the efficacy portion is not, the acceptance of the threat portion triggers fear, which the message receivers attempt to manage -by rejecting the entire message; such a reaction is referred to as “fear control” in the EPPM (as cited in Barnett et al., 2009, e. 6366). Hence, Barnett et al. (2009) utilized the EPPM to conduct a survey of local health department personnel in three states in the US to examine the relative influences of perceived threat and efficacy on public health workers’

response willingness to pandemic influenza. A total of 1875 responses were generated. The results showed that 16% of health personnel were not willing to respond to a pandemic. The results also indicated that local health department workers with perceptions of high threat and efficacy had the highest rates of willingness to respond—31.7 times higher than those with low threat and low efficacy profiles. The strength of this study was that it showed that high threat and efficacy profiles could predict high rates of willingness among health care workers to respond during influenza pandemic. A limitation of the study is that the association between threat and efficacy profiles and other personal or institutional factors was not examined against the effect of willingness to respond during influenza epidemic.

Balicer et al. (2010) conducted another study that examined scenario-specific willingness of hospital workers using Witte's EPPM as a framework. An online survey was sent to 18,612 employees of the Johns Hopkins Hospital; 3,426 employees responded. The results indicated that more than one in four (28%) of the employees were not willing to respond to an influenza pandemic scenario if asked but were not required to do so. Few (10%) were willing to respond if required to do so, and 32% were unwilling to respond in the event of more severe pandemic scenarios. The results also indicated that hospital workers who were hesitant to work additional hours when required were 17 times less likely to respond during a pandemic. Hospital workers with high efficacy had 5.8 times higher declared rates of willingness to respond to an influenza pandemic. A study strength was the identified relationship between threat and efficacy profiles with high rates of willingness to respond during a pandemic influenza. It also indicated a low declared rate of willingness among health care workers to respond during an influenza

pandemic. A limitation of the study is the low response rate, which may have introduced a selection bias; specifically, those who responded might have included more of those who were hesitant to work.

In another large study, Basta et al. (2009) aimed to determine how informed health department employees are about pandemic response and how willing they are to report to work during a pandemic. An electronic survey was administered to 4,746 health department workers; 2,414 responses were retrieved and analyzed. The findings show that willingness to work ranged from 93.3% for the lowest risk scenario to 56.2% for the highest risk scenarios. The scenarios included the stage of influenza pandemic and type of job duties. The study indicated that about half of health workers are unwilling to report for work during the peak of influenza pandemic, when their services would be vital for control and mitigation of the pandemic. The limitation of the study is that the authors did not determine if the various job duties among the different types of HCWs in the health department affected the rates of willingness to respond for the different scenarios.

In a recent national cross-sectional survey of 332 emergency nurses in the U.S., researchers aimed to identify the perceived likelihood of emergency department nurses to report to work during an avian influenza outbreak (Bell et al., 2014). Another objective was to determine the options available for nurses who decided not to report to work during an avian influenza outbreak. The researchers explored the predictors of work attendance by nurses. The results indicated that 84% of nurses responding to the survey would report to work. The analysis showed that the likelihood of reporting to work varied by educational level, the information on avian influenza available to nurses, and whether the nurses had family members living with them. Among nurses who were not willing to

report to work, 90% were willing to provide information, 82% would administer vaccinations, and 74% would triage neighbors and friends from home. One-third of the nurses had not attended a disaster preparedness drill but had received personal protective equipment (PPEs); this accounted for 40% of the variance in the likelihood of reporting to work. A strength of this study is that it identified a high rate of willingness to work among emergency department nurses. It also related the high rate of willingness to work with the level of education, availability of information on avian influenza, provision of PPE. The study findings also showed that emergency nurses were more likely to work when they had few family members' living with them and these family members were fairly independent themselves, such as in the case when they had no children living with them. A limitation of the study is that it may not have evaluated many other factors that influence willingness to work during an avian influenza outbreak (Bell et al., 2014).

A similar study was conducted in Australia among emergency pre-hospital medical care providers; that is, emergency paramedics involved in first line support, resuscitation, and transportation of patients with emergency conditions. The researchers aimed to investigate the association between knowledge and attitudes regarding avian influenza on the likely behavioral response of workers including first-aid providers, surveillance reporters, public health promoters, etc.; these individuals often come into contact with patients' air droplets, secretions, clothing, and materials that may be contagious or a means of disease transmission (Tippett et al., 2010). A reply-paid postal questionnaire was distributed to 2,929 potential participants, of which 725 responses (24.7% response rate) were returned. The outcome measures were knowledge, attitudes, and anticipated behaviors such as preparedness to wear personal protective equipment,

preparedness to change role, willingness to work, and likelihood of refusing to work with colleagues who were exposed to influenza (Tippett et al., 2010). Multiple regression analyses indicated the independent predictors of each of the anticipated behaviors while controlling for other variables. Results showed that 43% of participants were unwilling to work during pandemic conditions (OR 1.41; 95% CI 1.0-1.9), one-quarter would refuse to work even with personal protective equipment (PPE), and one-third would refuse to work with a colleague exposed to influenza. The results also indicated that adequate knowledge about infectious agents significantly increased the variables willingness to work (OR 1.41; 95% CI 1.0-1.9), and willingness to change role (OR 1.44; 95% CI 1.04-2.00). Furthermore, adequate knowledge about infectious agents significantly decreased refusal to work with an exposed colleague (OR 0.48; 95% CI 0.3-0.7) or potentially exposed colleague (OR 0.43; 95% CI 0.3-0.6). Results show that confidence in an employer's capacity to respond appropriately significantly increased employees' willingness to work (OR 1.52; 95% CI 1.1-2.1), willingness to wear PPE (OR 1.68; 95% CI 1.1-2.5), and significantly decreased the likelihood of refusing to work with colleagues exposed to influenza (OR 0.59; 95% CI 0.4-0.9) (Tippett et al., 2010). A strength of this study is that it described the factors related to the willingness to work of emergency pre-hospital workers. However, a low response rate and sample bias may have affected the findings of the study.

A cross-sectional survey was conducted by Dickinson et al. (2013) to investigate the willingness to work of family physicians in Alberta, Canada during an influenza pandemic. A sample of 192 participants (response rate of 22%) responded. The results showed that 50% of family physicians were willing to work during difficult scenarios

created by influenza epidemic, and men were significantly more willing to continue working than women. The strength of this study is that the researchers found that the rate of willingness to work among family physicians was high, and male family physicians reported higher rates of willingness. The limitation of the study is that the low response rate might have created a selection bias in the findings; that is, participants may have been primarily men and those who were willing to work.

Other researchers in Singapore used a self-administered questionnaire to study 1,859 public health workers who responded on their concerns, perceived impact, and preparedness in an avian influenza pandemic (Wong, Koh, Cheong, Lee, et al., 2008). The findings from this study indicated that 82.7% were concerned with the high risk of contracting avian influenza, 63.5% felt that people would avoid them, 54.1% felt people would avoid them and their families, and the majority, 83.7%, felt that their workplace was prepared for an outbreak. The results also showed that 71.9% of the participants accepted the risk, although 25.5% felt that they should not provide care for patients with avian influenza despite the risk, and 15% of the participants considered resigning from their jobs because of the risk involved. A strength of the study is that the researchers described a high rate of willingness to care for patients with influenza during a pandemic among health care workers in Singapore. It further describes the concerns, perceived impact, and preparedness level. A limitation of the study is that it did not associate these concerns, perceived impact, and preparedness level to the rate of willingness to care among the health care workers. In other words, how do the identified concerns, perceived impact, and preparedness level predict the rate of willingness among health care workers?



Mitani et al. (2011) conducted a study to identify how many medical staff would be willing to work during a pandemic and the working conditions that medical staff would require so as to be willing to work during a pandemic. A cross-sectional survey using questionnaires was sent to five private hospitals in Japan. The questions focused on the attitude of medical staff toward a pandemic, including whether they would work in the hospital, treat people, and the types of considerations (such as provision of PPE, improved compensation, access to vaccination, and so on) they required in order to work. A total of 1,975 hospital staff responded with a response rate of 67%. The participants consisted of physicians, nurses, pharmacists, radiologists, physical therapists, occupational therapists, clinical laboratory technologists, office clerks, and others. The researchers found that 204 hospital staff (10%) would not go to the hospital during a pandemic; 363 (18.8%) would perform their duties as usual unconditionally; 504 (26.1%) would work at the hospital but would not treat avian influenza; 80% would work if they were provided with PPE; 69% would work if they received compensation; 58.2% would work if they were given anti-virus medication, and 57.8% would work if they received a pre-pandemic vaccination. This study indicated that during a pandemic health worker staffing at all levels would suffer if safety measures were not put in place and compensation was not offered. The researchers also described comprehensive measures to ensure availability of health care workers during a pandemic. The limitation of the study is that the researchers did not show the differences or similarities in the rate of willingness to work among the different types of health workers, which could be useful information during a pandemic.

A study was conducted in China by Seale et al. (2012), to assess the views and intended behavior of hospital health care workers on intentions regarding work and quarantine during an influenza pandemic. A cross-sectional survey of 1,909 participants (response rate of 99%) was conducted at 24 hospitals in Beijing. The results indicated that 74% of participants would work despite the risk of infection; 71% felt they had the necessary knowledge to provide patient care, accepted the risk of exposure to the virus and were willing to be quarantined if necessary. Through this study, researchers were able to assess the attitudes and intentions to work in hospital workers in Beijing. The limitation of the study is that it did not indicate the attitude and intentions to work among the different types of health care workers. It also did not consider the cultural implications of the attitudes and intentions expressed, since in some countries workers do not have the option of refusing to work.

Martinese et al. (2009) conducted a study in Australia to estimate the expected staff absentee rates and work attitudes in two scenarios in a tertiary hospital. These scenarios were a single admission of a patient with avian influenza and multiple admissions of patients with human pandemic influenza. A cross-sectional study was conducted of the 560 who responded. For the first scenario, single admission of an avian flu patient, 13% indicated they would not report to work and 25% would only work provided that immunizations and/or antiviral medications were immediately available. If these medications were not immediately available, 38% would not report to work. In the second scenario, multiple admissions of patients with human pandemic influenza, 36% would not attend work, 17% would attend work if immunizations and/or antiviral medication were immediately available, but 53% would not attend work if vaccines or

medication were not available. The researchers also found that staff in the emergency department or acute medical ward was more likely to work (OR 2.2 for scenario 1; OR 1.6 for scenario 2). The strength of this study is that the researchers identified high absenteeism would occur during an influenza epidemic if protective measures were not provided. The limitation is that the researchers established status of intentions to work of the hospital staff during a pandemic based on hypothetical scenarios. An actual influenza pandemic might show different results.

Another study conducted of 644 health care workers in Germany assessed the ethical conflict between professional duties and the fear of infecting family members with influenza (Ehrenstein et al., 2006). The results showed that 28% of respondents agreed that it was acceptable for health care workers to abandon their workplace during a pandemic to protect their families; 52% said it was not acceptable, and 19% had no opinion. A breakdown of the disagreeing respondents showed that physicians were more likely to disagree (65%), followed by nurses (54%), and administrators, (32%). Fifty-eight percent of respondents did not think the decision to report to work during a pandemic should be left to individual health care workers, and 77% did not feel that health care workers should be dismissed for not reporting during a pandemic. The strength of this study is that the researchers established that fewer German health care workers and more administrators of the same hospital were in favor of continuing to treat patients despite potential risks. The limitation of the study is that the percentage representation of the various groups of health workers was not clearly associated with the reported rates of declared willingness to work. This study would have been stronger if it evaluated the relationship/differences/similarities between the decision to report to work

and the category of health workers —physicians, nurses and administrators—in terms of their percentage in the sample size. This would reduce error from selection bias; that is, having more physicians in the sample could account for higher reported rates. Nurses had the lowest response rate, depriving us of the perspective of key figures in health care delivery which is unfortunate since their perspective as key figures in health care delivery, is important.

Ma et al. (2011) surveyed the knowledge and attitudes about an influenza pandemic among 695 health care workers from 21 intensive care units (ICUs) in 17 Chinese provinces. Of the respondents, 51.2% reported caring for patients with influenza and 83.3% expressed willingness to care for patients with influenza. The study also showed that physicians and nurses were more likely than other professionals (such as respiratory therapists, student nurses, and nurse assistants) to care for influenza patients (OR 4.05 and 3.23;  $p = 0.002$  and  $0.007$  respectively). The likelihood of health care workers caring for patients in this situation is associated with knowledge and training provided prior to patient care (OR 1.53,  $p = 0.044$ ) and confidence that they will be able to protect themselves and their families (OR 2.109,  $p = 0.001$ ). The strength of this study is that the researchers have identified factors that influence health care workers' willingness to work. However, the researchers did not explain the proportion of physicians and nurses to the other health care workers (that is respiratory therapists, student nurses, and nurse assistants) in the ICU. It was unclear whether lower proportions of other health care workers in the sample were due to their response rate or that they were fewer in the ICU. This information might reduce sample biases of physicians and nurses compared to these other professionals.

A cross-sectional survey of 288 health care workers conducted by Butsashvili et al. (2007) sought to determine the magnitude and factors associated with absenteeism among hospital-based health care workers during an influenza pandemic in Georgia, Eastern Europe. The findings indicated that 23% of the health care workers stated they would not report to work, and more female health care workers and nurses were more likely to state discontinuation of work than males (RR = 2.95, 95%, CI: 1.13-7.7). The results further indicated that 58% of health care workers, mostly those younger than 35 years, were opposed to being isolated or quarantined after exposure to suspected or confirmed cases of influenza. Of the respondents, 67% knew which strain of the virus was responsible for the epidemic. The strength of this study is that the findings indicated the rate of absenteeism among health care workers in Georgia, which is reflective of the magnitude of reduction in the workforce in the event of an influenza pandemic; the predictors were also highlighted. The limitation of the study is that it did not highlight the proportion of women and nurses in the sample, possibly indicating selection bias.

In a study by Damery et al. (2009), the factors associated with the willingness to work during an influenza pandemic were investigated among health care workers in the West Midlands in the United Kingdom. This study surveyed 3,000 HCWs with a response rate of 34.4%. (n =1,032). The results suggest unwillingness to report to duty might be as high as 85% at any point during a pandemic in the UK, with potential absence concentrated among the nurses and ancillary workers (porters, hotel services, mortuary attendants). The findings of this study indicated that barriers such as the obligation to care for a family member, or lack of transportation could cause HCWs to be unwilling to work. The limitation of this study is that participants were responding to a

hypothetical situation, and may not reflect HCWs' willingness were they to actually experience a pandemic.

Seale et al. (2009) conducted a cross-sectional survey to explore health care workers' knowledge, attitudes and intended behavior towards an influenza pandemic in Sydney, Australia. Eight hundred and ninety four participants representing four categories of health care workers: nurses (47.5%), medical (26.0%), allied (15.3%), and ancillary (11.2%) were surveyed. The participants responded to hypothetical scenarios of what their intended behavior would be. The study found that most health care workers perceived the seriousness of the situation (80.9%), but fewer than half could state the definition of pandemic influenza (43.9%). Of the participants, 83.3% were willing to work. In a hypothetical scenario in which colleagues became infected, most health care workers (79%) were willing to work. The researchers found that non-clinical staff were more likely to be unsure of their intention to work. Only 42% accepted the efficacy of an antiviral medication to protect them, and 77% believed in the benefit of the vaccine. This study finding indicates low level intention of health care workers to use an antiviral medication and higher intention to comply with quarantine measures. Forty five percent of respondents ( $n = 486$ ) indicated they would comply and further 28.4% stated they would comply though they would be unhappy with cooperating with the quarantine measures. It further identifies the proportion of different types of health care workers in the sample. The sample included HCWs such as medical (staff specialists, registrars, medical students etc.), nursing (registered nurses, nurse unit managers, and enrolled nurses etc.), allied health personnel (physiotherapists, occupational therapists, psychologists etc.) and ancillary staff (domestic services, administration, computer

specialists etc.). This could help readers examine the category of health care workers that might contribute more to the overall findings. The limitation of the study is that the report did not clarify which of the four categories of health care workers belonged to the clinical and non-clinical staff. This would help readers examine which of the groups were unsure of their intentions.

A U.S. study sought to determine the ability and willingness of essential workers (such as physicians, nurses, policemen, firemen, public health workers, workers in correctional facilities etc.) to report to duty during a serious pandemic. Personnel from six organizations in New York: hospital workers, police department, emergency medical services personnel, fire department, public health department, and correctional facility officers, were invited to participate (Gershon et al., 2010). A total of 1,103 participants responded. The researchers found that while 80% of workers indicated they would report for duty during a pandemic, only 65% reported they would be willing to report for to duty. Only 49% were both able and willing to report for duty (Gershon et al., 2010). The strength of this study is that the researchers considered several groups of essential workers, thereby offering an expanded picture of the willingness of highly needed professionals to serve in their different capacities during a pandemic of any type. The finding was that a shortage of essential workers might occur in a pandemic. The limitation of the study is that the low rate of willingness reported may have been affected by the proportion of essential workers who might not have been able and willing to report to work, since the study did not consider the categories of essential workers separately.

Another cross-sectional survey was conducted to identify pre-event knowledge and attitudes to living and working in pandemic conditions among emergency pre-

hospital medical care providers. This was in relation to a potential human influenza pandemic in Australia (Watt et al., 2010). Of the 725 participants surveyed, 81% perceived high personal risk associated with working during pandemic conditions. Generally, respondents demonstrated poor knowledge about avian influenza and infection transmission mode. Fewer than 5% of respondents perceived that they were adequately educated or trained about avian influenza (Watt et al., 2010). The strength of this study is that the researchers identified the level of influenza knowledge among pre-hospital medical care providers about living and working in a potential human influenza pandemic condition with a nationally representative sample. The limitations of the study is that the report did not indicate if the attitude of the participants (that is, their high level of anxiety and high level of perceived high risk) was reflective of their willingness to continue living and working in the region when an epidemic occurs, although the title of the study suggested it might do so. Moreover, the situation was hypothetical, and the results might not be replicated in a real pandemic.

A study to identify factors affecting nurses' ability and willingness to work during pandemic flu was conducted in the U.S. with questionnaires mailed to the participants. Of the 1,200 nurses receiving the survey, 725 responded (Martin, 2011). The findings showed that initially 90% of participants would work during a pandemic flu, but their willingness to work decreased as the availability of PPEs dwindled, the family or nurse were perceived to be at risk, and when vaccines or treatment were not provided. The findings also indicated that the ability of nurses to work during a pandemic flu decreased when nurses fell ill, a loved one needed care at home or transportation problems existed (Martin, 2011). The study's strength is that the researchers identified a high rate of



willingness and ability to work during pandemic flu. The limitation of the study is that racial, ethnic, gender, and educational diversity among the nurses was minimal. This poses a possibility of under-representation of the intentions of the group not adequately represented. The intentions of the nurses indicated in the findings may not represent their attitudes and behavior during an actual pandemic flu event, as they had responded to a hypothetical occurrence of a pandemic flu.

Goodhue et al. (2012) conducted a U.S. national survey to examine the factors associated with pediatric nurse practitioners reporting to work during a disaster, whether natural (hurricane, earthquake) or man-made (war, terrorism). More than 2,600 nurses responded to the survey ( $N=2,627$ ). The results showed that fewer than 10% of the pediatric nurses were willing to work during a disaster. The results also showed that pediatric nurse practitioners with a specified role in disaster management were three times more likely to respond than were those without a specified role. Since the authors studied nurses' behavior during natural or man-made disasters and not an infectious disease outbreak, the findings may not apply to epidemics. The findings seemed to indicate that the nurses' willingness to work could depend on whether the disaster directly affected the nurses, their roles, or their families.

Moving from studies on influenza and pandemics generally, there was a study in Taiwan conducted to determine perception of risk of SARS infection in nurses, and the proportion of nurses considering leaving their job as well as factors related to nurses' consideration of leaving their job due to SARS outbreak (Shiao et al., 2007). The nurses ( $N = 907$ ) responded to a self-administered Likert scale questionnaire. Multiple logistic regression was used to analyze data. The results showed that 71.9% of the participants

believed they were at great risk of exposure to SARS, while 49.9% felt the situation would increase their workload, and 32.4% of participants thought that people avoided them because of their job and the risk of transmission to others,. The results also showed that 7.6% of the nurses considered not caring for patients with SARS and were looking for another job or considering resigning. The predictors of nurses' consideration of leaving their job were shorter tenure, increased work stress, perceived risk of fatality from SARS, and effects on social relationships (Shiao et al., 2007). The researchers were able to identify a high rate of willingness by nurses to care for patients with SARS and were able to identify factors that led to their considering resigning from their jobs during a SARS epidemic in Taiwan.

Finally, a study was conducted by Kiliç Akça et al. (2013) to determine the attitudes of 143 emergency department nurses toward Crimean Congo hemorrhagic fever (CCHF) in six cities in Turkey, where the disease was frequently seen. The outcomes of the study were that 94.3% of respondents said health care workers exposed to the virus stand the risk of contracting the disease. Of the nurses who responded, 37.8% experienced caring for patients with CCHF, while 12.8% were willing to care for patients with CCHF. Also, 16.3 % of the respondents would rather refer a patient to a colleague than treat them; however 83.7% were not willing to refer a patient to a colleague. The strength of this study is that the researchers have identified the level of knowledge and attitude of emergency nurses to CCHF, while the limitation is that the study indicates attitude towards working during CCHF only for emergency nurses in six cities in Turkey where the disease is common. The findings may not be representative of other cities in

Turkey, therefore generalization may not be possible. It would be valuable to know the rate of willingness for other categories of health workers, in addition to nurses.

### ***Determinants of Willingness to Care by Health Care Workers***

Studies have indicated several factors that determine HCWs' willingness to report for duty during disease outbreaks. These factors are congruent to nearly all the locations where such studies have been carried out. A study conducted in Maryland, U.S. that assessed HCWs' willingness to respond to pandemic influenza through the application of the Extended Parallel Process Model (EPPM), identified that HCWs with perceptions of high threat and efficacy (HCWs with high rates of concern and high confidence profiles in the EPPM analysis) had high rates of willingness to respond—31.7 times higher than those with low threat and efficacy (HCWs with fewer concerns and who felt less confident (Barnett et al., 2009). The strength of this study is that it provides evidence that a high EPPM profile, which indicates a high rate of concerns and high confidence, predicts HCWs' willingness to respond during pandemic influenza. A similar study in the same city but different hospital also indicated that hospital workers with high threat and efficacy rates have 5.8 times higher willingness rates than those with low threat and efficacy rates (Balicer et al., 2010). The limitation of these studies is that they may not explain the relationship between high threat and efficacy in association with willingness to respond to pandemic influenza in an actual pandemic event, since the survey was conducted for a hypothetical situation. Another large scale electronic study in the same country indicated that 93.3 % of HCWs were willing to report in a low risk scenario, while 56. 2% were willing to respond in a high risk scenario. This presented evidence that the severity and type of epidemic predicts HCWs' willingness to respond. The

limitation of the study is that the study did not capture the association between the skill attained and preparedness level with the willingness to respond in different types of scenarios (Basta et al., 2009). Similar studies have shown that willingness to respond during a pandemic is influenced by HCWs' efficacy, confidence levels, level of education, continuous updates and information on the disease, and also the type of pandemic (Arbon et al., 2013; Bar-Dayyan et al., 2011; Barnett et al., 2012; Bell et al., 2014; Errett et al., 2013; Melnikov, Itzhaki, & Kagan, 2014; Watt et al., 2010).

When HCWs are assured of and provided with personal protective equipment, vaccinations, and personal safety measures they tend to report willingness to care for patients during a pandemic. However, the limitation of the studies did not explore a relationship between HCWs' efficacy, skills and confidence level with assurance of safety, in relation with willingness to care for patients in the event of a pandemic (Bar-Dayyan et al., 2011; Chaffee, 2009; Devnani, 2012; Ma et al., 2011; Martin, 2011; Martinese et al., 2009; Ogedegbe, Nyirenda, Delmoro, Yamin, & Feldman, 2012; Qureshi, Gershon, Yamada, & Li, 2013; H. Seale et al., 2009; Tippett et al., 2010; Tzeng, 2004). One study included stigmatization from family, friends, and society related to fears of contracting the disease from the health worker (Wong, Koh, Cheong, Sundram, et al., 2008).

Other factors that determine the HCW willingness to care for patients during disease outbreaks in both qualitative and quantitative studies include gender (men reported higher rates of willingness to care during pandemics), family responsibilities, having children and/or dependents, safety of family, and availability of transportation (Adams & Berry, 2012; Anikeeva, Braunack-Mayer, & Street, 2008; Burke, Goodhue,

Chokshi, & Upperman, 2011; Butsashvili et al., 2007; Chaffee, 2009; Cowden, Crane, Lezotte, Glover, & Nyquist, 2010; Dickinson et al., 2013; Ives et al., 2009).

Preparedness and confidence on personal, colleague, administration/leadership, institutional, and government levels are associated with willingness of HCWs to care for patients during a disease outbreak (S. B. Connor, 2014; Gershon et al., 2010; Goodhue et al., 2012; Imai et al., 2010; Lim, Lim, & Vasu, 2013; Rutkow, Vernick, Thompson, Pirrallo, & Barnett, 2014; E. L. Wong et al., 2010).

Increased compensation, rewards, and acknowledgment from employers also emerged as a determinant of HCWs' willingness to care for patients during a pandemic (Damery et al., 2010; Mitani et al., 2011). A qualitative study on nurses' response to SARS reported that a collaborative spirit among nurses enhanced their willingness to care for patients during the outbreak. The limitation of the study was that it did not highlight the relationship between the emergent themes to help explain how the factors interacted to enhance willingness to care (Liu & Liehr, 2009).

A summary of factors that determine high rate of willingness to work among health care workers as identified by the body of evidence is itemized as follows:

1. Increased threat and efficacy profile or awareness: health care workers have adequate knowledge of the risks presented by the disease outbreak, there is adequate information and update concerning the ongoing situation, and health care workers have high competence in the skills necessary to handle the situation and care for patients.
2. Increase educational level of health workers, training opportunities, and prior experience in working with patients during epidemics.

3. Assurance of personal safety through provision of personal protective equipment, also the availability of vaccines for health care workers.
4. Gender differences showed that men rated higher in willingness to care during disease outbreaks.
5. Settled family responsibilities, reduced family obligations, and assured safety for family, children, and dependents.
6. Availability of transportation also affected willingness to work.
7. The type and severity of the epidemic: health care workers' knowledge and awareness of the type of disease and less severity of the disease.
8. Adequate preparedness and confidence of health care workers on a personal, collegial, administrative/leadership, institutional, and governmental levels.
9. Provision of increased compensation, rewards, and acknowledgements from the employers.

The manner by which these factors relate with one another and consequently predict the willingness to care of health care workers has not yet been given adequate attention in the literature.

### ***Strategies to Foster Willingness to Care***

In lieu of identified determinants of willingness to care for patients during disease outbreaks or pandemics/epidemics, several strategies to foster willingness to care emerged from the studies. Liu and Liehr (2009) conducted a study which identified instructive messages to guide nursing practice in future epidemics by examining the stories of Chinese nurses who cared for severe acute respiratory syndrome (SARS) patients. The studies used a descriptive exploratory qualitative design and employed a

content analysis method. The results cited structured support, meaningful disease-related information and sensitivity to the importance of a collaborative spirit among nurses as factors which enabled practice. The strength of this study is that it provides insight to the strategies that could be utilized in fostering willingness by nurses to care for SARS patients. The limitation is that the study did not establish an explanation or a model that could integrate the strategies based on how they interrelated to foster willingness to care by nurses. Another study identified nurses' suggestions of interventions to support their ability to cope during public health emergencies. Interviews were conducted with 33 nurses working in a bioterrorism hospital. The nurses recommend adequate PPE education, drills, and training on infection control and treatment protocols, adequate information and available clinical experts, and available administrators on the ground to offer support. Other recommendations include increased security to protect nurses; emotional and physical support, enhanced communication with nurses' families, and commitment from institutions to care for ill or injured nurses. The limitation of this study is that it did not identify the process of implementing the strategies; moreover, it did not consider the influence of policy and administrators in implementing the recommended strategies.

The strategies to foster willingness to care could be summarized to include the provision of all identified factors so that health care workers could be encouraged to care for patients during disease outbreaks.

### ***Experiences with the Ebola Outbreak in West Africa***

de Vries et al. (2016) conducted an ethnographic study with the aim of identifying the extent to which the community became a resource for early disease detection and to

identify the problems encountered with community health workers and social mobilization strategies in Uganda in the 2012 Ebola outbreak. The study involved a non-probability sample of 13 interview respondents. The findings indicated that the community offered insufficient collaboration with health workers to detect early Ebola victims due to the community's disbelief in biomedical explanations that were at odds with local or cultural understanding of the outbreak. The authors recommended early response combined with local community resources and public health education that contextualizes cultural knowledge to help the community build trust in the formal health system. The strength of the study lies in its ability to highlight the need for reconciliation between biomedical explanations and local cultural explanations of the Ebola phenomenon. The limitation is that the study does not identify how long this effort should continue to produce the desired results.

The grounded theory approach was used to study 15 focus group discussions conducted in 15 communities in Liberia (Abrmowitz et al., 2015). The aim of the study was to identify strategies being undertaken and recommendations for the community-based response to Ebola. Community leaders ( $N = 386$ ) participated in the study. The findings indicated that strategies should include prevention, treatment, response, and community recovery. The need for a positive attitude towards survivors and community-based psychosocial support was also indicated by the findings. The study showed that respondents shared information based on their knowledge and experiences of Ebola, which may only be applicable to their communities.

Kobayashi (2015) conducted a large survey in five counties in Liberia with varying incidence of Ebola. The purpose of the study was to assess Ebola-related



knowledge, attitudes, and practices in the community. It gathered 609 respondents and was conducted in English. The respondents were asked whether they agreed or disagreed with 38 statements relating to Ebola. Findings revealed that across all counties, respondents were not able to correctly recognize Ebola symptoms or the transmission risk from asymptomatic persons. Fear of Ebola patients and Ebola treatment units was prevalent. The fear of cured patients might partially be explained by the fact that community acceptance of survivors was not part of the initial set of Ebola health messages in Liberia. The strength of the study is that the findings could be used to inform health awareness and messaging interventions, to address fears, misconceptions, and practices regarding Ebola. The limitations of the study is that the selection of the communities in the counties was non-random and the interview questions were closed-ended (binary; agree or disagree) which limited the richness of information.

Dynes, Miller, Sam, Vandi, and Tomczyk (2015) conducted a study involving five focus group discussions with a total of 34 participants who were health workers and support staff, held at six primary health centers and four focus group discussions with a total of 27 participants who were pregnant and lactating women in Sierra Leone. The aim was to understand the factors that might have contributed to the decline in the use of maternal and newborn health services observed from May to July 2014. Using a structured interview guide and content analysis techniques, the researchers identified four themes: 1) health facility use experienced decline; 2) facility use picked up after Ebola awareness and educational activities were implemented; 3) the reasons for decreased use of health services was due to fear of contracting Ebola at facilities; and 4) misconceptions about the role of health care providers and international exports in Ebola containment.

Ideas for encouraging the use of health care facilities identified from data analysis ranged from a continued cordial relationship between health workers and patients, traditional birth attendants recommending use of health care facilities to women, and distribution of food and clothing as incentives for attending clinics. Finally, training and provision of protective equipment to health workers alleviated fear and reduced the death of health care workers; this then decreased the fears of the women. The study did not consider the role of the family members and socioeconomic issues that might have influenced the perception of risk for Ebola among the women and health care workers.

Turle (2015) conducted a survey to understand the barriers and enablers of UK health care workers who were considering working in West Africa during the Ebola outbreak but had not yet volunteered. A sample of 3,109 people answered the survey. The results indicated that for those who considered going, the most important factors that prevented them from volunteering were fear of contracting Ebola and their partners' concerns. This was caused by lack of information. In contrast, among those who were not considering going or who had decided against it, family considerations and partner concerns were the most important factors. The strength of the study is that attitudes towards volunteerism during the Ebola outbreak of foreign health workers were identified. The limitation of the study is that a convenience sample was used, which is unlikely to be representative of all UK health workers.

The political climate was also an issue in the Ebola outbreak experiences in 2014-2015 in West Africa and globally. Stratton (2014) reminded his readers that when a traveler from West Africa to the U.S. in summer 2014 died of Ebola infection in Dallas, Texas, the risk of the virus became a reality to an entire nation. Although the U.S. had

years of preparation for emergency and bioterrorism events, according to Stratton (2014), the country had to deal with the failures of the health experts and political leaders in containing the fast-spreading Ebola outbreak. The blame was placed on the health experts because as Stratton indicated the health experts did not adequately educate the public and the leaders. The political leaders also were blamed for not taking seriously the rapid and uncontrollable spread of the Ebola virus in West Africa.

The responses to the Ebola phenomenon were considered from the nurses' perspective, from the perspective of the media, and from the religious perspective in the literature. Sagar (2015), in an opinion paper, affirms the crucial role nursing plays in maintaining health and preventing diseases, relating the Ebola outbreak to the nursing shortage in underdeveloped countries. She recommended that nurses be involved in decisions regarding Ebola virus in care settings and on all policy making levels. McGillis and Kashin (2015) conducted a study to examine how the media portrayed nurses and their roles during the 2014-2015 Ebola outbreak in West Africa. Content analysis of 125 relevant articles indicated that there was a gap in the preparedness for global health events and a lack of public awareness of nurses' roles. This study draws attention to the need for accurate portrayals of nurses and the nursing profession during the Ebola outbreak to avoid the potential of damaging the image of the nursing profession.

Marshall and Smith (2015) stated in an opinion article that the national governments of the three West African countries affected by the Ebola outbreak and international aid organization were late in appreciating the vital roles played by religious organizations in addressing Ebola and supporting the health systems. According to the authors, religious institutions provided health services and social support throughout the

Ebola crisis. Moreover, religious beliefs and practices influence the approaches used to care for the sick, forms of stigma, and gender roles. Marshal and Smith (2015) also identified three lessons they gathered from the Ebola outbreak in West Africa: first, that strengthening the health system's knowledge of religious demography, institutions, and associations would promote more effective engagement of faith communities; second, public health institutions need more organized and multidisciplinary community involvement approaches; third, the religious dimensions of behavior change, for example in regards to burials, showcase the importance of community proficiency and the need to draw on it more purposefully and thoroughly. The authors also reported that the World Health Organization's (WHO) Safe and Dignified Burial protocol was vital in containing the disease and providing opportunity for community trust. This WHO protocol for safe burial of corpses infected with Ebola collaborated with the faith communities in a robust communication network to change the funeral practices during the outbreak. This significantly reduced the rate of transmission. Other articles allude to the notion that the spiritual, social, and cultural dimensions of health are crucial to care (Olivier et al., 2015; Summerskill & Horton, 2015; Tomkins et al., 2015). These articles further suggest that faith-based health care services may provide avenues to reform faith and spirituality as part of the response to the complexity of health care delivery.

### **Sensitizing Frameworks**

Grounded theory studies are aimed at theory generation. As such, the use of theory to drive GTM research studies may be out of context. The GTM holds that scientific inquiry is subjective and based on the views of those experiencing the situation together with the researchers who are studying it. The GTM is inductive in nature and is

set to discover patterns and trends, and is used mainly for the description and understanding of a situation or phenomenon (Meleis, 2012). However, some believe that the researcher comes approaches each project with prior knowledge and opinions. It is therefore safer to be reflexive and rely on sensitizing frameworks. The frameworks used in this study are the Jean Watson Theory of Human Caring, the Rosemarie Parse Theory of Human Becoming, and Amitai Etzioni's Decision-making Model.

### *Theory of Human Caring*

According to Jean Watson, the very act of caring for others is considered caring for the self. The theory describes human caring as healing practices conducted with a focus on the relationship between the care giver and care receiver. The theory of human caring postulates that the care giver views the care receiver as whole human being (i.e. as a combination of the physical, mental, social, spiritual aspects of being, etc.), and at the same time developing a healing environment. The theory defines caring as techniques used for healing which combine the art of nursing to promote the quality of life, desired patient outcomes, and successful health systems (Watson, 2009). The act of caring in nursing, according to Watson (2009), is the nurse's professional obligation, which places the human-to-human relationship as central to care activities. In early editions of her studies on caring, Watson (2003) indicated that caring as a professional activity ethically involves the subjective rendering of love and openness to patients by nurses, who in return received the same responses of love and openness from patients. Furthermore, the theory describes caring as a scientific activity in which the nurses systematically assess, advocate, intervene, educate, and research the health needs of their patients (Watson & Smith, 2002). The ingredients to human caring by nurses Watson (2002) summarized are

intentionality and transpersonal consciousness. Intentionality involves cognitively planning care activities that involve love, service-orientation, honor and respect for human dignity, and creating a trusting, hopeful relationship between nurse and patient. Transpersonal consciousness is the awareness of the needs of another individual as well as personal needs. The nurse finds a balance between meeting his or her personal needs and meeting the health care needs of the patient.

These concepts of the theory of human caring were used to sensitize the understanding the experiences of nurses and midwives during the Ebola outbreak in Liberia. These concepts were used to understand the situation from the perspective of nurses and midwives. The moral aspect and values pertaining to the commitment of the nurses and midwives to protect and enhance human dignity was explored. The concepts were sensitizing in the exploration of the nurses' openness to their patients' needs and the symbolic meaning of the events and decisions made by the nurses and midwives either to care or not to care for patients, in light of the risks involved. The concepts sensitized the exploration of the nurses and midwives understanding of self in relation to the healing and dying process of the patients.

### ***The Theory of Human Becoming***

Rosemarie Parse's "Human Becoming" theory is comprised of three principles: meaning, rhythmicity, and transcendence. The principle of meaning indicates that individuals co-participate in creating their reality through the experience of living their values (Parse, 1999). The second principle of rhythmicity indicates that individuals live by relating to opposite experiences of others in rhythmical patterns and suggest flexibility while relating to the ideals of others. The third principle, transcendence, indicates that

individuals move from present moments to become visible-invisible, and develop multiple meanings to the continuous change occurring in the emerging now (that is, their current situation) (Parse, 1999).

Parse's theory describes how nurses, midwives, and other health professionals live the art of human becoming in true presence with unfolding meaning, shifting rhythms, and inspiring transcendence. In simple terms, the nurse, midwife, and other HCWs creatively enter the world of the patient, put themselves in the shoes of the patient, discover the new meaning of the situation, and shift the mind towards hope for a peaceful and reassuring process of healing or death (International Consortium of Parse Scholars, 2015).

The human becoming theory was sensitizing by using the framework to understand how the nurses and midwives became actors in the situation of the patients, to understand them and then provide appropriate care interventions. It sensitizes the exploration of taking up "fatal risks" to enter the unpredictable world of patients with rhythm, creativity, or freedom; to do for the patients what the nurses and midwives would want others to do for them. The nurse and midwives may offer meaning to the situation of the Ebola outbreak to pervade the survival of humanity, then may creatively seek to take appropriate actions to alter the current situation. If this happens, the nurses and midwives would transcend self and peak into the situation of the patients. The result might be to decide to treat their patients as they themselves would want to be treated.

#### *Etzioni's Decision-Making Model*

The decision-making model by Amitai Etzioni (1992), states that most choices are made on the basis of emotional involvements and value commitments. The model was

developed from the assumption that emotions are forces that play a vital role in reasoning. Emotions can help the decision maker to consider issues other than logic. This includes the primacy of ends over means, the selection of ethical means over others, mobilizing the self and enhancing efficiency. The model was also developed from the assumption that values contain affective elements, which give values the motivational force needed. The way a person makes a decision involves the emotion elicited by the situation, combined with the value attached to the outcome of possible choices. The choice made will reflect the desired outcome that will elicit the best emotions and attached value. For instance, people will make choices that will alleviate fear and choices that will remove suffering from themselves and others. Nurses can use this model to understand why and how decisions are made that have clinical, professional, and health desired outcomes for them and their patients.

### **Summary**

The body of knowledge has identified varied rates of willingness to care among HCWs. The variation is observed across the different locations of study, type of epidemic, and category of health workers. The epidemics covered in the literature search were influenza, SARS, and CCHF. It was observed that the findings of the various studies and articles examined were inconsistent in identifying the rate at which HCWs, including nurses, reported their willingness to care in the face of risks and availability of protection. Some studies found that HCWs with higher threat and efficacy profiles, higher education and skills, and confidence levels reported higher rates of willingness to care for patients during disease outbreaks. Others identified that HCWs reported lower rates of willingness to care despite strategies implemented to provide training, reduce



risks, and provide protection. Some literature showed that when preparedness and competence was assured on a personal, institutional, governmental level, it fostered willingness of HCWs to care for patients during a disease outbreak. Several other factors that determine willingness to care for patients during disease outbreaks also were identified. Other research findings focused on strategies to enhance willingness among HCWs to care for patients during epidemics. The literature reviewed highlighted recommendations by frontline nurses and health care workers involved in caring for patients during epidemics. The gaps identified in the literature show that a model for understanding or implementing these strategies has not yet been identified. The inconsistency and variations observed in the willingness to care for patients during epidemics may reflect differences in the factors that predict willingness to care by HCWs, and how these factors influence willingness to care. There might be processes, contexts, and relationships between determinants of willingness to care that need to be understood. A model that will adequately describe the relationship between the influences and strategies to enhance willingness to care needs to be explored. Moreover, more studies have been conducted on this subject in the U.S. than other countries. Studies done in Africa and conducted among nurses and midwives need more attention. Also, studies on Ebola on willingness to care or the work decision process whether or not to care for patients during an epidemic or outbreak have not been given sufficient attention.

## **CHAPTER THREE**

### **METHODS**

#### **Introduction to Chapter**

This chapter identifies the research questions of the study, as well as a description of the grounded theory method (GTM) and the fit of the method to the study. It also includes the philosophical perspective supporting the GTM, identifies the sample selection criteria; describes the research setting, recruitment strategy, data collection method and analysis; and discusses ethical considerations and strategies to ensure rigor, trustworthiness, and credibility.

#### **Research Questions**

The following questions from the perspectives of nurses and midwives were answered through this study:

- i. What are the experiences of nurses and midwives during the Ebola outbreak in Liberia?
- ii. What are the personal, institutional, and government influences of the work decision process used by nurses and midwives during the Ebola outbreak in Liberia?

#### **Research Design: Grounded Theory Method**

Grounded theory is a form of qualitative research which allows for the identification of concepts and the development of theoretical explanations; thus offering new insights into a variety of experiences and phenomena (Morse et al., 2009). There are several approaches to a grounded theory study. The grounded theory method was developed in 1967 by Barney Glaser and Anselm Strauss while they were at the

University of California at San Francisco, they developed the method from techniques used in their research. As sociologists, Glaser and Strauss wrote about social processes and conducted fieldwork with the goal of developing theory from the data. They had different career paths, with Strauss remaining in academia and Glaser moving on to research and consultation (Morse et al., 2009). These differences in career direction resulted in differences in their individual grounded theory approaches to data analysis. Strauss worked with Juliet Corbin, his student and observer for 16 years, helping explicate his method of analysis. Together they wrote the book *Basics of Qualitative Research Analysis* in 1990. After Strauss' death, Corbin finalized the second edition in 1998, and has most recently written the fourth edition (Charmaz, 2014). Other students worked with both Glaser and Strauss and developed ideas from both authors. One such student, Kathy Charmaz, developed the constructivist grounded theory in 2006, which has also continued to evolve over the years (Morse et al., 2009).

The Corbin and Strauss method has grown from a method of verification with an emphasis on technical procedures to a more flexible model which follows interpretive theory. According to the Corbin and Strauss (2015) method, concepts are developed from data collected during the research process and not chosen from prior research studies. This feature is what grounds the developed theory and gives the method its name. In grounded theory, data collection and research analysis occur concurrently in an ongoing cycle throughout the research study. Initial data are collected, the researcher does a preliminary analysis of the data, and the findings derived from the preliminary analysis form the basis for subsequent data collection. Data may be collected through interviews, observations, recorded materials in videos, journals, diaries, drawings, internal

documents, memos, internet postings, and historical records. All data are analyzed through a process of constant comparison. Data are broken down into units and then compared for similarities and differences. Open coding is conducted. Codes that refer to similar concepts are grouped together under the same heading. Further analysis is done to group concepts together to form categories. Each category is then developed in terms of its properties and dimensions, and eventually all the categories are integrated around a core category. At this stage, a flexible choice of coding concepts for context or process is suggested. Coding for context specifies that coding locates and explains the action-interaction of participants within a background of conditions for the actions, interactions, and outcomes categories (Corbin & Strauss, 2015, p. 153). As a result, concepts are linked together to enhance the results derived from the theory. Two analytical tools may be used: paradigm or conditional/consequential matrix. The paradigm is an analytical tool that assists the researcher code around a category (Corbin & Strauss, 2015, pp. 156-160), requiring the use of a set of questions applied to data to help researchers categorize concepts and establish linkages. This is accomplished through the three features of the paradigm tool: condition (this answers the questions when, why, and how come); action-interaction (these are the actual responses people or groups make to the events or problematic situations that occur in their lives); and consequences (these are the anticipated or actual outcomes of action and interaction). The other tool is the conditional/consequential matrix, an analytical tool that helps researchers identify the range of possible conditions affecting any situation and the range of consequences that result from the action-interaction of participants (Corbin & Strauss, 2015, pp. 160-165). The other form of coding conducted within the Corbin and Strauss method is coding for

process, used during the analysis of the action-interaction phase. Process is the rhythm as well as the evolving and repetitive methods of action-interaction, including the suspensions and interruptions that occur when individuals act and interact to reach a goal or solve a problem (Corbin & Strauss, 2015, p. 172). Process coding identifies the adaptive changes in action-interaction which occur in response to changes in conditions. The core category and other categories provide the structure of the theory. The properties and dimensions of each category provide details to the structure by reflecting the linkages and connections within the structure (Corbin & Strauss, 2015).

Charmaz (2014) method takes the “constructivist” turn, that is provides a perspective that nullifies the notion of a neutral observer and value-free researcher. The constructivist perspective sees research as a construction, not a discovery, and encourages researchers’ to reflect upon their actions and decisions. Because the researcher is involved in the construction and interpretation of data, the method begins with data collection, which is similar to the data collection method described by Corbin above. This is followed by initial coding using line-by-line, word-by-word, and/or incident-by-incident coding, leading to emergent concepts. These initial codes are then separated, sorted, and synthesized into focused codes that are merged into categories. The categories are then integrated around a core category, thus forming the structure of a theory (pp. 12-14).

The difference between the Corbin and Strauss (2015) and the Charmaz (2014) method can be found in their method of data analysis, at the point of the coding process. The Corbin and Strauss (2015) method of data analysis involves open coding for emergent concepts, leading to axial coding for properties and dimensions of categories. It

also involves coding for context and process, as explained earlier. On the other hand, the Charmaz (2014) method involves initial line-by-line, word-by-word, and incident-by-incident coding. Focused codes then are developed and kept simple, direct, analytic, and emergent.

These grounded theory procedures enable researchers to examine topics and related behaviors from different perspectives, thereby developing comprehensive explanations. The procedures can be used to gain new understanding of old problems, as well as to study new and emerging areas of need for research. The procedures can be used to discover the beliefs and meanings that underlie action, to study the motivation as well as non-motivational aspects of behavior, and to illustrate how logic and emotion combine to affect how people react to events or handle problems through action and interaction. The procedures have been verified as culturally sensitive and applicable to individuals as well as to organizations and societies. The procedures are used for description, conceptual ordering, and the development of substantive and formal theories (Charmaz, 2014; Corbin & Strauss, 2015).

The aim of this study was to understand the experience and work decision process from the perspective of nurses and midwives during the Ebola outbreak. The goal of the study was to develop a comprehensive description of the experiences of nurses and midwives during the outbreak, and what caused them to be either willing or not willing to care for patients, with or without Ebola, during the outbreak. This called for an understanding of how logic, emotion, culture, and other factors combine to influence how nurses and midwives responded to the Ebola outbreak in order to understand their willingness to continue or not continue caring for patients. These explanations were co-

constructed by the participants and the researcher. The study resulted in the identification of a conceptual model which represents the description of the nurses' and midwives' experiences and work decision process involved in either rendering or not rendering care to patients during the Ebola outbreak in Liberia. As such, the grounded theory approach fits this study.

This study used both the Corbin and Strauss (2015) and the Charmaz (2014) methods. The process used to combine these methods and details of how this was accomplished are indicated below.

### ***Underlying Assumptions of the Grounded Theory Method***

As noted earlier, the grounded theory method (GTM) was developed by Barney Glaser and Anselm Strauss in 1967 for the purpose of constructing a theory grounded in data. The method evolved from their background in quantitative research within the perspective of objectivity and empiricism which was the principle of scientific studies at that time. Both Glaser and Strauss had backgrounds in sociology and their work was heavily influenced by the perspective of positivism. During their work together, Glaser and Strauss developed a methodology which combined their backgrounds with their different but complementary approaches to research (Morse et al., 2009). The philosophical perspective which influenced their work was pragmatism and symbolic interactionism (Charmaz, 2014; Corbin & Strauss, 2015). Two of their students, Juliet Corbin and Kathy Charmaz, have developed the GTM to take up interpretive and constructivist approaches, respectively. The grounded theory method is now influenced by several philosophical perspectives, which include pragmatism, symbolic

interactionism, interpretive theory, and constructivism (Charmaz, 2014; Corbin & Strauss, 2015).

Pragmatism was propounded by John Dewey and Charles Peirce, based on the assumption that reality can be indeterminate and fluid. Therefore, reality has several interpretations from different angles or perceptions of those experiencing it. This perspective, as Charmaz (2014) puts it, suggests a connection between facts and value, and that scientific truth is relative, conditional, and can be assessed through empirical practice. Truth claims or suggestion of facts should be judged in terms of how close they are to reality when considered from the pragmatist perspective (p. 263). Pragmatists believe that knowledge exists in the form of statements or theories which are seen as instruments or tools, not as abiding truth. It is thought that either all or any of our current tools may be surpassed in the future, an idea referred to as fallibilism (Bryant, 2009, "Varieties of pragmatic experience," para. 4). Dewey believed there are no fixed points for observing reality; therefore, there are no universal and context-free claims to truth. He also claimed that all knowledge is provisional, and should be judged in terms of its usefulness within a set of confines. Dewey termed this as instrumentalism (Bryant, 2009, "Varieties of pragmatic experience," para. 3). As a result, knowledge is created through the actions and interactions among self-reflective beings. Therefore, meaning is not a state of the past or the present, but what continues (Corbin & Strauss, 2015, p. 19).

Symbolic interactionism, as developed by Mead, sees human actions as constructing self, situation, and society. This perspective indicates variations in actions-interactions, and predicts outcomes of actions-interactions according to the people who view them. Actions result in interactions based on time, situation, culture, society, and meaning of



self. Symbolic interactionism consists of a theoretical framework of premises and concepts used for viewing social realities that expands one's views of meaning, actions, and events in the studied worlds. It encourages learning about people and places, times and troubles, actions and accomplishments the way other human beings understand them. From this perspective, people are seen as actively engaged in the everyday activities of their worlds and how they go about these activities. This perspective produces an understanding of the actions and events in people's lives (Charmaz, 2014, p. 262).

Kathy Charmaz has further developed the constructivist perspective in the GTM by viewing the researcher as a co-creator of reality. This perspective adopts the inductive, emergent, and open-ended approach of Glaser and Strauss stated in their original work in 1967. The constructivist view evolved in response to numerous criticisms raised about the earlier version of grounded theory. The constructivist perspective highlights flexibility and refutes the mechanical strategies involved in the early grounded theory method. If we assume that social reality has multiple interpretations, and is co-constructed, then the researcher's position, emotions, perspectives, and interactions have to be taken into account as an innate part of constructed reality (Charmaz, 2014, pp. 12-14). Furthermore, Charmaz (2014) explains that researchers themselves are affected by studying humans, which should be considered when developing theories of the constructed world. The researcher should address this by reflecting on their actions and decisions during their work. The constructivist approach nullifies the notion of a neutral observer and value-free expert, who comes from an objectivist or positivist world view (p. 13). This means that the researcher must examine, rather than erase or deny, how their emotions, privileges, and preconceptions may shape

their analysis, and examine how their values shape the very facts they identify from data (p.13). Charmaz (2014) chose the term “constructivist” to recognize the researcher’s subjectivity and involvement in the construction and interpretation of data. She also uses the term to point out the differences between her approach and the social constructionism perspective of early GTM. In addition, grounded theory invokes the concept of abduction from Pierce’s perspective, which means a type of rationality that begins with further exploring data and after analyzing it, seeking all possible explanations for the observed data, drawing the most reasonable conclusions or interpretation. This idea is applied to the concept of theoretical sensitivity in the grounded theory method (Bryant, 2009; Charmaz, 2014).

Grounded theory method fits the pragmatist and symbolic interactionist viewpoints, and is in line with the constructivists through its emphasis on process and change. The aspects of present experiences give rise to new interpretations and actions by the members of the studied world. Therefore, researchers can study change in new ways while accounting for their values and perspectives applied to the emerging reality. This is the result of evolution from the pragmatist, symbolic interactionist stance to the constructivist theory. Corbin and Strauss (2015) provided a summary which they referred to as “the methodological implications of the assumptions of grounded theory” (p. 28), stating that no single explanations can be applied to events because the world is complex. Each event is unprecedented and influenced by several factors. In other words, people give different meaning to their actions and interactions during different situations. Researchers are therefore urged to search for multiple perspectives on events that people experience and build variation into a structure identified from data analysis (Corbin &

Strauss, 2015, p. 28). In addition, Corbin and Strauss added, “human response must be located within the personal and larger social, psychological, political, temporal, economic, and cultural context” (Corbin & Strauss, 2015, p. 28). When the condition changes, humans take action and interact in response; thus, it is important to identify the change in condition during data analysis. Emotions influence the meanings given to events experienced by people, and are considered part of the contextual factors that influence the response to events through action and interaction ( Charmaz, 2014; Corbin & Strauss, 2015).

Corbin and Strauss (2015) described theoretical knowledge as “relevant to time and place and should be updated to keep pace with change over time” (p. 28). This idea is in line with the pragmatist perspective. They continued by stating that “theory allows persons to gather information, give meaning, and make sense of what is happening around them. Based on the meaning, people are able to construct sensible plans of action for managing problems and reaching desired goals” (p. 28). This statement reflects the symbolic interactionist worldview. The description of the constructivist stance was stated:

The researcher brings to the research process, philosophies, experience, professional background, and interests. These factors influence the choice of topic, approach to analysis, and where the emphasis is placed. Therefore, the final theory constructed through grounded data is a representation of both participant and researcher (p.28).

Different researchers could emphasize different aspects of the data to construct different theories, thus providing another explanation of human behavior. The benefit or result of the grounded theory studies then is that knowledge is accumulated over time, and more theories are developed for people seeking explanations of what is going on around them (Corbin & Strauss, 2015, p. 28).

This study aimed to develop a comprehensive description of the experiences of nurses and midwives during the Ebola outbreak and the decision making process involved in their choice either to care or not to care for patients with or without Ebola during the outbreak. The use of the GTM uncovered nurses' and midwives' beliefs and meanings that underlie their actions during the Ebola outbreak. The outcome of the analysis provides a model of how logic, emotion, culture, and other factors combined to influence how nurses and midwives responded to the Ebola outbreak, and explain their work decisions either to continue or not continue caring for patients. These explanations were co-constructed by the participants and the researcher.

### **Sampling and Recruitment Criteria**

A convenient non-random sample was recruited for this study. The inclusion criteria should all be registered nurses or midwives, have a minimum of one year working experience, were currently employed, and might have worked or not worked at one of the three hospitals selected for the study during the Ebola outbreak in Liberia. The exclusion criteria for this study included nurses and midwives who did not provide direct patient care, such as administrators or educators, and who were not permanent residents or citizens of Liberia, such as international volunteers and experts with any of the non-governmental organizations in the country. The hospitals used for this study were selected based on the following criteria: one private faith-based hospital, one private faith-based hospital that receives funding from the government, and the third, a government-managed hospital. Participants who met the criteria were invited to participate in the study through the recommendation of the nursing directors of the three hospitals; this is known as the snowball sampling technique (Holloway & Wheeler,

2010). As recruitment and analysis progressed, sampling was based on representation of categories or concepts and further developed through the process of theoretical sampling. Theoretical sampling is a data collection technique whereby concepts derived from early data analysis are explored further by collecting additional data on these derived concepts. The goal is to obtain data that will exhaust all options for the development of the concepts derived from the data on the basis of the properties and dimensions of the concepts. Theoretical sampling is used to identify variations and linkages as the concept is developed (Corbin & Strauss, 2015, p. 134). A total of 30 registered nurses and registered midwives were recruited from all three hospitals; 10 nurses and midwives from each hospital. Concept saturation was achieved after 25 interviews; an additional five interviews were conducted to ascertain saturation.

### **Research Setting**

Liberia is found in sub-Saharan Africa in the West African region. As of 2012, Liberia had a population of 4,190,435. It is a low income country with a life expectancy of approximately 60 years in 2011, compared to the average of other countries in the region, which is 56 years (Health Finance and Governance Project, 2013). Most adults are graduated from high school, demonstrating a basic level education among citizens, including a general understanding of health and related literature. Liberia spends an extremely low percentage of its national budget on health, suggesting that not enough resources are mobilized for health, that access to health care is insufficient, and that the quality of services is poor (Health Finance and Governance Project, 2013).

Liberia is divided into 15 counties. Each county is then divided into districts, and each district is made up of several communities. The Liberian National Health Policy

provides for three levels of care in the health care system: primary, secondary, and tertiary health care. Four health care sub-systems are categorized under these three levels, and the County Health Teams and implementing non-governmental organizations (NGO) partners are responsible for staffing facilities based on each facility's level in the health system (Liberia Ministry of Health, 2011). The primary level health care system is comprised of community level services, primary health care clinics (level one), and primary health care clinics (level two). The secondary level of health care comprises the district health system and county health system. The district health system is the first provider of secondary care, focusing on maternal and child health care, providing general surgery, pediatrics, general medicine, and obstetrics and gynecologic services. Tertiary level care in Liberia consists of two types of hospitals: regional hospitals and the national hospital, John F. Kennedy Medical Center, which functions as a specialized referral health facility and teaching hospital for physicians, nurses, and allied health professionals (Liberia Ministry of Health, 2011).

Other hospitals are owned and operated by religious organizations and private parties, providing care based on the level of the facility and the category of health care in that county. For example, the SDA Cooper Hospital is a secondary health care service provider operated by the Seventh-day Adventist Church, with approximately 40 beds, including a laboratory and eye clinic. Some hospitals owned by religious organizations also receive government funding; these regional hospitals are better staffed and equipped and provide tertiary care in the rural areas. The study participants were recruited from secondary and tertiary care hospitals, since those facilities were able to continue operations during the peak of the Ebola outbreak. Of the three hospitals selected one

hospital was operated by a religious organization without government funding; one was operated by a religious organization and received government funding, and one regional government hospital that provided health care services during the Ebola outbreak. Furthermore, the first hospital was faith-based, privately funded, and continued with regular health care services; the second was also faith-based, received both private and government funds, and served as an Ebola Treatment Unit (ETU). The third hospital was government managed and used as a holding center for suspected and confirmed Ebola cases due to the overcrowded ETUs.

### **Method of Data Collection**

Data were collected mainly through face-to-face interviews using a semi-structured interview guide (see Appendix B); demographic data were collected using a demographic interview guide (See Appendix A). Participants were allowed the flexibility to tell their stories in their own way, with their responses to the questions directing the course of the interview. Interviews were conducted at a convenient location for the participant (most often in a quiet room in the hospital provided by the nursing directors), at a time when they were off duty or during their break periods, and where there were few disruptions and distractions. The interviews were tape-recorded and transcribed.

### **Procedures**

The participants were recruited based on the inclusion criteria earlier identified, through purposeful and convenient sampling strategy. The administrators of the hospitals were contacted and visited for approval and support (see Appendix C for letters of support). In fact, the approval and support provided by hospital administrators fostered the early identification of interested participants. The administrators provided access to

the participants, and flyers were distributed to nurses and midwives prior to making an appointment. Anyone who expressed interest in the study was given a more detailed verbal description of the study and its significance, and appointments were made when appropriate. As the interviews progressed, subsequent participants were identified and interviewed through the process of theoretical sampling. The participants read and signed the informed consent document before the tape-recorded interviews were conducted. The recorded interviews were then transcribed using identity numbers to represent each participant to protect their identity. See Appendix D for a sample of the transcribed data, which were stored in a password-locked folder in a computer accessible only to the researcher. The transcribed data were then analyzed, leading to the identification of subsequent participants based on the identification of categories and the need for concept development. After analysis was completed, the tape-recorded interviews were destroyed.

### **Ethical Considerations**

The Ethics Review Board of a Liberian university in Liberia which has a Federal Wide Assurance (FWA) status approved this study. The Institutional Review Board of the researcher's university in the United States deferred to the Liberian IRB. Appendix E in the appendices section contains a copy of the Human Subjects approval. Every participant received a written explanation of the study, and an informed consent (see Appendix F) signed by each participant was obtained before each interview began. Participants were told they could stop the interview at any point, and could refuse to answer questions or talk about aspects of their experiences that were difficult for them. The interviews were recorded and the recordings destroyed after analysis was completed.

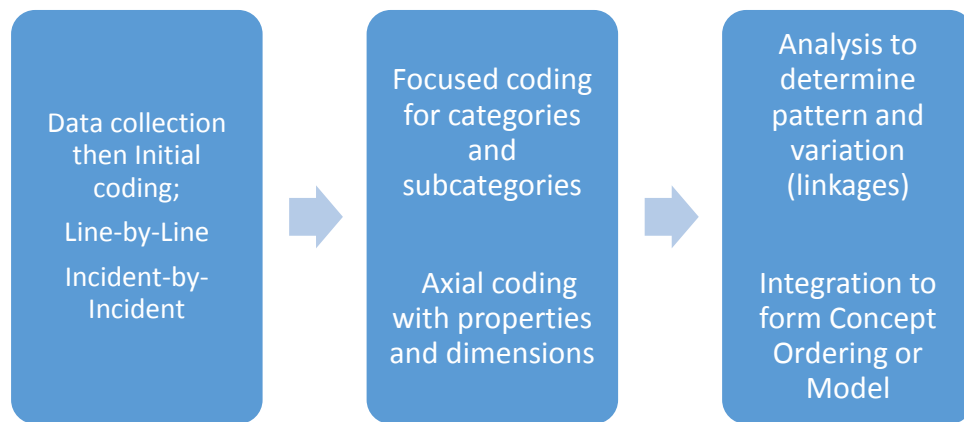


The participants' confidentiality and anonymity was assured through the anonymous transcription of interviews. Instead, each participant received an identity number that was known only to the researcher. In addition, transcribed data was stored safely in a password-protected file, in a password protected computer used only by the researcher. Any identifying participant information was kept in a separate password protected file which was only available to the researcher. The signed consent documents were stored in a locked file cabinet at the researcher's university office. Permission for site entry was obtained from the hospital administrators.

### **Method of Data Analysis**

Analysis of data progressed simultaneously with data collection, with early discoveries from each data analysis used to guide subsequent interviews with participants. Both the Charmaz (2014) and Corbin and Strauss (2015) methods of analysis were used. The analysis began with line-by-line coding, using gerunds in accordance with Charmaz's approach: coding started with a line-by-line examination of the transcribed data, with codes ending in "ing" (gerunds) placed by each line of the transcription data, e.g., "experiencing emotional pain." Some codes were the exact responses of the participants; such responses are referred to as "in vivo" codes (Charmaz, 2014). Then, codes across various incidents described by the participants were compared (also using codes that end with 'ing' and "in vivo"). Similar codes were then sorted, separated, and synthesized to form focused codes according to Charmaz's approach. These focused codes were then further analyzed through sorting and synthesis to form categories and subcategories, and the core category was identified. Axial coding using the Corbin and Strauss method was conducted by identifying the properties and dimensions

of each category and their subcategories. Properties are the defining and distinguishing characteristics of a category, and dimensions are the variations within the properties or the range of defining characteristics of categories and subcategories; these are identified by the researcher from data analysis (Corbin & Strauss, 2015). Axial coding was used to reassemble the categories and their subcategories to reflect the linkages between them until saturation was achieved. The categories and subcategories were then integrated around the core category. Further sorting and analysis using the Corbin and Strauss method progressed until the structure, which showed the links and relationships between the core category, the other categories, and subcategories, was developed into a concept ordering or model. The conceptual ordering or model assisted in representing the nurses' and midwives' work decision process during the Ebola outbreak under different conditions. Memo writing was used throughout the analysis to document these comparisons, linkages, and answers to analytical questions (Corbin and Strauss, 2015; Charmaz, 2014). A sample of the memos is placed in Appendix G. Memos helped the researcher keep track of the analysis process through the recording of new concepts to be explored, or interpretations of concepts that were identified. The researcher's values, emotions, and perceptions were also written in a methodological journal (Corbin and Strauss, 2015; Charmaz, 2014). Figure 1 demonstrates in summary form the process of data analysis that was used.



*Figure 1. A summary of data analysis process used in the study*

### **Methods to Establish Rigor, Credibility and Trustworthiness**

To establish credibility, the researcher ensured that the following activities were conducted. The researcher became familiar with the research setting by visiting the sites at least once before conducting interviews. During the visits, the researcher interacted with the administrators, nurses, and midwives to create rapport. The researcher ensured that data collected were sufficient and rich enough to support the study findings. The range, number, and depth of observations contained in the data were considered to ensure methodological soundness and the steps and procedures of the grounded theory method developed by Corbin and Strauss (2015) and Charmaz (2014) were followed. Systematic comparisons between observations, codes, and categories through data analysis were conducted and recorded in memos. Audit trails, thick description, and researcher's reflexivity was accounted for in this report to provide ample evidence and allow the readers to form an independent assessment of the study findings. The audit trail, a clear

description of the actions taken by the researcher throughout the study period, was used to ensure confirmability and credibility. The step-by-step procedures taken by the investigator are accounted for in the study report (Crabtree, 2006). A thick description is used in qualitative studies in which the researcher observes details of an ongoing event and develops contextual and social meaning from the observed actions, interactions, and behaviors of the research participants to arrive at a contextual understanding (Dawson, 2013). This study used thick description to ensure credibility. This includes portions of the data analyzed for readers to assess the credibility of the findings. The research wrote memos to keep track of the analysis process and aid in reporting findings. Negative cases and alternative explanations known as variations in the grounded theory method were examined and accounted for in the report (Charmaz, 2014; Holloway & Wheeler, 2010).. Reflexivity is a practice which systematically acknowledges the context of researcher and participant knowledge construction, especially the effect of the researcher's perspectives and background at every step of the research process. This was done through a methodological journal kept by the researcher. This is recommended because the researcher's experience and perspectives will inevitably affect her subject matter, the angle of inquiry or methods considered suitable, which findings are thought to be correct, and the framing and report of conclusions (Crabtree, 2006).

### **Summary**

The method by which this study was conducted has been identified and explained in this chapter. The research questions answered by this study were itemized. The description of the grounded theory research design was elaborately discussed, highlighting both the Corbin and Strauss and Charmaz approaches. This study used the

combination of both methods in the analysis of data. The methodology of the data analysis was explained. A total of 30 registered nurses and midwives from three selected hospitals, 10 from each hospital, participated in this study. The research setting was the Liberian health system. The structure, organization, and management of the Liberian health system were described. Ethical approval was obtained from a Liberian university's Ethics Review Board which has FWA status; this approval was accepted by the researcher's university in the U.S. Participants' consent, confidentiality, and anonymity were assured. Data were collected through face-to-face interviews using a semi-structured interview guide. The interviews were tape-recorded, transcribed, and stored safely. The data were analyzed consecutively through line-by-line coding, focused coding, axial coding, and conceptual ordering. This led to the identification of codes, focused codes, categories, subcategories, the core category, and a conceptual model, in that order. These procedures were used to gain an understanding of the experiences and work decision process adopted by the nurses and midwives. Memos were used throughout the data analysis and a methodological journal was kept by the researcher to support the rigor, credibility, and trustworthiness of the study.

## CHAPTER FOUR

### RESULTS

#### Introduction to Chapter

In this chapter the findings of the study are described, including the study participants, the analysis, and an interpretation of the findings. The findings are organized by categories and subcategories identified in the data and are represented in a conceptual model which describes the work decision process used by nurses and midwives during the Ebola outbreak in Liberia, West Africa. An embedded manuscript is included in this chapter which highlights the analysis and interpretation of the findings. The trustworthiness of the findings is discussed and the chapter summary is presented.

#### Description of Sample

The participants in this study included 30 registered nurses and registered midwives selected from three hospitals in the city of Monrovia, Liberia. Ten registered nurses and midwives were selected from each of the three hospitals. One hospital was a private faith-based institution which continued with regular health care services during the outbreak. One was a private faith-based hospital that also received funding from the government; during the outbreak this hospital was used as an Ebola treatment unit (ETU). The third hospital was government managed and used as a holding center for suspected and confirmed Ebola cases due to the overcrowding of the ETUSs.

The study participants included one male registered nurse. They had an average of nine years working experience. Most of the nurses and midwives worked in the hospital during the Ebola outbreak (n = 27) with an average monthly income of \$23945.00 (Liberian dollars). Forty percent of the nurses and midwives had bachelor's degrees in

nursing. Of those who worked during the outbreak, 13 (43.3%) worked in the Ebola treatment Units (ETU). Table 1 below describes the characteristics of the participants in the study.

Table 1. *Participant Characteristics (N = 30).*

	Mean	<i>n</i>	%
Age (years)	38		
Gender			
Female		29	96.8
Male		1	3.2
Marital status			
Single		11	36.7
Married		17	56.7
Other		2	6.6
Number of children or dependents	3		
Registered nurse		28	93.3
Registered midwife		2	6.7
Years of working experience	9		
Educational level			
Diploma		10	33.3
Associate degree		8	26.7
Bachelor's degree		12	40.0
Religious affiliation			
Christianity		29	96.7
Describe oneself as spiritual			
Yes		23	76.7
No		4	13.3
Worked during the Ebola outbreak			
Yes		27	90.0
No		3	10.0
Worked in Ebola Treatment Unit			
Yes		13	43.3
No		14	46.7
Monthly income (Liberian Dollars)			
Before outbreak	\$13968.50		
During outbreak	\$23945.83		
Adequacy of income			
Before outbreak			
Adequate		1	3.3
Less than adequate		28	93.3
During outbreak			
Adequate		4	13.3
Less than adequate		20	66.7
Access to personal protective equipment			
Yes		24	80.0
No		1	3.3

*Note.* Categories that do not add up to  $n = 30$  is a result of missing values



## **Analysis and Interpretation of Findings**

The following is an embedded manuscript that reflects the analysis and interpretation of the findings. It includes a description of the experiences of nurses and midwives and contains the description of the work decision process used by nurses and midwives during the Ebola outbreak in Liberia, West Africa. Additional findings, which include further detailed description of the subcategories for the categories: family, professionalism and institutional influences, are presented after the embedded manuscript. These additional findings were not distinctly highlighted in the manuscript.

**PUBLISHABLE PAPER**

**DECIDING TO WORK DURING THE EBOLA OUTBREAK: THE VOICES AND  
EXPERIENCES OF NURSES AND MIDWIVES IN LIBERIA**

Erhuvwukorotu S. Kollie, PhD Candidate, RN, RM

Loma Linda University, School of Nursing, West Hall

Loma Linda CA, 92350

231-88-671-2299 [ekollie@llu.edu](mailto:ekollie@llu.edu)

Betty J. Winslow, PhD, RN, Professor

Loma Linda University of School of Nursing [bwinslow@llu.edu](mailto:bwinslow@llu.edu)

Patricia Pothier, PhD, RN, Associate Professor

Loma Linda University of School of Nursing [ppothier@llu.edu](mailto:ppothier@llu.edu)

Donn Gaede, DrPH, Assistant Professor of Global Health and Health Administration

Center for Leadership in Health Systems

Program Director, Global Health Program

Loma Linda University School of Public Health [dgaede@llu.edu](mailto:dgaede@llu.edu)

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## Abstract

The purpose of this study was to explore the experiences of nurses and midwives, including the decision process involved in either rendering care or not rendering care to patients during the Ebola outbreak in Liberia, West Africa. Data were collected from 30 registered nurses and registered midwives through face-to-face, semi-structured, tape-recorded interviews. This study combined both Corbin and Strauss (2015) and Charmaz (2014) grounded theory methods of data collection and analysis, resulting in a description of the experiences and a conceptual model that describes the social process involved in the work decisions made by the study participants. The core category identified in the data was “living in fear and terror.” The work decisions of nurses and midwives were primarily influenced by family responsibilities and demands. The findings of this study could be applied to education, research, and working policies when planning for future disease outbreaks in Liberia and other regions in the world.

**Keywords:** Ebola virus, nurses and midwives, decision making, disaster nursing, willingness to work

## Introduction

The recent Ebola outbreak in the West African region has resulted in many deaths plus devastating health and socioeconomic upheaval. Health care workers (HCWs) are central to the restoration and maintenance of optimum public health, especially in situations such as disease outbreaks. Health professionals are equipped with skills for surveillance, communication, reporting, and containment of a disease outbreak (Barnett et al., 2012). The willingness of HCWs to respond in situations of uncertainty and insecurity, along with their perceptions and attitudes towards their roles during disease outbreaks, influences their availability and response to the need for disease containment (Barnett et al., 2012). The determinants of HCWs' willingness to respond to disease outbreaks include type of disease, threat perceptions of health care workers, and associated perception of efficacy (Barnett et al., 2012; Connor, 2014).

During the Ebola outbreak in Liberia and West Africa as a whole, in addition to the need to care for patients who had contracted the Ebola virus, other patient populations also needed health care services. Coping with a new, high-mortality disease within the region, including development of treatment protocols, was a concern throughout the region. The resources needed, including experts and health care workers who were experienced in treating patients with Ebola, were not readily available. In Liberia, this was a result of the country emerging from 14 years of civil war that had led to limited availability of health resources and dysfunctional health care systems (Buseh, Stevens, Bromberg, & Kelber, 2015). In addition, Ebola virus disease symptoms are indistinct from other endemic diseases like malaria, gastroenteritis, or cholera (World Health Organization [WHO], 2015, "Diagnosis," para. 1). Ebola virus disease is deadly. The

WHO fact sheet reports the fatality rate of Ebola virus disease to be 50% on the average and have recorded between 20%-90% in past outbreaks (WHO, 2015). This led to increased anxiety levels in health care workers, such that every patient who presented for treatment or services for other health conditions was a suspected case (Hayter, 2015). Furthermore, the WHO (2015) released a statement that Liberia had reported the highest number of deaths in the largest, longest, and most complex outbreak since Ebola first emerged in 1976 in the Democratic Republic of Congo. At the peak of transmission in August and September 2014, the country was reporting from 300 to 400 new cases every week. Public facilities in the capital city, Monrovia, were under particular pressure once the government declared a state of emergency. All residents were mandated to stay home and public gatherings were strongly discouraged (WHO, 2015). Fear and uncertainty about the future of families, communities, and the country, including its economy, dominated the national mood. Health professionals remained vital to the treatment of patients, even when supplies of personal protective equipment and training in its safe use were inadequate. Altogether, 375 health care workers were infected and 189 lost their lives (WHO, 2015). According to the International Council of Nurses [ICN] (2015), Ebola intensified the existing inadequacies in the health system West Africa countries of Guinea, Liberia, and Sierra Leone. These inadequacies ranged from shortage of health care workers, high rates of attrition, uneven distribution of health care workers, and poor working conditions to gaps in occupational health and safety (such as availability of personal protective equipment).

Some nurses cared for patients infected with Ebola at a hospital in the U.S.; these patients apparently visited West Africa during the outbreak before traveling to the U.S.

These nurses demonstrated the possibility of health care institutions and health professionals to care for patients with Ebola Viral Disease (EVD) with desired clinical results, while at the same time protecting the safety of staff and other patients (Matlock, Gutierrez, Wallen, & Hastings, 2015).

Touch is considered a main source of direct physical connection and an integral part of the nurse-patient relationship, however, skin-to-skin contact is not suitable when caring for EVD patients. Regardless of the layers of protective equipment, nurses needed to provide human and safe touch that is intentional, deliberate, and meaningful in order to offer comfort, connection, and care to their patients (Connor, 2015). Ethically, the American Nurses Association (2015), in the fifth provision of the code of ethics, indicates that while nurses are obliged to conduct nursing actions such as assessment, intervention, and promotion, among others, for the health and safety of their patients and society, nurses also are obliged to apply to themselves the same health maintenance and promotion strategies, use health care services when needed, and refrain from unnecessary risks to their health and safety while carrying out their professional and personal activities (pp. 19-25).

There are a varied range of concerns held by health care workers, including nurses, which need to be considered when planning for effective workforce presence during a disease outbreak. These concerns might have some influence on nurses' willingness to work during a pandemic (Cheong et al., 2007; Wong, Wong, Lee, Cheung, & Griffiths, 2012). These concerns include appreciation from employers, efficacy and side effects of vaccines, frequent policy changes, unclear protocols set for case management of infected patients, poor facility layout, and duty role stress. Finally, there

is need for development of a curriculum that provides a better understanding of the knowledge, skills, and aptitudes required to care for patients during public health emergencies (Downes, 2015). The experiences of nurses during the Ebola outbreak should be explored to gain insight into the safety and social issues and enable the development of more realistic policies to meet the needs of nurses and other health professionals.

The purpose of this study was to explore the experiences of nurses and midwives, including the decision process involved in either rendering care or not rendering care to patients during the Ebola outbreak in Liberia, West Africa. This study provides a description of the experiences of nurses and midwives who either continued to care for patients or who did not continue to care for patients during the Ebola outbreak. The findings are informative for practice, policy decisions, research, and education and curriculum development for nurses and midwives in Ebola nursing care.

### **Method**

A qualitative design which combined the grounded theory method (GTM) of both Charmaz and Corbin and Strauss was used for this study to identify concepts, develop theoretical explanations, and offer new insights into the experience of patient care during an Ebola outbreak (Charmaz, 2014; Corbin & Strauss, 2015). The GTM acknowledges that the interaction of the researcher and participants influence the nature of the data, and the concepts and theory that emerges are the mutual creation of meaning (Morse et al., 2009). In this study, the GTM was used to describe the experiences of nurses and midwives and to develop a conceptual model of the work decision process used by nurses and midwives during the Ebola outbreak. The identification of the core category,

subcategories, and the basic social process through strategies such as theoretical sampling, theoretical sensitivity, and constant comparison formed the basis of this analysis.

### **Ethical Considerations**

The ethics review board of a Liberian university that had Federal Wide Assurance (FWA) status approved the study. The researcher's university in the U.S. deferred to the Liberian university's FWA approval. Informed consent was signed by each participant before the interview. Confidentiality and anonymity of the participants was assured through the anonymous transcription of interviews and by secure storage of the transcribed data. Permission for hospital entry and recruitment was obtained from the hospital administrators.

### **Participants and Recruitment Criteria**

A total of 30 registered nurses and midwives living in the country during the outbreak and who had a minimum of one year working experience were recruited into the study. Excluded from the study were administrators and supervisors. These 30 registered nurses and midwives (mean age: 38 years) were selected from three hospitals; 10 from each hospital. One is a faith-based, privately funded hospital that continued to provide regular health care services during the outbreak. The second hospital is faith-based and co-funded privately and by the government. During the outbreak, this hospital was used as an Ebola treatment unit (ETU). The third hospital is government managed and was used as a holding center for suspected and confirmed Ebola cases due to overcrowding in the ETUs.. Most participants were females ( $n = 29$ ), with an average of nine years working experience. Most nurses and midwives worked in the hospital during the Ebola



outbreak ( $n = 27$ ) with an average monthly income of \$23945.00 (Liberian dollars). Forty percent of nurses and midwives had bachelor's degrees in nursing. Of those, who worked during the outbreak, 13 (43.3%) worked in the Ebola treatment units (ETU).

As data collection and analysis proceeded, sampling was based on further development and representativeness of concepts using the process of theoretical sampling (Corbin & Strauss, 2015). Concept saturation was achieved after 25 interviews; however, an additional five interviews were conducted to ensure saturation.

### **Method of Data Collection**

Data were collected through face-to-face interviews, using a semi-structured interview guide. Participants were encouraged to tell their stories in their own way, with questions added to probe the participants' responses during the interview. The interviews were tape-recorded and transcribed. After analysis was completed, the tape-recorded interviews were destroyed.

### **Method of Data Analysis**

Data collection and analysis progressed concurrently, which set the basis for subsequent interviews with participants. A combination of both the Charmaz (2014) and Corbin and Strauss (2015) methods of analysis was used. Charmaz's approach was used in the initial line-by-line examination of the transcribed data in which codes were identified. The codes included words or phrases ending with "ing" (known as gerunds) and codes consisting of the direct responses of the participants (known as "in vivo") were placed by each line of the transcribed data. A comparison was conducted of the codes across various incidents described by the participants also using codes that end with "ing.". This was followed by sorting, separating and synthesizing similar codes to form

focused codes, which were then sorted and analyzed to identify the core category, other categories, and subcategories. Using the Corbin and Strauss approach, the core category, other categories, and subcategories were further analyzed by means of axial coding through the identification of the properties and dimensions of each category until saturation was achieved. Corbin and Strauss (2015) refer to this approach as axial coding, the process of integrating categories and subcategories around the core category. This process involves the identification of the properties (which are descriptive and defining characteristics of categories) and dimensions (which are variations within the properties of categories) (Corbin & Strauss, 2015, p. 220). The integration of the categories and subcategories progressed until the structure showing the conceptual order or model of relationships between the core category, the other categories, and sub-categories was achieved. Memo writing was used throughout the analysis to document these comparisons, linkages, and answers to analytical questions (Corbin and Strauss, 2015; Charmaz, 2014).

### **Methods to Ensure Trustworthiness**

To achieve credibility and confirmability, the first author attained familiarity with the research setting by visiting the hospitals at least once before conducting the interviews. While visiting, the first author interacted with the administrators, nurses, and midwives to create rapport. Care was taken to ensure that data collected was sufficient and rich enough to merit the interpretation of the findings. Evidence has been provided through the use of a comprehensive description to allow the readers to form an independent assessment of the findings of this study. The first author achieved reflexivity by keeping a methodological journal.

## Findings

Analysis of data resulted in the identification of one core category, seven categories, and 13 sub-categories. The description is as follows:

### *Core category: Living in Fear and Terror*

The nurses and midwives reported feeling afraid and terrorized by the possibility of contracting the disease through interaction with patients and colleagues, and transmitting it to family members. The death of a patient or a colleague with whom the nurse had previously been in close physical contact, whether a suspected or confirmed case, caused anxiety for the nurse as they reflected on the possibility of contracting the virus through unsuspected exposure to the body fluids of the infected person.

It [Ebola outbreak] was a terrible experience for me. Where a disease, when you come in contact with somebody by touching and as a midwife, you have to do screening for patient. It was a terrible experience that you coming in contact with patient where at the beginning we never had personal protective equipment (PPE). And in the delivery room; is a place where we have body fluids; so coming in contact with patient, the first thing you are very afraid of who you are coming in contact with. And then, what are you taking home for your family? You are not so much particular about yourself but your children and family members at home. So the Ebola outbreak was a terrible, terrible experience.

The nurses and midwives reported that this led to fear about going to work and losing zeal for their work. One of the nurses said, “You say, oh I won’t come to work but then you ... you go back the next morning. I just had that fear to come to work and also lost the zeal to come to work.”

### **Knowledge, Skills, and Protective Equipment**

Described in the next few sections are the subcategories of “Living in Fear and Terror.” There was a lack of understanding at the beginning of the outbreak about the virus and about infection protection and control. One of the nurses said, “We had an experience about an unknown sickness that we had not heard about or seen.” There was

an initial lack of equipment which posed a greater danger to health care workers and the patients they were in contact with. When the outbreak began, the nurses did not know how to wear and remove the personal protective equipment (PPE).. The PPE was uncomfortable to wear because it generates and retains heat, causing heat exhaustion for some participants. Nurses were determined to keep themselves safe so they could care for the patients. When the PPE was not available the nurses withdrew from work.

I answer here saying that yes we had some supply of PPE or so but it was not much and so when we went out of it we had to withdraw. And then we close down for about ... I think a week or two and then we came back on board.

Frequent hand washing with 0.05% chlorine water caused physical discomfort for the nurses.

We were not use to wearing PPE and we just started using it so it was difficult to cope with it. If you wear that PPE there's lot of heat. If you take off that PPE, you see that you sweat and lose enough fluid and it was very uncomfortable wearing it. And sometimes you wear the full PPE you see yourself suffocating. At the end of the day, you face difficulty in breathing. And also the use of chlorine: in fact it was more concentrated using 0.5, 0.05 [concentration of solution]. People using chlorine and inhaling it and chlorine is like a chemical. Sometimes you find your entire throat; the GI to be very dry and very bitter.

### **High Risk Nursing**

The nurses and midwives were constantly at high risk because they were fighting the unknown and observed a high death rate of patients and even their colleagues. With no clinical experience treating cases, they did not know what kind of disease they were fighting. One of the nurses said, "My experiences during the Ebola crisis was well challenging because for one fact; we had not experienced Ebola in our country before. So when it happened, we started to ask; what kind of illness is this?"

## **National Defense**

The nurses likened the situation to that of war. The alertness, armory, and support from other fighters that characterized a typical war situation were needed in the fight against Ebola. As the national defense personnel fighting a war, nurses had to use defense principles and tactics to win the battle.

My experience during the Ebola period was just so fearful; the hospital was like a war zone.....well, we couldn't just give up because if we as nurses will just sit and say we are afraid, ... just to serve humanity to see that we battle this disease that came; this virus that came so that it can leave our country.

## **Psycho-physical Symptoms**

At times, after a patient or a colleague became infected or died as a result of Ebola, the nurses out of fear started manifesting some of the signs and symptoms; they also became sad and concerned for their survival.

Our mental tension was very, very high. Thinking that, we were not safe anytime we could contract a disease from somebody. So many days we felt sick; if you see the situation you just say "I finish get my own!" Sometimes you go home you already having headache. Sometimes you home you have fever of no origin. So we were afraid; for me I was actually afraid, I was afraid. Every time I touch patient; I just feel that maybe I can get my own any time I don't know who is who.

## ***Family***

Family is one of the categories identified from the data. This category is characterized by concern for family safety, physical distancing, discouragement from working, encouraging nurses to work, praying for nurses' safety, and providing emotional and psychological support. The situation caused the nurses and midwives to fear for their safety and the needs of their family. Nurses addressed this fear by bathing upon returning home and prior to interaction with family members. It was difficult to endure the physical distancing between spouse and children. The nurses saw this as the responsible thing to

do to ensure safety despite their desire for closeness and affection with their families. Family was identified as the primary reason for a nurse to stop working during the outbreak. Those who did not work or stopped after a period of working did so because family members discouraged them or because of family responsibilities (e.g., pregnancy or to maintain marital stability).

I stopped working because of the Ebola crisis especially when most of my friends that we all like working together, graduated together they contracted the virus and then they died during the process; really my parents were like on me oh don't work, don't work and also my former husband. He was like every time don't go to work, don't go to work. Even at times, he use to make it out of confusion. Some days he will say don't go to work you don't know who is who, don't go to work and it used to be like problem between he and myself always.

Those nurses and midwives, who stayed home and chose not work, reported that they provided first aid treatment and health advice to their neighbors and community members who sought their professional help during the outbreak. Nurses who stayed at home reported being conscious and cautious for their safety because they lacked protective equipment while at home.

All through the Ebola time people was so afraid to treat people at home but some patients use to come to me ... like my relatives ... I see them I still use to continue that care.... In the case of emergency, there will be lack of equipment or resources to conduct adequate and accurate care. It is better that the patients report to the hospital where there are specialized personnel and equipment readily available for diverse cases.

Those who continued to work were concerned for their family safety and affected by physical distancing between them and their family members. When the nurse educated her family about the disease, it enhanced family support, eased strain in the relationships, and boosted family dynamics, allowing the nurse to continue working.

Because they felt that, I had the knowledge so I will protect myself more than them. They had that confidence in me so every time I went home they had hands around me. Even my family at the house, they had hands around me. I was like telling them to take thing serious they shouldn't believe in the lies but they should

wash their hands, so for my family home it was ok. They were supportive, at certain from the beginning it was hard but after going by they started being supportive.

### ***Professionalism***

The nurses expressed passion for their profession, love for people, and sympathy or empathy for sick people. Though the nurses needed income for their livelihood, it was not the primary motivator. Nurses who worked did not do so primarily for the financial benefits. Nurses expressed their logic for continuing to work by weighing the options and the benefits to themselves and their society.

So I was not looking at the financial aspect; I was looking at serving humanity because that's what I took oath for. So I was not looking at any other thing whether from outside, whether pay or whatever. I took oath to serve humanity so that was my motivation.

The nurses reasoned that their refusal to work would eventually lead to genocide, that neither they nor their relatives would be spared; that would be the retribution.

When we realized that people were dying and we were the ones to be on the line to save them, so I had no other option but to go help because it could be me or my relatives or someone out there that I know.

The nurses appreciated the opportunity to gain additional clinical experience, competence, and confidence. Those nurses who did not work felt unfortunate that they could not join their colleagues in the fight against Ebola as a result of their unique individual circumstances.

I was not doing nothing but yet then still they were paying us. They were paying us but still I was really feeling bad because I was not doing nothing and just see people dying and I can do nothing.

### ***God and Safety***

The nurses reported that they depended on God for safety. Some of the participants regarded this as the primary resource for safety, despite the availability of

protective equipment. Some of the participants attested that several nurses and HCWs were infected despite using protective gear. They believed that the surety of protection was only possible through dependence on God. The nurses reported that they prayed for their safety and for the safety of their family and colleagues. Nurses reported that all three hospitals conducted devotions at the beginning of every working day. This reflects the spiritual dimension of the experience involving both personal and corporate prayer.

Every morning before I go to work I will pray and present myself to God because He [is] the only person that will protect me in the unit and then when I get there I try to look after my patients. We also use to pray before going in [treatment unit]. After dressing we hold hands together, we pray before entering. During the assembly we had to pray every morning; we had our general assembly before, they do debriefing. We use to call it debriefing and during that debriefing, it's like time of worship. It can be easy in the morning; we can storm the place with God. It was so interesting.

### *Stigmatization*

People in society thought nurses were at risk of infection and could in turn spread the virus to the public, leading to stigma.

Even in the community if they notice that you are working to this institution they then stigmatize you. This is a crisis, this is a condition that came in the country and we want it to go away, so how will this go away if we are not there to help? When we go to help then people stigmatize us, it was so frustrating... yes.

Stigmatization resulted in feelings of fear, frustration, and sadness. The strained relationship between nurse and neighbors who had distanced them was improved when neighbors saw that the nurse and their family were applying measures to keep themselves safe.

### *Institutional Influences*

This category is characterized by the hospitals' influences and activities that affected the nurses' experience. The actions and attitude of the hospital administration were both motivational and non-motivational for the work decisions of nurses and



midwives. One of the nurses said “They [hospital administration] contributed by making the materials available, that [is] all. As I said the financial aspect was very, very low. No motivation from the hospital, administration.”

The three hospitals closed down temporarily at different periods during the peak of the Ebola outbreak. Each closed when the first staff cases were diagnosed, treated, and died from Ebola. When hospitals closed because of fear, unpreparedness, and possible high risk of transmission to staff, nurses felt the opportunity to continue serving was closed.

The hospital was closed down like I said only the outpatient department (OPD) section was functioning and they never had control over the staff everybody choose to go anywhere. They really never had control over the staff so they had no influence over anybody. Where you choose to go and work fine you go and work after everything people started coming back.

The nurses and midwives reported that training was provided by the hospitals, which boosted their confidence and competence.

We were being prepared because even though we were not really notified, like I said from the onset but we had a doctor who came from Azerbaijan, she was here by then. When she [doctor] heard about Ebola; because according to her she was in Zaire when Ebola went in Zaire, she just did like one week brush up [training]. We had sterile protective equipment, we had gloves both obstetric and gynecological (OBGYN) and surgical gloves. I can really commend the hospital administration; we were prepared by them; we had rain boots and things here too to work with.

### *Government Efforts*

Though the government followed through on their responsibility to provide PPE, it failing to deliver on its promise to compensate the workers with hazard allowance.

Nurses indicated that government efforts were centered on public health, thus it was perceived as neglecting the nurses and other health workers by not providing incentives

and benefits. One of the nurses said, “We were not treated fine from the government, let’s be frank. They didn’t even commend us for what we have done, it broke us down.”

### *Work Decision*

The components of the experiences of nurses and midwives influenced the choices made by the nurses: whether to work or not. Although nurses and midwives were living in fear and terror, those who chose to work did so for personal reasons such as obligation to professional oath, passion for their jobs, sympathy for dying people, and spiritual duty. The primary resources for their decisions were family support. Other influences were the institutional and government efforts to provide protective equipment and training for the nurses and midwives.

I continued to work to be able to help my people because it was too pathetic to see such a condition. And also because I had passion for the job.... Where you know that these people you’re working with than to work outside of it; so I saw the logic because I knew I will still work, I will not sit home. I saw the logic in it and I decided to work; and that’s how I continued to work.

Those nurses who did not work described family demands and disapproval. Some of the nurses were forced to work by hospital administration. Later, they were glad that they had worked during the outbreak because of the professional gains that they later enjoyed.

I was forced to work with the Ebola unit but too I refused and they told me that if I don’t work, I was going to be sacked, and I had no other place to work and I just had a three months old baby just from maternity leave, so I had no option.

The same nurse later expressed:

I gain plenty things... Certificate! ... people know me worldwide because people can call me oh you are so, so, and so. We saw you on TV you did this, you did this thank you very much. People will say oh yes this is the girl that worked in the Ebola unit, thank you very much you did well and most of the survivors always they are appreciative any day they come here.

The subcategories of the work decision category are the outcomes (working conditions) identified for working. These subcategories are described in the following sections.

### **Nurse-patient Relationship**

The nurses and midwives who decided to work experienced changing dynamics in the nurse-patient relationship. They were in danger of contracting the deadly virus through physical contact with infected body fluids, posing a challenge to the usual nurse-patient interactions. These challenges included nurses carrying out procedures incorrectly or avoiding certain procedures. Other challenges included treating patients harshly and experiencing strain on the nurses' touch role.

You see now it is terrible, the experiences I had now it is affecting my patients now because we know that Ebola is more or like on and off so the relationship we had with patients you find out now it is a gap. We were not nursing patient the way we used to in a sense that when a woman is laboring you have to help her; rub her back, go closer to her, talk to her. Yes we can go there and talk but where you have to be rubbing her back and other thing now we are really not doing it because of Ebola situation so the only thing we do [is] talk to them. Stay at a distance talk to them, encourage them, and rub them. I don't touch patient when I am not wearing gloves but before we used to. Sometimes you will feel bad but it was the time such a condition, you have to work within that time.

The nurses reported that the training and the provision of protective materials boosted their confidence and competence and eased the strain in the nurse-patient relationship.

### **Team Nursing**

The nurses reported that the relationship among nurses also experienced changes. This included support for each other, bonding, working in twos, and being alert to each other's needs:

Yes, take for instance if a nurse see you with a gloves and you forgot because you forgot and you are human you are liable to forget: so if your friend see you with gloves going to touch a chart; that anybody could go touch with their bare hand they will stop you. . . . other materials that you not supposed to use with the

gloves and you want to handle that material with gloves because your friend know you not supposed to handle that material with gloves anyone could handle it with their bare hand. Because they won't know that someone handle it with their gloves so at the end of the day they will alert you. They will put you on the alert you will not even reach they will put you on your guide. Reminding each other about how to keep being protected.

The nurses also reported experienced strain in their interactions with other nurses:

It [physical interaction] was also hindered; because this times no touching. Before the crisis you and your friends will shake hands, you all hug, but this time around you're only seeing each other, no touching. You not coming in contact with your friend, you use to ask for your friends pen; during Ebola even if they will to give you their pen you not willing to use it because you afraid of your own friend. So that relationship was really hindered.

### **Lessons**

The nurses reported that they learned from deciding to work. The nurses advised students to take their training seriously, whether or not conditions studied are familiar.

Other lessons identified by the nurses were the need for strict adherence to safety measures, to take seriously the infection prevention control measures, and to continue to practice universal precaution measures.

Can you imagine those days back I had a presentation on Ebola; and nobody was even listening in the class. The place was noisy, it wasn't interesting, only at the end of the day we find ourselves here so as a student you have to take everything serious because you don't know when you will find yourself into that thing, and that was just what happened. I who even presented on it, I even forgot about it. The lesson we can pass is to always take our universal precaution first. Regardless of Ebola we should always remind ourselves that we should protect ourselves because we don't know when there will be an outbreak of a communicable disease.

A summary of these categories and their subcategories are presented in Figure 1.

Categories	Subcategories
Living in fear and terror (core category)	Knowledge, skills, and protective equipment
	High risk nursing
	National defense
	Psycho-physical symptoms
Family	Family education
	Home based nursing
Professionalism	Professional gain
	Professional role strain
God and safety	
Stigmatization	
Institutional influences	Hospital access
	Ebola nursing care
Government efforts	
Work decision	Nurse-patient relationship
	Team nursing
	Lessons

Figure 1. Identified categories and their subcategories.

### **Linkages between Categories and Subcategories (The Work Decision Process)**

Data showed that nurses and midwives were living in fear and terror. This affected them emotionally and psychologically. Six categories were identified to influence their work decisions; however the key category was identified as the family. Family responsibilities and demands were the main reasons the nurses and midwives either chose to or chose not to work during the Ebola outbreak. Other categories that influenced the nurses' work decision positively were professionalism and dependence on God for safety. Institutional influences and government efforts were found to influence the nurses' work decisions both positively and negatively. Data showed that stigmatization negatively influenced nurses' work decisions, causing sadness and frustration.. However, stigmatization however was not identified as a reason for nurses and midwives to stop working during the outbreak. Nurses and midwives who chose to

work experienced changes in the nurse-patient relationship and the nurse-nurse relationship. All nurses and midwives who participated, whether they worked during the outbreak or not, shared the lessons they gathered from their work decisions. A conceptual model representing the linkages between the categories and subcategories identified from data analysis is presented in Figure 2.

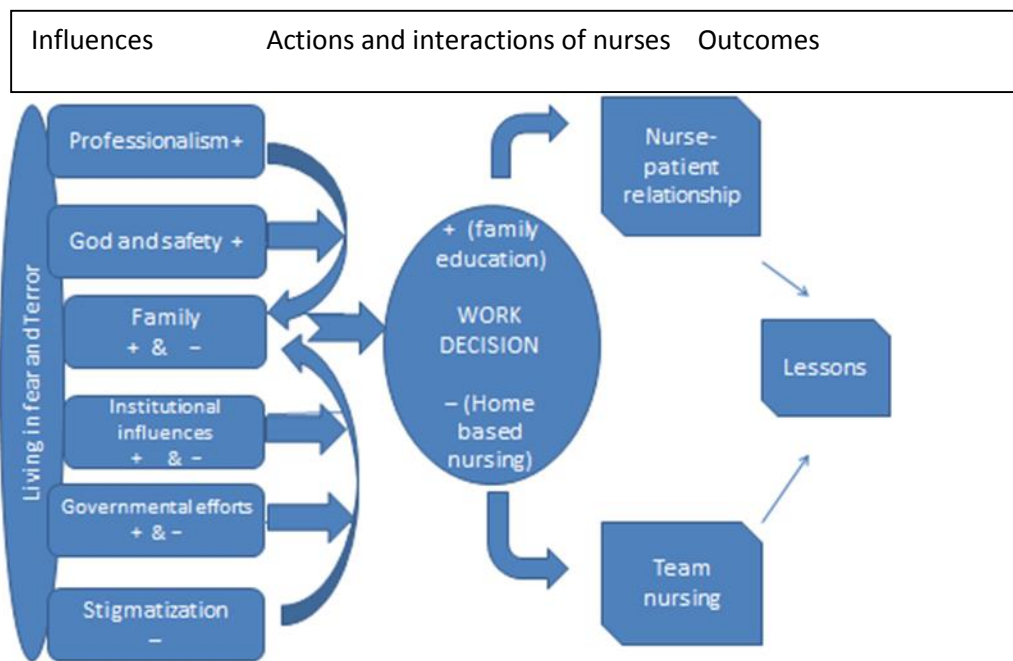


Figure 2. Work decision process used by nurses and midwives during the Ebola outbreak in Liberia, West Africa

Key: + means positive influences; – means negative influences

### Discussion

The nurses and midwives were living and working in fear and terror during the Ebola outbreak in Liberia; Their families' lives and their own lives were endangered. Dickenson et al., (2013) described several concerns for HCWs during a disease outbreak similar to those identified in this study, also identifying the family as a concern for safety, psychological, emotional, and social support (Dickinson et al., 2013). Other

research reports support the findings in this study; namely, that nurses and midwives who felt obligated by the nursing profession continued caring for patients during the Ebola outbreak (Twardowski, McInnis, Cappuccino, McDonald, & Rhodes, 2014). The nurses and midwives experienced stigmatization by the public during the outbreak. Some studies concur that health care workers engaging in the education of their families and patients, together with institutional influences, and government efforts eased the effect of stigmatization (Abramowitz et al., 2015; Kobayashi, 2015). Stratton's (2014) finding supports the need for government efforts through policy development, provision of safe working conditions, and funding of training and educational programs in Ebola care.

The experiences of the nurse and midwives included change in the dynamics of nurse-patient relationship and team nursing. Through training and provision of protective equipment the nurses and midwives regained their confidence. The nurses and midwives then created methods to touch their patients while using the personal protective equipment and fully conducted nursing procedures, improving the relationship between the nurses and their patients. Results from another study concur with this finding (Connor, 2015). The spiritual dimension of health care was identified as crucial to enhancing nurses' well-being. Other authors have also reported that faith-based health care institutions and services are the vehicle used to drive spiritual health care (Marshall & Smith, 2015). This study is distinguished from other studies in that, the decision process involved in the nurses' and midwives' choices either to render care or not to render care for patients were made on the basis of emotional connections between nurses, their families, and society. The decision process also was based on their value system, including professionalism and spirituality. As a distinguishing feature, the findings of this

study highlight the spiritual dimension of the nurses' and midwives experiences. The findings also indicate the influence of the spiritual resources of nurses and midwives on their decision to work. Previous studies on health care workers' willingness to work during disease outbreaks have not captured the spiritual dimension. The Etzioni's (1992) decision-model suggests that most choices are made on the basis of emotional involvements and value commitments. This study of the nurses' and midwives' decision process supports the Etzioni's decision model.

Given that the experiences of these nurses and midwives are significant in ensuring that they continue in their role during a disease outbreak, the grounded theory approach provided the avenue for exploration of their experiences and work decision process. The strength of this study is that the findings were grounded in the perspectives of the nurses and midwives.

A limitation of the study is that participants were mostly female, thereby posing an under-representation of male nurses' perspectives. The participants were recruited from hospitals in one city in Liberia, which does not represent the experiences of nurses in rural areas. The scope of this study was limited to nursing and midwifery practice in the Liberian setting. The study may not adequately represent the experiences of other HCWs in Liberia or other settings.

### **Applicability of the Findings**

Nurse administrators, hospital administrators and government leaders could apply the insight gained from this study to amend working policies to acknowledge nurses' family concerns during disease outbreaks. Findings could be applied by nurse educators in strengthening Ebola nursing care training in nursing curricula and in continuous



education for professional nurses and midwives. The study findings support the need to ensure that the provision of personal protective materials and inclusion of nurses' family in protection and compensation plans and policies be considered in times of emergencies. Additionally, attention should be given to ethical considerations, spiritual dimensions, and mental or psychological implications of Ebola nursing care.

### **Conclusions**

The Ebola outbreak in Liberia caused unimaginable devastation and deaths. The role of HCWs in containing disease outbreaks cannot be overemphasized. The nurses and midwives were living in fear and terror during the Ebola outbreak in Liberia. The family was the key determinant for their work decisions. When working on the ETUs, nurses experienced challenges in the dynamics of the relationship with their patients and among themselves. Training and provision of protective equipment will most likely boost the confidence of nurses and midwives during an Ebola outbreak. The emotional stress faced by nurses and other health care workers should be considered by hospital administration and government leaders when making policies on Ebola virus disease containment. The findings of this study could be applied to educational and working policies when planning for future disease outbreaks in Liberia and other regions of the world.

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### **Additional Findings Not Included in the Embedded Manuscript**

The categories: family, professionalism, and institutional influences had subcategories that were not fully described in the embedded manuscript for publication. This was due to space considerations and in line with the requirements of the proposed journal for publication. These subcategories have been identified and described further in this section of the report.

#### ***Family Education***

Family education is one subcategory of family. The explanation of the vital nature of the nursing field and its role in ensuring national survival from the deadly Ebola outbreak was reported by nurses and midwives to have helped their relatives to approve of their decision to work during the outbreak. Nurses educating their families about the disease may have enhanced family support. When family members were educated about Ebola they tended to be supportive and the strain in the relationship and family dynamics was avoided. The family became confident in the nurses' and midwives' ability to stay safe. The nurses taught their family members about Ebola, the methods of transmission, and prevention strategies. Nurses and midwives who engaged in educating their families reported that they enjoyed their family's support.

Because they felt that, I had the knowledge so I will protect myself more than them. They had that confidence in me so every time I went home they had hands around me. Even my family at the house, they had hands around me. I was like telling them to take thing serious they shouldn't believe in the lies but they should wash their hands, so for my family home it was ok. They were supportive at certain from the beginning it was hard but after going by they started being supportive.

### ***Home-based Nursing***

A subcategory of “family” is home-based nursing. Nurses who did not work outside the home took care of their sick relatives. These nurses reported that they provided first aid treatment and health advice to their neighbors and community members who sought their professional help during the outbreak. One nurse said “all through the Ebola time people was so afraid to treat people at home but some patients use to come to me like my relatives. I see them. I still use to continue that care.”

Another participant reported that she refused to treat the community residents because of the risk involved. This made the community residents unhappy with her. Some of the community residents even went as far as insulting her for refusing to attend to them. She was stigmatized because she decided not to put herself and her family at risk.

In the case of emergency, there will be lack of equipment or resources to conduct adequate and accurate care. It is better that the patients report to the hospital where there are specialized personnel and equipment readily available for diverse cases.

### ***Professional Gain***

This subcategory of professionalism explored the nurses’ perceptions of the positive side of their experiences. They also thought about what might happen if they did not yield to the obligations of the nursing profession. The nurses and midwives reported that they appreciated the opportunity to have gained additional clinical experience, competence, and confidence.

I gained a lot, I gained how to cope with stress, how to deal with my patients in certain situation I know myself now. I know that whenever there is outbreak emergency and you don’t know the status we know how to deal with it. We were also thought us how to do proper hand hygiene, how to place patient..... we gain a lot actually let us be frank... we gain a lot.

The nurses described the outbreak as a good experience because it challenged them to learn something new. The Ebola experience was seen as an adventure. The nurses reported that the experience added to their career experience, which will enhance their ability to confidently and competently manage future cases. This experience included nurses who worked in both the holding center and Ebola treatment center hospitals.

Some of it was good; other was not encouraging at all. One of the good parts of it was that it was a challenge, seeing the Ebola outbreak my first time, I have learn about it in school but we never really take it to be anything because it wasn't existing at that time. So seeing it at the time, it was a very good advantage for me.

### ***Professional Role Strain***

Those nurses who did not work reported that they could not join their colleagues in the fight against Ebola due to their unique individual circumstances; this was distressing for them. These were prevented by circumstances ranging from the need for physical stability and safety of a newborn baby and entire family, maintaining a threatened marriage, and the hospital refusing to allow her to work because several members of her family died from Ebola infection. The nurses reported that they felt that it was unfortunate not to have worked and were unable to fulfill their professional oath during the Ebola outbreak, and lost out on the opportunity to gain clinical experience that should equip them career-wise. As a compensatory measure these nurses sought satisfaction by caring for their children and controlling for risky associations and behaviors that could lead to contracting the Ebola virus.

It used to play on me every... every time. When nursing is more practical... the more you practice the more you get more experience or experiences but you sea home you say am a nurse you will just be saying am a nurse, am a nurse until four five years. Well I accepted the situation the situation I was in at that time, I accepted it. I said within myself I know am capable of working, I can work but

I... now I got to go home I can't leave my baby now and then go to the hospital to go work!

### ***Hospital Access***

A subcategory of institutional influences is hospital access. The three hospitals used for the study closed down temporarily when the first staff from each of these hospitals were diagnosed, treated, and died from Ebola. This occurred at different periods during the peak of the Ebola outbreak in Liberia. Because the hospitals closed due to fear, unpreparedness, and possible high risk of transmission to other staff, nurses and midwives felt that hindered in their ability to care for patients, and family members and neighbors who needed health care were stranded. The nurses reported this lack of care during the hospital closure caused many people to die unnecessarily.

Like what I said na, [a Liberian expression used for emphasis] my husband was sick which no hospital wanted to take people outside. I was there treating him without lab [laboratory test conducted]. My mother too had blood pressure; it was so good I had the B/P [blood pressure] cuff. I was there treating her [mother]. I told you a lot of people died in my community not from Ebola but from different, different medical conditions.

### ***Ebola Nursing Care Training***

Another subcategory of institutional influences is Ebola nursing care training. Training was provided for the nurses and midwives by the hospitals. This training was reported by the nurses and midwives to have boosted their confidence and competence. The training was also reported by the nurses and midwives to have eased the strain and fear experienced among nurses, and between the nurse and patient. The training and education on Ebola eased the tension and improved the understanding of the disease.

For that experience I was really prepared because when Dr. D came; when the outbreak came newly they were teaching us. So, when I got there I was aware of that. No fear nothing, even when I was wearing the PPE no... no fear nothing.



## **Trustworthiness of the Findings**

Credibility of the findings was assured through the following activities. First, the researcher achieved familiarity with the research setting by visiting the hospital sites at least once before conducting the interviews. While visiting, the researcher interacted with the administrators and nurses and midwives to create rapport. The researcher ensured that data collected was sufficient and rich enough to merit claims that are made. The range, number, and depth of observations contained in the data were considered to ensure methodological soundness. The steps and procedures of the grounded theory method developed by Corbin and Strauss (2015) and Charmaz (2014) were followed. Systematic comparisons between observations and categories through the analysis for context and process were conducted and recorded in memos. The process of analysis and a thick comprehensive description, based on the data, was used in this report to provide evidence and allow the readers to form an independent assessment of the claims of the study. Memo writing was done to assist in keeping track of the analysis process and aid in reporting findings. Negative cases and alternative explanations referred to as variations in the grounded theory method were identified and accounted for in the report (Charmaz, 2014; Holloway & Wheeler, 2010). The researchers' background and position affected the topic chosen, the angle of investigation, the methods considered most adequate, the findings deemed most appropriate, and the methods used to communicate the conclusions. The researchers acknowledged this and kept a methodological journal. This is referred to researcher reflexivity (Crabtree, 2006).

## Summary

In summary, the analysis of the narrative data collected from nurses and midwives suggests that they were living in fear and terror during the Ebola outbreak in Liberia. The interviews with these nurses and midwives provided rich personal descriptions of their work experience during the devastating crises. The core category identified in the data was supported by categories and subcategories resulting in identification of a model that represents the conceptual order of the findings supported by quoted material selected from the interviews. In addition to a description of the sample, the analysis method and the interpretation of the findings including issues of trustworthiness of the study were also addressed in this chapter.

## CHAPTER FIVE

### DISCUSSION

#### Introduction to Chapter

This chapter includes the comparison of the findings of this study with literature and the contribution to the body of knowledge. The comparisons and contributions start with the identified categories and subcategories from the data, followed by a comparison of the work decision process identified with literature. This chapter also includes a description of the strengths and limitations of the study. The transferability and applicability of the study findings to the nursing profession are also highlighted. Conclusions are made at the end of the chapter.

#### Comparison and Contribution of Findings to Literature

The core category identified from data analysis; living in fear and terror captures the essence of the experiences of nurses and midwives during the Ebola outbreak in Liberia, West Africa. The situation was exacerbated by the initial lack of knowledge about the Ebola virus disease by nurses, midwives, and the general public, specifically information about the mode of transmission, treatment methods, and prevention of the transmission of Ebola was lacking. There was also the initial unavailability of protective equipment. This was the first experience with Ebola for nurses and midwives, and they were unfamiliar with the required safety measures and how to use the personal protective equipment (PPE). The equipment included basic and enhanced personal protective outfits specially made to shield health professionals from contact

with the patients' body fluids and tissues. The protective measures introduced included frequent hand washing with concentrated chlorine water. These measures resulted in physical discomfort to the nurses. One study and other opinion articles were similar to other findings –an initial lack of protective equipment which contributed to the disturbing experiences of HCWs during the Ebola outbreaks, which were primarily characterized by fear (Dynes, Miller, Sam, Vandi, and Tomczyk, 2015; Hayter, 2015; WHO, 2015).

The behavior of patients and their relatives was characterized by anxiety. The patients and their relatives had misconceptions about the disease and were sometimes frustrated in lacking prompt, adequate care. Patients and their relatives distrusted the ability of the health care system to contain the spread of the Ebola virus. One study identified similar findings from the community perspective (de Vries et al., 2016).

The role of nurses and midwives, as well as other HCWs, in ensuring public health maintenance and survival cannot be overemphasized, as indicated in several studies (Chiu, Polivka, & Stanley, 2011; Qureshi et.al, 2004). Therefore, nurses who felt the obligation of their profession relied on professionalism as a resource to continue caring for patients during the outbreak. This professionalism was stirred by the fear of retribution if they did not fulfill their obligations. The loss of next generation or lineage was also an issue considered by the nurses and midwives as a most likely outcome for not fulfilling their professional obligations. This tallies with other studies that found a need to fulfill obligations as part of self-preservation ( Barr et al., 2008;

Ehrenstein, Hanses, & Salzberger, 2006; Tzeng, 2004). The outcome of fulfilling professional obligations as reported by the nurses and midwives was professional gain in terms of improved clinical skills and experiences with the treatment of Ebola-infected patients. An article portrayed a similar report of a nurse's professional gain after volunteering from the United Kingdom to assist in the fight of Ebola in West Africa (Coyle, 2016).

This study showed that the experiences of the nurses and midwives were enhanced by their dependence on God for safety. Interestingly this was common in the three hospitals used for this study. One of the hospitals was faith-based, privately funded and owned by a religious organization. The other hospital was also faith-based but funded privately by a religious organization while receiving government funding for its operations. The third hospital is government owned and funded. This finding resonates with the notion that the spiritual dimension of health care is crucial to health care delivery. Several studies show the spiritual dimension of health care delivery could be driven by faith-based health care institutions and services (Olivier et al., 2015; Summerskill & Horton, 2015; Tomkins et al., 2015). Some opinion articles have identified a need to provide opportunities to reframe faith as part of the complexity of health care delivery. These studies' results found that faith-based health care providers continue to play an important part in many countries in Africa and in other fragile or weakened health systems worldwide (Marshall & Smith, 2015; Olivier et al., 2015; Tomkins et al., 2015). In contrast, other studies have not identified the spiritual dimension of the nurses' and midwives' experiences and the influence

of the nurses' and midwives' spiritual resources on their decision to work during Ebola outbreaks and other disease outbreaks. The findings of this study highlighted effect of spirituality on the decision by nurses and midwives to continue to care for patients during the Ebola outbreak in Liberia.

The stigmatization of the nurses and midwives identified in this study were the result of the public's misconceptions and lack of knowledge during the initial outbreak. This stigma was reported to have lessened through public health education efforts about the disease. Health education for the public was conducted by the institutions (hospitals), the government, nurses and midwives. Other studies show that community health education helped decrease stigma during the Ebola outbreak (Abramowitz et al., 2015; Kobayashi, 2015). Furthermore, some studies agree with the finding of the current study that strategies like maintaining access to hospital services, provision of protective equipment, and motivation of HCWs through improved salaries and incentives need to continue. Other study findings were in line with the current study, namely, that developing policy on the government level, providing safe working conditions, and funding training and educational programs on Ebola care were all significant to the experiences of nurses and midwives (Stratton, 2014; Wong, Koh, Cheong, Sundram, et al., 2008).

Nurses and midwives were concerned for their families during the outbreak, and this proved an important factor in the decision to work or not to work. A similar finding was reported in a study on volunteering nurses from the U.K. (Turtle, 2015). Nurses and midwives were concerned for the safety and the

psychological, emotional, and social adjustments their families might need to make. This included physical distancing; refraining from sharing hugs and body contact, and many nurses and midwives found this difficult. Other research reports corroborate this concern (Adams & Berry, 2012; Anikeeva, Braunack-Mayer, & Street, 2008; Burke, Goodhue, Chokshi, & Upperman, 2011; Butsashvili et al., 2007; Chaffee, 2009; Cowden, Crane, Lezotte, Glover, & Nyquist, 2010; Dickinson et al., 2013; Ives et al., 2009).

The nurse-patient relationship also was changed by the dynamics of the therapeutic relationship during the outbreak. Fear led some nurses and midwives to avoid touching patients, and this placed yet another strain on their roles as nurses. After training in safety measures and the provision of protective equipment to the nurses and midwives, they regained their confidence, finding ways to touch their patients with wearing PPE and still fulfilling their responsibilities as nurses. This greatly improved the cordiality between nurses and their patients. Results from other studies concur with this finding (Connor, 2015; Twardowski, McInnis, Cappuccino, McDonald, & Rhodes, 2014).

Nurses and midwives in this study described team nursing as the foundation of the nurse-nurse relationship that developed during the Ebola outbreak, characterized by bonding and support for each other, and but also some strain in physical interaction which otherwise might have been avoided. The data showed this strain was due to the fear of contracting the Ebola virus from their colleagues. This led the nurses and midwives to avoid every form of physical contact between each other, causing psychological stress.

Comparing the social process which arose from our data with the existing literature, here we examine the work decisions used by the nurses and midwives during the Ebola outbreak. The nurses and midwives described living in fear and terror during the outbreak. The influences on the nurses' and midwives' work decisions included family, professionalism, God and safety, institutional influences, government efforts and stigmatization. The family was identified as the key influence on the nurses' and midwives' work decisions. Other studies have reported similar findings (Adams & Berry, 2012; Anikeeva, Braunack-Mayer, & Street, 2008; Burke, Goodhue, Chokshi, & Upperman, 2011; Butsashvili et al., 2007; Chaffee, 2009; Cowden, Crane, Lezotte, Glover, & Nyquist, 2010; Dickinson et al., 2013; Ives et al., 2009).

The nurses and midwives reported that training in Ebola nursing care and PPE were provided by the institutions (hospitals) in collaboration with the government. Nurses and midwives reported these efforts as a motivating factor in their work decisions. Other studies on epidemic outbreaks or disasters have similar findings, indicating that preparedness and confidence in colleagues and administration or leadership at institutional and government levels are associated with willingness of HCWs to care for patients during a disease outbreak (Connor, 2014; Gershon et al., 2010; Goodhue et al., 2012; Imai et al., 2010; Lim, Lim, & Vasu, 2013; Rutkow, Vernick, Thompson, Pirrallo, & Barnett, 2014; E. L. Wong et al., 2010).

The primary contribution of this study to the body of knowledge is a conceptual model on the experiences and work decision process used by nurses and midwives, which emerged during data analysis. The conceptual model provides the description of the process involved in the nurses' and midwives' choices on either to render care or not to



render care during the Ebola outbreak. In contrast to other studies, the findings of this study showed that family was the key concern and influence in the nurses and midwives decision-making. Other influences also were centered on the family, making the leading deciding factor. In addition, the findings indicate that the decision process involved in the nurses' and midwives' choices were made on the basis of emotional connections between nurses, their families, and society. The decision process also was based on their values about professionalism and spirituality. The Etzioni's (1992) decision-model, one of the sensitizing frameworks used in this study, states that most choices are made on the basis of emotional involvements and value commitments. The findings of this study on the nurses' and midwives' decision process support the Etzioni's decision model.

The Theory of Human Caring by Jean Watson was another sensitizing framework used in this study. This theory describes the act of caring to be based on values that honor and respect human dignity, spirituality, trust, and altruism in giving and receiving care (Watson, 2009).

These findings are in agreement with reports in the current study that reflect the influence of nurses' and midwives' perceptions of the value of human dignity, spirituality, and self-sacrifice in rendering care to patients. In contrast, Watson's theory did not describe how the act of caring is affected when negative influences are involved, particularly in the situation of disease outbreaks. This study's findings highlight the process involved in decision making for nurses and midwives either to render care or not to render care during the Ebola outbreak in Liberia.

The Theory of Human Becoming by Rosemarie Parse is structured around three themes: meaning, rhythmicity, and transcendence (Parse, 1999). Parse's theory was also

sensitizing for the current study by using the framework to understand how nurses and midwives became actors in the patient's experience, learning to understand them and use that understanding to provide appropriate care. The theory helped inform actions of nurses and midwives who took dangerous risks to enter the unpredictable world of patients with rhythm, creativity, or freedom, and to treat their patients as they themselves would like to be treated. The nurses and midwives gave meaning to the Ebola outbreak to encompass the survival of humanity, and then creatively sought to take appropriate action. Analysis of the data showed that some nurses and midwives transcended self to better understand the experience of their patients. Data showed that nurses and midwives approached the decision to provide care as if they were infected with Ebola. This was identified and included in the category of professionalism and its subcategory, professional gain.

### **Strengths of the Study**

In this study, the grounded theory method (GTM) was used as a basis of understanding of nurses' and midwives' experiences and the decision process used to either continue or not to continue care during the Ebola outbreak. The study provided a description of the experiences and decision process grounded in their lived experiences. The GTM allows for the identified categories to be developed until saturation. The ingredients that combined to characterize the experiences of nurses and midwives during the Ebola outbreak in Liberia, West Africa are highlighted, and the influences and outcomes of the decision process used by the nurses and midwives have been identified. As a result, the researcher has provided a description of why nurses and midwives chose to either care or not care for patients during the Ebola crises. This description was represented by a conceptual model identified from data analysis.

### **Limitations of the Study**

The participants in this study were mostly female so the findings indicated from the data may not reflect the male perspective. The participants were recruited from hospitals in the capital city in Liberia; complete representation of the experiences of nurses and midwives in the rural areas may therefore be lacking. The interviewing skills of the researcher improved as the interviews progressed; therefore, earlier interviews might not have captured the level of depth as those that followed. However, interviews were conducted until data saturation was achieved.

### **Applying the Findings to the Profession of Nursing, Theory, Research and Policy**

The findings of this study can be applicable for nursing practice, and could also be applicable for the development of substantive and formative theory. The methods and finding of this study could be transferable when considering future research endeavors. Additionally, policy decisions could be informed by the results of this study.

### ***Applying the Findings to Nursing Practice***

The conceptual model identified from data analysis which represents the decision process involved in nurses' and midwives' choices either to care or not care for patients during the Ebola outbreak in Liberia could provide guidance and understanding in the basic social process involved. This understanding could be helpful for professional nurses, nurse administrators, and nurse educators in the area of Ebola nursing care and care in other epidemic situations.

Nursing curricula should include Ebola nursing care. This could involve training on the management of nurse-patient relationships, empowering nurse-nurse relationships,

the proper use of the enhanced personal protective equipment and protective measures, and adjustment techniques. Training for Ebola nursing care would also involve ethical considerations and mental or psychological indications. The clinical skills which emerged from the perspective of nurses working during the outbreak could be incorporated in the training of student nurses. The nursing professional boards and regulatory bodies could continue to assure continuous education on Ebola nursing care for professional nurses.. Community health education on Ebola could be conducted by nurses and midwives to help communities understand the disease and improve behavior towards health care workers.

### ***Applying Findings to Nursing Theory Development***

Frameworks and theories on disaster care, including epidemic outbreaks such as Ebola, could be developed to provide guidelines for nursing practice. Further exploration by applying the findings of this study and theoretical sampling could be conducted in Liberia. The exploration could include the two other countries in the West African region affected by the Ebola outbreak: Guinea and Sierra Leone. Further exploration could lead to the development of a substantive theory or formal theory. A situation-specific theory also could be developed to provide guidelines for nursing practice. Further research for situation-specific theory development could explore the experiences and work decision processes of nurses and midwives in Liberia during the outbreak. A middle range theory development could explore questions that consider all HCWs in all the counties in Liberia or throughout the West African region, especially Guinea and Sierra Leone.

### ***Applying Findings to Future Research in Nursing***

Ethnographic research is needed to understand the implications of specific tribal or cultural beliefs, values, and practices not explored through this study.. Studies to explore the experiences of nurse administrators and student nurses during the Ebola outbreak in Liberia could be conducted in the future. The scope of study also could be expanded in the future to provide representation of the experiences of other HCWs in Liberia or other settings. Furthermore, should measures be found that fit the categories and subcategories identified in this study, the relationship with the work decision outcomes could be tested quantitatively through correlation and logistic regression analysis. This quantitative approach could infer generalizability of the findings. These measures could be identified through the development of a standard measurement tool through a factorial analysis study. Finally, an intervention study could be designed that tests ways of strengthening the modes of safe touch with patients and among nurses and midwives that would lessen the feelings of isolation and loss of personal connection, and improve the nurse-patient relationship.

### ***Applying Findings to Nursing Policy Development***

The conceptual model developed from data analysis could provide guidance and understanding for policy development by nurse administrators, nursing professional boards and regulatory bodies, including government leaders. The nursing professional boards and regulatory bodies, in conjunction with government leaders, could apply the findings of this study in planning and developing policies for Ebola nursing care. The key consideration in policy development on Ebola nursing care in Liberia should be the emotional, value commitments, and family considerations of nurses and midwives. The

role that faith plays in the decisions made by nurses and midwives should also be recognized when making policies.

### **Conclusions**

The Ebola outbreak in Liberia caused unimaginable devastation and deaths of many including nurses, midwives, and other HCWs. HCWs are key in the quest for the containment of disease outbreak and maintenance of public health. These situations result in the dilemma of choosing between fear and responsibility. The experiences of nurses and midwives during the Ebola outbreak in Liberia were characterized largely by living in fear and terror, which was heavily centered on their family concerns, responsibilities, and demands. The decision process involved in determining whether to work or not was therefore related greatly to family concerns. Other concerns and influences were highlighted by the findings which included the nurses' and midwives' spiritual resources, among others. Those who worked used more personal resources, followed by institutional and governmental influences that came later. Those who worked had to deal with the changing dynamics of the nurse-patient relationship, and team nursing relationship. The nurses and midwives who worked during the Ebola outbreak reported feeling professionally fulfilled. Ebola nursing care training and the provision of protective equipment most likely alleviated fear and boosted the confidence of nurses and midwives during the Ebola outbreak. Those who did not work felt deprived of their professional obligations; however, they compensated by caring for their families and neighbors while being conscious of the need to adhere to safety measures. The welfare of the families of nurses and midwives should be considered, as well as spiritual issues, in planning and policy making during the preparation for similar future events. It would be beneficial to

include Ebola nursing care training in nursing curricula and continuous education for professional nurses by nurse educators, administrators, hospital administration and government leaders. It is also necessary to ensure the continuous provision of protective equipment for nurses, midwives, and all HCWs by hospital administration and government leaders.

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**APPENDIX A**  
**DEMOGRAPHIC INTERVIEW**

Participant ID # \_\_\_\_\_ Hospital ID # \_\_\_\_\_

Age: \_\_\_\_\_ Gender: \_\_\_\_\_

Marital Status: \_\_\_\_\_ Number of children or dependents: \_\_\_\_\_

RN \_\_\_\_\_/RM \_\_\_\_\_ Total years of working experience: \_\_\_\_\_

Educational level: Diploma \_\_\_\_\_ AA \_\_\_\_\_ BSc. \_\_\_\_\_ MSC/MPH \_\_\_\_\_ PhD \_\_\_\_\_

Religious affiliation: \_\_\_\_\_

Will you describe yourself as a spiritual person: Yes \_\_\_\_\_ No \_\_\_\_\_ Not decided \_\_\_\_\_

Monthly Income: \$ \_\_\_\_\_ (LD)

What would you describe your income as: More than adequate \_\_\_\_\_ adequate \_\_\_\_\_  
Less than adequate \_\_\_\_\_

Worked during the Ebola outbreak: Yes \_\_\_\_\_ No \_\_\_\_\_

If Yes:

Worked in an Ebola Emergency Treatment Unit during the outbreak: Yes \_\_\_\_\_ No \_\_\_\_\_

Income during the Ebola outbreak: \$ \_\_\_\_\_ (LD)

What would you describe your income as: More than adequate \_\_\_\_\_ adequate \_\_\_\_\_  
Less than adequate \_\_\_\_\_

Did you have access to personal protective equipment: Yes \_\_\_\_\_ No \_\_\_\_\_

## APPENDIX B

### INTERVIEW GUIDE

1. What were your experiences during the Ebola outbreak in Liberia?
2. If you did not work during the outbreak:
  - a. What made you to stop working during the crisis?
  - b. What did you do professionally or personally instead?
  - c. Are there other ways you think you might have handled the situation under similar circumstances?

If you worked during the outbreak:

- a. What made you continue working during the crisis?
  - b. What resources did you draw on to help you handle the situation?
  - c. Are there other ways you think you might have handled the situation under similar circumstances?
3. How did you feel about working during the recent Ebola outbreak in Liberia?
  - a. In what ways did your personal resources contribute in influencing your willingness to work during the crisis?
  - b. In what ways did your institution or hospital influence your willingness to work during the crisis?
  - c. In what ways did the political climate (e.g. news reports, television, national leaders) influence your willingness to work during the crisis?
  - d. In what ways did the government (local and national) influence your willingness to work during the crisis?
    - i. Which one of these resources was most influential and why?

- ii. If any of these resources were non-influential, what difference would it have made for your willingness to work if they were influential?
4. What were your thoughts as you received and cared for patients during the Ebola outbreak in Liberia?
  - i. How did your experiences or thoughts and feelings during the Ebola outbreak affect how you received and care for patients?
  - ii. If family members were no longer touching or interacting with the nurse, how did it make you feel?
  - iii. When family members discouraged you to work, how did you respond? How did you feel and react to them and your work?
  - iv. When nurses were no longer touching each other, how did you feel? How did it affect you professionally? What other measures do you think could you have taken?

Follow-up questions:

5. If a nurse was stigmatized; how did it make you feel? How did you react?
6. If a nurse cared for a patient or worked with a colleague who died from Ebola; what effect did it have on you? What made you continue to work (or not continue to work)?
7. When the hospital closed down (if it did), what effect did it have on you or your work?
8. What did you gain from your experience personally? Professionally?
9. What lessons did you learn from your experience?

## APPENDIX C (1)

### LETTER OF SUPPORT

The Director of Nursing Services  
SDA Cooper Hospital  
12<sup>th</sup> Street, Sinkor  
Monrovia, Liberia

#### **Request for Approval and Support for Conducting Interviews**

This is to request your kind permission to conduct semi-structured interviews with nurses and midwives in your hospital who volunteer to participate in my research. I am conducting a dissertation study on the “Experiences of Nurses and Midwives during the Ebola outbreak in Liberia, West Africa.” Nurses will be interviewed about their experiences of providing care during the outbreak.

I am a PhD Candidate at Loma Linda University School of Nursing, California, U.S. I am asking for your assistance by providing a list with contact information of nurses and midwives employed in your hospital who have a minimum of one year experience, and who were hospital employed, whether or not they worked, during the Ebola Outbreak. The interview will be conducted for approximately one hour and participants will sign an informed consent form prior to the interviews. Nurses and midwives will be asked about their experiences and perceptions during the time of the Ebola crises. All information gathered during the interviews will be confidential and anonymously stored with protective measures.

Thank you for your anticipated support and approval.

Yours sincerely,

ESK  
Erhuvwukorotu Kollie PhD(c), RN, RM  
0886712299

## APPENDIX C (2)

### LETTER OF SUPPORT

The General Administrator  
Redemption Hospital  
New Kru Town  
Monrovia  
Liberia

Dear Sir/Madam,

#### **Request for Approval and Support for Conducting Interviews**

This is to request your kind permission to conduct semi-structured interviews with nurses and midwives in your hospital who volunteer to participate in my research. I am conducting a dissertation study on the “Experiences of Nurses and Midwives during the Ebola outbreak in Liberia, West Africa.” Nurses will be interviewed about their experiences of providing care during the outbreak.

I am a PhD Candidate at Loma Linda University School of Nursing, California, U.S. I am asking for your assistance by providing a list with contact information of nurses and midwives employed in your hospital who have a minimum of one year experience, and who were hospital employed, whether or not they worked, during the Ebola Outbreak. The interview will be conducted for approximately one hour and participants will sign an informed consent form prior to the interviews. Nurses and midwives will be asked about their experiences and perceptions during the time of the Ebola crises. All information gathered during the interviews will be confidential and anonymously stored with protective measures.

Thank you for your anticipated support and approval.

Yours sincerely,

ESK  
Erhuvwukorotu Kollie PhD(c), RN, RM  
0886712299

## APPENDIX C (3)

### LETTER OF SUPPORT

The Hospital Administrator  
ELWA Hospital  
Monrovia  
Liberia

Dear Sir/Madam,

#### **Request for Approval and Support for Conducting Interviews**

This is to request your kind permission to conduct semi-structured interviews with nurses and midwives in your hospital who volunteer to participate in my research. I am conducting a dissertation study on the “Experiences of Nurses and Midwives during the Ebola outbreak in Liberia, West Africa.” Nurses will be interviewed about their experiences of providing care during the outbreak.

I am a PhD Candidate at Loma Linda University School of Nursing, California, USA. I am asking for your assistance by providing a list with contact information of nurses and midwives employed in your hospital who have a minimum of one year experience, and who were hospital employed, whether or not they worked, during the Ebola Outbreak. The interview will be conducted for approximately one hour and participants will sign an informed consent form prior to the interviews. Nurses and midwives will be asked about their experiences and perceptions during the time of the Ebola crises. All information gathered during the interviews will be confidential and anonymously stored with protective measures.

Thank you for your anticipated support and approval.

Yours sincerely,

ESK  
Erhuvwukorotu Kollie PhD(c), RN, RM  
0886712299

## APPENDIX D

### SAMPLE OF TRANSCRIPTION DATA

Transcriptions	Codes
<p>I. I would like to know what your experiences were during the Ebola outbreak here in Liberia.</p> <p>S. During the Ebola outbreak I had whole lot of experiences, I being a nurse working I was so afraid and not knowing what I was going meet because Ebola itself is a new illness, a new disease condition and we never knew how to go about meeting our patient or dealing with our patient. So, it was not an easy thing. We were working under stress, under fear, under tension and it was very, very terrible. Many at times you don't know who is who, and then they come in the facility, we have to like check them but we were not train properly by then. So, it wasn't easy.</p> <p>I. So, with all the fear what made you to continue working?</p> <p>S. yes, it just like because the passion of the job and the setting that we were in and we were call to serve. It was our own Dr., Dr. D. and Dr. B. who was like at the front. And when you see your bosses at the front working you have to follow. Even though yes as I said we was afraid but they around working and encouraging us. We was at the front working yes, we was like the soldiers but nothing we could do because we could not run we were around because we cannot run we had to remain to serve our country. So, we were there serving making sure that things go on. Even though at a point in time we had to withdraw because I think one of the questionnaires I answer here saying that yes we had some supply of PPE or so but it was not much and so when we went out of it we had to withdraw. And then we close down for about I think a week or two and then we came back on board. Started again as and you know as skeleton staffs just few of us who were willing at that time but it was very very terrible. people die, pregnant women die, at one point in time there was a patient who came in bleeding and she never disclose her location not known she was from a area that had an outbreak and she call another location and then we attended to this patient but we were all by then protected it was only one of our doctor by then was and you know for that passion ahn... But we talk it him, we said it to him, we said but Doc! you not think this could be Ebola he said no because this patient was also HIV positive and then we were also thinking about Ebola he said well, maybe it could be HIV at the end stage that's why the patient is so sick and then maybe she aborting or so. So he did not mind he did it before he came to himself. Not wearing his protective PPE or his appropriate PPE before meeting the patient and later on before he came to himself only to find out that this patient was positive Ebola. And so through that patient my doctor came down but by the grace of God he survived.</p> <p>I. So can you describe that fear that trauma that you are talking about</p> <p>S. this patient when she came we had to isolate her, by then we never had proper isolation area. but we found a room and we put her in that room because we were afraid even though we had to go in that room but we were</p>	

afraid yes we were afraid. Even going there to either give her medication, we were very very careful and then afraid but we had to do it, we go to serve medication, open line, put up fluids, insert folley's catheter also for that patient but while inserting the folley's catheter I didn't... I only helped to carry the supply but I didn't go around again to aid the doctor because... we like... we told him that this could be Ebola and it has to do with your consciousness. If you feel that this is it... you supposed to the Doctor or your team member supposed to listen to you but after we talked to him, he couldn't listen may be, because of the passion that he had and he said he wanted to save the child. She was full term yes according to her she was full term and the pregnancy you know some people got their fetus I mean their abdomen grow bigger than the what it suppose to be according to the gestational age and that's just how she were. Maybe she had bigger fetus in there that's why the abdomen was that way. So, he was convenience that she was at term, we all were convinced that she was at term. But she was not actually at term she was around seven months so he wanted to do the surgery to save the child because she was bleeding and it possible that child could get drawn in there and so he decided to do the surgery. That's when we were inserting catheter, he wanted to insert catheter but we all withdrew ourselves with the insertion of the folley's catheter because we were afraid. So, I did not aid the doctor in that he did that alone with the patient. It was then I notice her touching him because he had on only the glove, he had on a VIA shirt and between the VIA shirt and the glove there was an opening, so she held his hands while he was inserting. Most pregnant women at the time they are in labor or while they are having some problems or bleeding they try to play with them self so her hands was already in infected either with her fluid or blood or so and that's what she put on him. And he said he couldn't remember whether he ever washed his hands properly to wash out dirt and after few days he started having the symptoms.

I. so what were those resources that you holding on to keep working  
S. We had limited..... it was through Samaritan purse later on came with few but we did not have much. we were not trained, we were not really trained, as I said Ebola is a new disease condition we don't know how it go about....we were just trying something... yes... but we never had much supplies. We were only managing. Few gowns apron butts we had it yes but it was not much.

I. so looking at the situation are there other ways you think you could better handle it  
S. of course, now we know because we have had series of trainings and we had supplies and then the training that we have had something called the SQS training that is been done nation wild, ahh... we assessed the patient, first know our risk and then before we get to the patient than we know what to wear and what not to wear. Because by then we just use to wear the PPE whole day wants you are working you keep it on yes, and then we never knew that even you could infect yourself by even taking care of another patient and not discarding the PPE. You keep it on and go to the next one you infect yourself or you infect even the patient, but now we know that we use the appropriate PPE one at time if you feel that the patient posses risk to you



while doing your care you wear your what is appropriate and after doing your care you discard it and then wash your hands properly. So washing hands is the key thing we use for IPC measure that we have learned. Yes to wash your hands properly every time you see a patient between each patient you do that make sure you decontaminate the area that you work. Once you go in the patient care area consider everything that on you to be contaminated. So we consider that ehn ehn how you called it, as contagious thing that is on you. so, you have to undress yourself discard all of those things them and then before you come to the place of work. Do not leave the PPE on you and then you come to may be in your office or you leave your glove on your hands and then take pen to write no. all those precautionary measures we have learn it and so, I guess if it reoccur we will be prepare yes.

I. SO, THE SQS method what is it?

S. Safe and quality health service... yes.... they want us to keep safe and also we should continue to give quality health service ...yes.

I. so the way you people were afraid and left the doctor in charge of the patient do you think there are better way you would have done it better than allowing the doctor one to carry on the care.

S. auh... maybe if we had the second thought we could do it the other way around like just how we are trained now we could get dress also and help the doctor, just continue to do what we can but by then we were not trained. So, the fear was so high, yes because what you don't know is older than you that why people usually say yes.

I. so how did you earn work during the Ebola Outbreak?

S. yes because us nurses after working and you see good outcome or good result you feel very fine, even though yes we were afraid but later on we got to know that through our little effort that we made, We made ourselves available and we imparted lives, we save lives and that should be our primary goal that we were able to save or I was able to save lives. So, I felt fine at the end of the whole episode and apart from there because of the little step that we took it make other people to be brave and follow and so we were able to reach some where

I. In what way did your personal resources, personally you were able to work and handle the situation at the time

S. on my own part now...

I. yes what did you do to help you face the challenges at that time?

S. Well, I encourage myself, just encouragement and you know you just have to give yourself that encouragement say I can make it and through that I was able to do that

I. ok in what way did the hospital contribute in influencing your willingness to come to work?

S. ok.. the hospital never had it by then I as said they were not paying extra but they were like through those donation that were given they decided they said we have to encourage our staffs or we have to motivate our staffs. So like weekly or every two weeks that they use to give like food supplies or just anything that was brought at the unit or for the care or who so ever just

anything that was brought for the institution we use to decide but we use to make sure our patients have access first then the other one we can decide to distribute it to keep people moving because by then more people were out of job if you were a wife either your husband out of job or sitting home nothing doing so just to motivate people they use to do it just anything that was available they will share it on us.

I. so politically how did the political climate contribute in influencing you to come to work?

S. well, I don't know. there was nothing that they were doing to encourage to come to work it was just that la violence they were using yes, you must go to work if you don't go to work and it was not an influence because they were not influencing us because they never had supplies they never had nothing to give us. I can remember when it started they brought only a box of PPE and a box of glove finish. And the PPE even they brought it was not the enhance at that time as we can called it the hemorrhagic virus suit it was just the ordinary gown and just one box and so we never had things to work with how will you and you know as a government because that the government was doing that politically they say you have to go to work and never even had supplies to work. Had it not been our partners who were there for us that were able to help us we wouldn't have even work. So there was nothing they did that influences us to go to work. We only did it on our own.

I. S what did the ministry do to influence you

S. nothing nothing

I. So of the three that we talked about, your personal resources, the hospital, and the political I mean the government which one influence you the most.

S. my own self because at that time even what they were giving if you think about the risk in the job you will not even want to come but yourself having passion for the job that's why.

I. So as you were receiving patients and caring for them what was those thoughts that were coming to you during the outbreak

S. well all those thoughts that were coming across my mind was like yes I am helping patient why if I get infected. Sometime because of fear, I can remember one time I came to work I just felt that I was sick and I was just like for everybody I see come and do my temperature I am not feeling fine come and take my temperature. So that just how I was behaving because of fear and I was always thinking yes oo... I am serving and I am there to save life why if I get infected and you know and then die who will take care of my children. So it was always on my mind yes because I am a human.

I. how did your experiences affect the way you care and receive patients

S. because of my experience, had it not been I had those experience I wouldn't have learn from them. So, because I had those experiences that now I am able to better take care for my patient and give them good care or quality care.

I. during the time of the Ebola with the experiences that you had, how did those experiences help you care for your patients

S. because of the experience that I had I was free now taking care of my patients and did what so ever for them with the little training that I had. I was

encouraged, and was getting stronger and stronger and fear was going away gradually, gradually.

I. what about your thoughts, what were those thoughts coming to your mind?

S. like I said I just used to think what if I be caring for these patients and get infected? I had that thought but I just continue doing what I could do and my precautionary measures and what ever for the patients.

I. in a case like you came and started saying come and do my temperature come and do my temperature how did that affect the way you care for the patients?

S. Someday I can care for this other patient and say but then let me just rest now. And there was a policy or treatment that we had here, if you feel that you are not feeling well you don't have to work for that day. They will excuse you for that day either you stay home for that day. Just say I am not feeling too well because it has to do with your mind if you are caring a patient and your mind is telling you don't do it because you need to concentrate if not you might even affect another patient from the care because you will not be thinking properly so if your mind is not set we can excuse you for that day. So the very day I will be talking about my temperature like this, like this I will not do anything much.

I. so, can you describe your attitude

S. auh... I was stressed up, some days we talk harshly to the patients because this is do or die matter; the patient that will knew that move them from among the crowd during triage, and then they will tell you, stay aside and some of them can even want to force their way through: "I not get Ebola! what you will keep me"? and then they will force their way through. During that time we frowned at the patient because if you don't do that, you do know how many patients you will infect you or their other friends. So like that I frowned at them with all of that just to achieve my goal. I know that was not the right one but we had to do it, ..... yes.

I. with your attitude how will you have reacted to a patient under different circumstances?

S. beside the situation where I was like stress up and then talking to patient harshly sometime I think we have learned it in our ethics that we should be polite to our patients and when we do that the patient will be able to give and tell us whatever that is happening, so if it wasn't the crisis time I would not have used that same method ethically to be polite to my patient.

I. You talk about a doctor who came down with the Ebola virus so how does that experience make you to feel when you kept working?

S. when that doctor got infected you know that particular day the day that they took him to hospital I was not at work that day I left for home. It was over the night they did the test and said he was positive the next day I did not come to work, the following day when I came to work it was like "we were on the mat". The south easterners can say we on the mat everybody was down. We cried not knowing that we were nurses, I mean we broke down but not withstanding after few days we started again.

I. what effect did that had on you?

S. It plays on my mind psychologically because if the doctor can come down I myself I can come down.

I. and how did that make you willing to work or keeping working?

S. Yes that is what I said.... that it was just from within that all,... yes that encouragement just came from within. But it wasn't someone who will come to encourage you....you need to work.... you need to work... yes, we saw our people dying.... yes people died and had at least something that we could do.... it was not everybody at that time that had Ebola so we stood in the gap, so that we can be able to help other people, but if to say we would just stay away people will die more and more because nobody was taking initiative, except for my institution that started and then from there that how people follow it also.

I. So how did you prepare for the situation?

S. Next time?

I. Yes like when the doctor came down and you were still working how prepared were you to face the challenge ahead

S. Ok for that because we told the doctor that this could be Ebola and he did not listen. So, we grouped ourselves for short training or I can say a meeting and then another doctor told us that this is a team work so; we need to listen to one another. Whenever your friend just whispered; may be it is their inner man telling them, so listen. So, it was the trend that we started taking after we meet we told each other to listen to each other or listen to your team member. And we all went through that so if you are not sure get the next person to intervene, we started working that way can you imagine down to the security were part of the team. One time it was the receptionist who sat back and watched a doctor as he was doing assessment and then was planning to do a surgery, so the receptionist came to me and said the way that man is..... because you people are the doctors I don't think that it is typhoid perforation.... but go and see too because the doctor is planning to have surgery. So, I went and saw him I noticed too that something else was the problem so, I went and told the doctor and he never listened. I told another doctor from there he said oh yes I will take your advice. So we worked collaboratively and took the man's test. This was a man that walked in by himself complaining of stomach pain and red eyes, after the test his result was positive and was taking to the treatment unit. So this was how we were working together.

I. So, how was the nurse and patient relationship?

S. it was good,

I. so how about nurse and nurse relationship

S. We were all fine here. We were all like our brother because you don't want your friend to get infected because they will infect you too, so, we were watching one another; you have to do this ooo...yes and you know just like that.

I. how did that make you feel like nurses were not hugging and shaking hands; how did that experience make you feel

S. yes it was something strange to us and some time we do it unconsciously. And you know no shaking hand... don't touch me ooo and it was just like a

fun to us after sometime. But we did not do... we did not eat together we had the IPC people monitoring. But for the shaking hands it was hard for us sometime we do it before we come to ourselves.

I. So how did that make you feel?

S. we were not happy about that but we just had to do it... it was just like were going through another stress again.

I. so how did that affect you professionally?

S. actually for my profession we know that we suppose to show affection right, so it was that we not doing it because you know they just need a touch or you walk with them, not everyone that come to the hospital are sick. Some just need tender care but during this particular time we were not doing this.

I. So what other measure you took to be put in place by nurses apart from don't touch your friends, don't eat together don't shake hands what are some other measures

S. we were just always talking.... it is not that we hate you but we were always talking to one another and the talking is part of health education.

I. So how did your family accept you that you are working in a high risk zone

S. Most of our family will tell you don't go to work from all over even from the state as long they know that you are connected to this institution. Even one of my friends sister told her not to come to work so when she is at work and they call her she will say I am home.so they were telling us not to come to work even in the community if they notice that you are working to this institution they then stigmatize you.

I. so how did you feel about that?

S. Very bad, because this is a crisis this is a condition that came in the country and we want it to go away so how will this go away if we not there to help.

When we go to help then people stigmatize us it was to so frustrating yes.

I. So how did you react to that?

S. I didn't bother because I knew what I was doing was the right thing, because I wanted to save life. Sometimes I tried to talk but even if you tried to, they will not listen. So if you talk and then nothing, you just leave them but it was a challenge.

I. And your family when they discouraged you don't go to work how did respond to that?

S. Yes we as nurses we are counselors so we just counsel them yes we talk to them that we have to do this we were call to do this so if you say I can't go to work than what will I do so I had to go it was one point in time even I felt like I was sick I had to go home and I told all my children to stay away from me it was only my husband that stay with me in my room to help me in case of any serious issues at night

I. so what other way you would have handled it apart from telling them to stay away?

S. for that crisis I never had any other way to handle it because the thing here is that if you are sick or you feel any symptom you have to isolate yourself.

That was the mandate we were trained to isolate yourself from your family because they are children they don't know even if you tell them they will still

<p>do it so I did it in a harsh manner because what if I was positive so that was the only thing I could do.</p> <p>I.so what did you gain from the entire situation?</p> <p>S. what I gain was.... we are call to serve and to save life even though there were some challenges but sometimes we will face those challenges and we had to keep firm, they say stay calm and do the right thing. So I was afraid by then but by encouraging myself I became calm until I could even continue to do what I was doing for my patient. Actually that was what I learnt from there I did something and I will continue to do something for someone to save life</p> <p>I. So personally what did you do for someone to save life?</p> <p>S. for me I got stronger yes it give me that strength in my profession in to forge ahead. When we talk about finance no nothing we got but I just got in it... my work deeper and deeper and love my work.</p> <p>I. So what lesson can we learn in regards to student nurses, nurses, and nurse educator s that in case of future challenge you can be able to face it</p> <p>S Well what I learn is we should be able take our universal precautions take all patients as this patient will infect me once you know that this patient is next to you prevent every infection and prevent the spread.</p> <p>I. thank you very much</p> <p>S. ok thank you too</p>	
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## APPENDIX E (1)

### HUMAN SUBJECTS APPROVAL

Version Date: 07/07/2014

#### IRB Authorization Agreement

Name of Institution or Organization Providing IRB Review (Institution A): **University of Liberia**

IRB Registration #: **00004982**

Federalwide Assurance (FWA) #: **00004853**

Name of Institution Relying on the Designated IRB (Institution B):

**Loma Linda University Health**

OHRP Federalwide Assurance (FWA) #: **00006447**

The Officials signing below agree that **Loma Linda University Health** may rely on the designated IRB for review and continuing oversight of its human subject research described below: (*check one*)

This agreement applies to all human subject research covered by Institution B's FWA.

This agreement is limited to the following specific protocol(s):

Name of Research Project: The Experiences of Nurses and Midwives during the Ebola outbreak in Liberia, West Africa

Name of Principal Investigator: Erhuvwukorotu Kollie, RN, Ph.D (c)

Sponsor or Funding Agency:

Award Number, if any: \_\_\_\_\_

Other (*describe*):

The review and continuing oversight performed by the designated IRB will meet the human subjects protection requirements of Institution B's OHRP-approved FWA. The IRB at Institution A will follow written procedures for reporting its findings and actions to appropriate officials at Institution B. Relevant minutes of IRB meetings will be made available to Institution B upon request. Institution B remains responsible for ensuring compliance with the IRB's determinations and with the terms of its OHRP-approved Assurance. This document must be kept on file at both institutions and provided to OHRP upon request.

Signature of Signatory Official (Institution A):  Date: **9/21/2015**

Print Full Name: **Jemee K. Tegli** Institutional Title: **IRB Coordinator**

Signature of Signatory Official (Institution B): \_\_\_\_\_ Date: \_\_\_\_\_

Print Full Name: **Travis Losey, M.D.** Institutional Title: **Chair, LLUH Institutional Review Board**

## APPENDIX E (2)

### HUMAN SUBJECTS APPROVAL



UNIVERSITY OF LIBERIA  
CAPITOL HILL  
MONROVIA, LIBERIA  
WEST AFRICA



Office of the Institution Review Board

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September 17, 2015

Mde. Korotu Kollie  
Loma Linda University School of Nursing  
11261 Campus Street, Loma Linda  
CA, 92350

**Subj: The Experiences of Nurses and Midwives during the Ebola outbreak in Liberia, West Africa**

Dear Mde. Kollie,

In accordance with 45 CFR 46, the human subjects protocol of the above mentioned research study has been approved by the University of Liberia - Pacific Institute for Research & Evaluation Institutional Review Board (UL-PIRE IRB) through an expedited review held on September 4, 2014. This IRB will review the protocol during the implementation of the study to confirm human subject procedures. This approval expires on September 3, 2016.

Should there be other additional changes in protocols or incidents involving human subjects during the conduct of this research, you are required to report them right away to the IRB. Changes in research during the period for which IRB approval has already been granted may not be implemented without prior IRB review and approval; except where necessary to protect subjects. Proposed changes to approve human subject protocol must be reported promptly to the IRB for review using a continuation review format.

The IRB will require you to also submit a progress report during the implementation of your study. For your record, our IRB Number 00004982 and Federal-wide Assurance number is FWA 00004853, and our organization number is IOR0004203.

Kind regards.

Sincerely yours,

Ms. Cecelia A. Morris, MSN  
Chairperson, ULPIRE-IRB

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E-mail: [morris.cecilia@yahoo.com](mailto:morris.cecilia@yahoo.com) / [tegli@ul-pireafrika.org](mailto:tegli@ul-pireafrika.org) Phone: 0886-522-833 / 0886-583-774



## APPENDIX F

### INFORMED CONSENT FORM

**TITLE:** The Experiences of Nurses and Midwives during the Ebola outbreak in Liberia, West Africa

**PRINCIPAL INVESTIGATOR:** Erhuvwukorotu Kollie, RN, PhD(c)  
Adventist University of West Africa  
Roberts Field Highway, Schifflin, Lower Margibi  
Liberia  
k2echantres@yahoo.co.uk

#### WHY IS THIS STUDY BEING DONE?

The purpose of the study is to explore the experiences of nurses and midwives, including the influences and their behavior towards rendering care to patients during the Ebola outbreak in Liberia, West Africa. You are invited to be in this study because you are a registered nurse or midwife in the Republic of Liberia, you have a minimum of one year working experience, and you are/were employed in a hospital in Liberia during the Ebola outbreak.

#### HOW MANY PEOPLE WILL TAKE PART IN THIS STUDY?

Approximately 30 individuals will participate in this study at three study centers (hospitals) in Liberia.

#### HOW LONG WILL THE STUDY GO ON?

Your participation in this study may require up to two days. One day for the first interview which might be the only interview and another day for a follow-up interview if required. If a second interview is required you will be contacted and an agreed time will be set. Each interview will take approximately 60 minutes of your time.

#### HOW WILL I BE INVOLVED?

You can participate in this study if you are registered nurse or midwife in Liberia, you live in live in Liberia, it does not matter whether you worked during the Ebola outbreak or not, as long as you were employed in a hospital during the Ebola outbreak. You will need to be able to inform the researcher of your daily experiences during the Ebola outbreak in a narrative interview.

You cannot participate in this study if you do not think that you can share your daily experiences and are uncomfortable with being audio recorded.

Participation in this study involves the following:

- Arranging a location for the interviews with the researcher at a time and place that is private, safe, and comfortable for you to talk, with limited distraction

- Giving permission for each interview to be audio recorded
- Participating in an interview that will last approximately 60 minutes, and in another interview if necessary that will be shorter for follow-up on items that the researcher might want to clarify with you
- Answering questions about your personal and professional daily experiences during the Ebola outbreak
- For example, I will ask you “How did you feel about working during the Ebola outbreak?”
- Answering questions about your background (age, education, marital history, spiritual resources, etc.), your source of emotional and social support, how your care for patients was affected during the Ebola outbreak

### **WHAT ARE THE REASONABLY FORESEEABLE RISKS OR DISCOMFORTS I MIGHT HAVE?**

This study poses no greater risk to you than what you routinely encounter in day-to-day life. Participating in this study may involve the following risks: sometimes individuals may feel uncomfortable being asked questions about their personal or professional experiences. Some questions may result in difficult or confusing memories, thoughts, or feelings. If at any time during the interview you find that you do not wish to participate you may refuse to continue. If you do not wish to answer a specific question you may decline. Your name and any other identifying information will not be included in the recording or transcribed data.

The audio recorded interview may be transcribed by an assistant who does not know you moreover, the transcribed data will be assessable to the members of my research committee, especially the chairperson. All records and research materials that identify you will be held confidential and kept separate from the audio recording and transcription. Any published document resulting from this study will not disclose your identity without your permission. Information identifying you will only be available to me.

### **WILL THERE BE ANY BENEFIT TO ME OR OTHERS?**

Although you may not personally benefit from this study, your participation may help nurses, midwives, and other health care practitioners to better utilize the insights in their practice during Ebola outbreaks or other life threatening communicable disease outbreak situations. In addition, the information learned from this study may benefit hospital administrators and health policy makers in the future to provide appropriate conditions of service for health workers and develop preparedness plans to better contain future disease outbreaks.

### **WHAT ARE MY RIGHTS AS A SUBJECT?**

Your participation in this study is entirely voluntary. You may refuse to participate or withdraw once the study has started. Your decision whether or not to participate or terminate at any time will not affect your ongoing relationship with the researcher or

anyone else. You do not give up any legal rights by participating in this study. If at any time you feel uncomfortable, you may refuse to answer questions.

### **WHAT COSTS ARE INVOLVED?**

There is no cost to you for participating in this study.

### **WILL I BE PAID TO PARTICIPATE IN THIS STUDY?**

You will be given an incentive of \$3.00 to cover expenses for commuting to designated location for the interview, agreed upon by both you and the researcher. (Equivalent to \$280 Liberian Dollars (LD) commuting between the farthest distances in the city of Monrovia will cost a minimum of \$250 LD roundtrip)

### **WHO DO I CALL IF I HAVE QUESTIONS?**

This study is being conducted by a doctoral student who will receive academic credit for her conduct of the study. If you have any questions about your rights as a research participant you may contact Mr. Jemee Tegli of the University of Liberia Pacific Institute of Research and Evaluation (UL-PIRE) Institutional Review Board (IRB) at the University of Liberia campus on cell #0886583774.

### **SUBJECT'S STATEMENT OF CONSENT**

- I have read the contents of the consent form and have listened to the verbal explanation given by the investigator.
- My questions concerning this study have been answered to my satisfaction.
- Signing this consent document does not waive my rights nor does it release the investigators, institution or sponsors from their responsibilities.
- *If applicable:* I may call Erhuvwukorotu Kollie during routine office hours at +231886712299 if I have additional questions or concerns.
- I hereby give voluntary consent to participate in this study.

I understand I will be given a copy of this consent form after signing it.

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Signature of Subject

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Printed Name of Subject

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Date

## INVESTIGATOR'S STATEMENT

I have reviewed the contents of this consent form with the person signing above. I have explained potential risks and benefits of the study.

\_\_\_\_\_  
Signature of Investigator

\_\_\_\_\_  
Printed Name of Investigator

\_\_\_\_\_  
Date

## APPENDIX G

### SAMPLE OF MEMOS

#### Memos for Focused Codes

	<b>Initial codes</b>	<b>Focused codes</b>	<b>Memos</b>
1	<p>Good experience, Challenge to learn from new experience, Advantage for career development, Becoming a case investigator, Adventurous, Advantaged career opportunity, Gaining knowledge about virus, Understanding preventive measures; Taking the chance, Curiosity and adventure, Gaining professional experience and confidence, More prepared for future occurrence, New clinical experience for health workers, Being optimistic about outcome, Enjoying helping the sick, Self-encouragement, Providing psychological support, Feeling actualized for being available to help, Fulfilled when people survive, Asking God to help be a blessing to people,</p> <p>Gaining experience of caring for Ebola patient, Feeling fine that she served during Outbreak, Gaining experience on</p>	Gainful experience	<p>This is a new concept, the nurses described the experience as good because it challenged them to learn something new, and adventure, and added to their career experience which will enhance their ability to confidently and competently manage future cases. Prior to this experience they were novices to the phenomena of nursing Ebola patients. So they perceived the situation to be an opportunity for career development. They saw the situation from a bright side and gave it a new perspective</p>

	<p>the job for development of skills</p> <p>Enjoying working with patient, Attaining professional satisfaction, Improvement on career development and experience,</p> <p>Improvement on nursing protocol and protection,</p> <p>Good experience when you gain experience professionally to clinically experience a new phenomenon</p>		
2	<p>Discouraging bad experience, Being in contact with suspected case, Worse experience physical contact with infected patient, Dying colleagues and friends, Fed up with death news, Feeling bad about situation, Feeling down hearted, Shedding tears</p>	<p>Feeling psychological and emotional pain</p>	<p>Same as site 1</p>
3	<p>Developing psychosymptoms</p>	<p>Developing psychosymptoms</p>	<p>Same as site 1</p>
4	<p>Experiencing fear , Fear for family safety, Fear of contracting Ebola, Fearful and confused patients with Ebola, Stretching anxiety levels, death of patients, Having fear of contracting Ebola, Waiting to experience signs and symptoms of Ebola, Checking daily of temperature, Worrying about contracting Ebola, Feeling at risk for contracting Ebola, Experience gainful for</p>	<p>Fearful, terror experience</p>	<p>Same as concept from site 1, The death of a patient and/or a colleague to whom the nurse had previously been in very close physical contact, whether a suspected case or confirmed case, causes anxiety for the nurse, as they reflect on the possibility of contracting the virus through unsuspected exposure to the body fluids of the infected person</p>

	improved competence and confidence Terrible feelings, Terrible time, Confused and in terror, Psychologically affected because a sister died		
5	Pregnant and vulnerable, Pregnancy limiting experience, Not deterred by pregnancy, Unavailable antenatal care, Self-nursing care for pregnancy, Seeking antenatal care from classmates	Not deterred by personally limiting conditions	Despite personally limiting conditions like pregnancy, some of the nurses were not deterred to continue working
6	Initial misconception on nature of disease, High death due to unawareness and unpreparedness, Insufficient testing centers, Unskilled in chlorinated water preparation, Putting on enhanced PPE, Lacked knowledge about wearing PPE, Washing off blood from hands with chlorine, Ignorance causing high death rate, Close nurse-patient relationship increasing risk, Lack of equipment and awareness	Initial misconception and lack of knowledge/understanding of the Ebola virus disease affecting rate of transmission and practice of preventive control measures	Same as concept from site 1 At this time, when the outbreak just begun the nurses lacked the knowledge on how to wear and remove the PPE, and how to wash hands with 0.05% chlorine water. So the provision of the PPE needed to be done with the training on wearing and removal of PPE simultaneously. In the absence of this the nurse had to wear and remove PPE and wash hands from the blood spillage in the way they perceived to be the best, this made them feel like they could have put themselves at risk of contracting the disease
	Information and Communication controlling transmission, Research report of expected increased death rate motivational,	Information and Communication controlling transmission  Boosting confidence of nurses	The more the people understood the new disease Ebola, its virulence, mode of transmission, control measures, the more

	<p>Education and health promotion settled the uneasiness, Better understanding leading to decision to work, Training improving the use of protective gear, First encounter with disease process bringing about further understanding of disease</p>		<p>likely they would adhere to preventive behaviors, thereby controlling the disease. Moreover, The research report from studies that were ongoing for Ebola revealed an expected increase in death so this influenced positively the willingness of the nurse to continue working</p> <p>The training and education of the disease eased the tension, and improved understanding of the disease. Moreover going to work in the ETU to meet the patients with Ebola brought further understanding to the nurse. In combat, the situation is easier when you understand your opposition. Fighting the unknown enemy can be horrific.</p>
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