Cultural practices and the transmission of Ebola in Sierra Leone: Lessons learned from a medical anthropology perspective

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CULTURAL PRACTICES AND THE TRANSMISSION OF EBOLA IN
SIERRA LEONE: LESSONS LEARNED FROM A MEDICAL ANTHROPOLOGY
PERSPECTIVE

An Abstract of a Dissertation

Submitted

in Partial Fulfillment

Of the Requirements for the Degree

Doctor of Education

Approved:

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Dr. Christopher Edginton, Committee Chair

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Dr. Jennifer Waldron
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May 2019
ABSTRACT

The link between culture and infectious diseases has long been established. This is primarily due to the notion that culture shapes and influences people’s beliefs, actions, and ways of life. Such beliefs and their accompanying actions ultimately contribute to people’s risk of contracting an infectious disease. As such, there is a need for a cultural perspective in understanding infectious diseases because human behavior plays a significant role in the emergent, transmission, and spread of such diseases. This study explores the cultural practices that may have contributed to the transmission of Ebola Virus Disease (EVD) in Sierra Leone during the 2013-2016 outbreak. The aim was to reveal cultural practices such as funeral rituals, cultural belief, traditional healing, and family care, which may have contributed to EVD transmission in the country. The research questions were stated as: (1) What cultural practices contribute to and/or influence the transmission of Ebola?; and (2) How do cultural practices contribute to and/or influence Ebola transmission?

The study utilizes a qualitative research design that is based on interviewing. Qualitative research tends to focus on the beliefs, attitudes, and experiences of individuals as well as their perception regarding a specific issue/phenomenon. To better understand the issue being studied, it is important to explore the perspectives of individuals with a lived-experience of the problem or issue. For this study, research participants comprised of Ebola Survivors in Makeni City, which is located in Bombali district, Sierra Leone. Their lived-experiences are vital in discovering and understanding the influence of cultural practices on EVD transmission in Sierra Leone. Interviews were
audio recorded and transcribed for data analysis. A thematic content analysis approach based on coding technique was used to analyze the data.

The findings reveal a number of cultural practices – family care, traditional healing, funeral ritual, and cultural belief – that may have contributed to EVD transmission within households of the research participants. Additionally, Ebola Survivors experienced social stigma, as well as, interestingly, were aware of EVD including some factors that cause infection. The study concludes with recommendations for community health education, social mobilization, national health policy, and global health emergency response.
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Dr. Christopher Edginton, Chair

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May 2019
DEDICATION

I dedicate this dissertation to my parents – Mr. Abdul Karim and Mrs. Fatmata Yisie Jalloh – who instilled in us, their children, the value of education at an early age. They devoted their time, love, effort, and money to ensure their children receive an education. Despite the hardships my family endured over the years, my parents never gave up on our schooling. They supported us in every way they could. The value of education they imparted on me as a child and teenager serves as a motivation and has strengthened my educational pursuits over the years. Thank you Baaba and Neene¹ for raising me the way you did.

I would be negligent if I do not express gratitude to my best friend and life partner, Venus Hernandez Garibay. I owe her the starting and completion of the doctoral program, and this dissertation. Her persistent advice served me well, including the hard push to complete the dissertation once and for all. I would have been lost in this journey if it was not for her steadfast inspiration and priceless support each step of the way. Gracias mi amor [Thank you my love].

¹ Baaba is a Fula word for father and Neene means mother. Fula is my ethnic group and native language. I grew up speaking it. Fula is the language of communication between me and my parents.
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I want to thank my Dissertation Committee for riding along with me on this doctoral journey, including the dissertation process. They gave me their guidance, support, motivation, and ultimate friendship. I would not have started the doctoral program if it was not for Dr. Christopher Edginton. He encouraged and supported me immensely throughout this adventure. Dr. Edginton sparked my intellectual energy, which resulted in several publications in peer-reviewed journals. His inspiration and motivation gave me the enthusiasm needed to make it through this venture. As Chair of my Dissertation Committee, his guidance and steadfast support made the dissertation process an enjoyable one. Thank you for the priceless inspiration and support in every way.

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CHAPTER 1

INTRODUCTION

The link between culture and infectious diseases has long been established. This is primarily due to the notion that culture shapes and influences people’s beliefs, actions, and ways of life. Such beliefs and their accompanying actions ultimately contribute to people’s risk of contracting infectious diseases. As such, there is a need for a cultural perspective in understanding infectious diseases such as Ebola Virus Disease (hereinafter referred to as EVD or Ebola) because human behavior plays a significant role in the emergent, transmission, and spread of infectious diseases. DeSalle (1999) asserted, “understanding how disease spreads and to control disease requires a detailed understanding of human culture” (p. 3). This is because, as DeSalle (1999) observed, different cultures view diseases differently in terms of “what the disease is, what causes a specific disease, how it spreads, and whether or how to control it” (p. 155). Even within a country, different groups of people from diverse socio-economic, cultural, and ethnic backgrounds perceive diseases differently, and thus are affected differently, thereby using different ways to respond to such diseases.

To successfully control and contain the epidemic of a disease requires understanding the cultural differences relating to the disease in question. According DeSalle (1999), “the epidemiology of a particular disease – including its prevalence and how it spreads – may differ from one culture to another” (p. 155). It is thus important to understand the cultural influence on disease, which “requires us to observe how people in other cultures behave, to empathize with them, and to find ways to work with them to
understand disease” (DeSalle, 1999, p. 3). This then makes culture an extremely important factor in the study of any infectious disease. In particular, as Grey and Devlin (2015) pointed out, “diseases like Ebola expose the cultural and economic fault lines that already exist in a global society” (para. 12).

Infectious diseases are context-dependent in that in order to understand the disease in terms of its cause, effect, and how it spreads, we need to first understand the context. As noted by Armenakis and Kiefer (2007) in their discussion on the socio-cultural concepts of medical services, “all healthcare is practiced in a social and cultural context” (p. 20). This is the case because human behavior and culture plays a significant role in how diseases are established, maintained and spread. Infectious diseases, in general, are vulnerable to such cultural influences. For example, while people that are highly susceptible to Malaria infection in Sierra Leone sleep in thick traditional cotton clothes to prevent mosquito bites at night, some cultures in the Mediterranean use “fava bean in their diet, which appears to have antimalarial affect” (DeSalle, 1999, p. 32). In other words, culture plays a key role in health promotion and disease prevention.

Moreover, B. S. Hewlett and Hewlett (2008) reminded us that:

Culture is not only in the mind; political, social, and economic structures and policies within the community and outside the community are socially transmitted and therefore cultural. They are part of the culturally constructed niche in which individuals live and make decisions (p. 15).

Specifically, Sylvain Landry Faye, a Medical Anthropologist from Cheikh Anta Diop University in Dakar, Senegal, who was among one of the groups supporting front-line medical staff in Guinea during the 2013-2016 Ebola outbreak, argued that although doctors are traditionally trained to view disease “within a medical paradigm,” and thus
base their practice on trying to fix the medical problem such as by “treating viruses, prions and sick bodies rather than individuals,” such a view and practice limits the effectiveness of treating the individual as a whole, not just his/her body. For this reason, it is suggested that disease/sickness “involves a society and a culture and, if we want to cure it, we must take account of these parameters” (Fassassi, 2014). This illustrates the need to view disease/illness via a socio-cultural lens, in addition to the biomedical and epidemiological approaches to health promotion and disease prevention. Doing this would provide a holistic approach to tackle the emergence of disease outbreaks such as Ebola.

From this backdrop, DeSalle (1999) emphasized that:

A complete understanding of the influence of human cultural practices on disease will only come through the meddling of two important factors. The first is an understanding of individual human behavior risk factors and the second is an understanding of the over-arching political and social structure affected by disease (p. 33).

This is particularly evident in the emergence of rapid killing disease outbreaks across Africa such as Ebola. B. S. Hewlett and Hewlett (2008) found that although the last two decades have seen an increasing focus on cultural factors that are linked to infectious diseases in general, “little attention has been given to cultural factors associated with emerging infectious diseases, especially diseases such as Ebola that caused rapid death” (p. 61). A focus on emerging infectious diseases that are rapid-killers, such as Ebola, is crucial because these diseases leave behind not only a heavy death toll, but also shatters the social fabric of affected societies as well as cause major economic mayhem. Also,
Ebola, for example, occurs sporadically in the form of outbreaks, which makes it deadly and impossible to predict.

The Ebola outbreak in parts of West Africa left more than 25,000 people infected and killed over 11,000 individuals (Centers for Disease Control and Prevention [CDC], 2017; World Health Organization [WHO], 2016). The outbreak, which started in late December 2013 and officially declared over two years later, caused a significant disease burden and mortality nightmare in the three countries affected – Guinea, Liberia and Sierra Leone. It was the first time Ebola emerged in West Africa and affected multiple countries at the same time (see Chapter 2 for detailed discussion on this outbreak).

Multiple factors have been blamed as being responsible for making the EVD outbreak in parts of West Africa to be the largest and most disastrous in the history of this viral disease. These factors include poverty, weak health systems, slow response by the governments of Guinea, Liberia, Sierra Leone, and the International Community including WHO, public distrust of national governments and foreigners, as well as socio-cultural factors such as traditional healing, burial practices/funeral rituals, communal hand washing (and hand shake), and family care.

For example, high level of poverty, which is true for the three affected countries, is blamed for having fuelled, or at least, contributed to the emergence of the disease in West Africa. This is because, as Sanders, Sengupta, and Scott (2015) observed, “poverty drives people deeper into the forests to look for food and fuel, where they come into contact with animals harbouring the virus. The situation is compounded by the inability of a public health system to respond effectively” (p. 647). Similarly, Margaret Chan,
former Director General of WHO, blamed the severity of and disaster caused by EVD on poverty in the three affected countries. These countries are among the poorest in the world. They recently emerged from civil wars, which destroyed not only their economic infrastructure, but also weakens the social fabric of their nations (Chan, 2014). Also, distrust of governments, including anyone associated with the public system, is rampant in Guinea, Liberia, and Sierra Leone. Such distrust served as a stumbling block in the effort to control and contain the Ebola outbreak.

Moreover, all previous Ebola outbreaks occurred in remote rural areas, which are mostly characterized as harbouring high levels of poverty. Often, those infected, especially patient-zeros (first persons to be infected with the virus), are believed to have been very poor, and thus may have been forced to go into the forest to look for food. This in turn may have resulted in them coming into contact with wild animals and actually consuming bush-meat, which may have been infected by the Ebola virus.

However, this is not to suggest that Ebola is a disease of the poor. It provides a context within which rapid and significant transmission, and spread of the disease could be understood. If anything, Ebola does not discriminate, which was evident by the diversity of people, including doctors from the western world, who were infected. In other words, the virus has the potential to cause global threat in rich and poor nations alike. Nevertheless, the emergence of the disease often starts in poverty stricken regions, which then travel to all sectors of society, thereby affecting individuals from all socio-economic levels.
Specifically, the Ebola outbreak in Sierra Leone has been attributed to denial or ignorance, which is a result of socio-economic, religious, cultural, and political factors (M. Koroma & Lv, 2015). Socio-cultural factors, in particular, are suspected as culprits in this pandemic. These factors include funeral rituals/burial practices, traditional healing, sorcery, family care, and communal handshake and handwashing, among others (Abramowitz et al., 2015; Agusto, Teboh-Ewungkem, & Gumel, 2015; Borchert et al., 2011; Carey, 2014; Faye et al., 2015; Kouadio et al., 2015; M. Koroma & Lv, 2015; Ravi & Gauldin, 2014; Richards, 2016; Richards et al., 2015; Roca, Afolabi, Saidu, & Kampmann, 2015; Sanders et al., 2015; Troncoso, 2015).

The outbreak in West Africa is the largest since the disease was discovered slightly over four decades ago. It was bigger than all previous outbreaks combined in terms of the number of cases and deaths. With over 20,000 reported cases (WHO, 2016), this outbreak surpassed the previous largest outbreak in Uganda with 425 cases (WHO, 2018a) plus all previous outbreaks. Also, more people died from the West Africa outbreak than all previous outbreaks combined. According to Peter Piot, Director of the London School of Hygiene & Tropical Medicine and Chair of WHO Ebola Science Committee, who was also among the team that discovered the Ebola virus in 1976, the combined deaths from all previous outbreaks was around 1,700 (Piot, 2016), whereas the West African outbreak claimed over 11,000 lives (WHO, 2016).

Additionally, this outbreak was different in terms of its geographic spread. For the first time in the history of Ebola outbreaks, the disease travelled to urban areas. While nearly all previous outbreaks occurred in remote rural environments (i.e., villages, towns)
and only lasted for few months, the 2013-2016 outbreak spilled over urban areas, including the capital cities of the three affected countries, as well as, lasted over two years. In the history of EVD, only two times has an outbreak affected an urban area – 1995 in Kikwit, the Democratic Republic of Congo (DRC) and 2000-2001 in Northern Uganda. In particular, the outbreak in Northern Uganda impacted a well-known town, Gulu, affecting only one ethnic group called the Acholi (Hewlett & Amola, 2003). This outbreak was confined in this town and did not spread to other urban areas. Cenciarelli et al. (2015) synthesized the situation of previous outbreaks when compared to the West Africa pandemic in the following statement:

Previous outbreaks were in rural zones or isolated villages that offered quite easy containment (the only urban area previously affected by EVD was Kikwit (DRC), in 1995; however in that case the outbreak remained confined); in current outbreak the virus rapidly spread from one district to another or even in large cities, like Conakry (capital city of Guinea), Freetown (capital city of Sierra Leone), Monrovia (capital city of Liberia), and others. New cases arising in multiple locations make it difficult for response team to follow all signalled cases and even more difficult contact tracing activity (p. 8).

As a result, one may be thinking of the factor(s) that could have fuelled this disastrous outbreak in West Africa. This may be the case because the outbreak took everyone, including global health experts, by surprise in terms of its emergence, scope, lethality, and duration in the region.

**Statement of the Problem and Purpose of the Study**

While many regions in Africa have been hit hard by infectious diseases such as HIV/AIDS, Malaria, Tuberculosis, Yellow Fever, Cholera, and Measles, to name just a few, with thousands of people dying every day from preventable illnesses, Ebola is different. It is distinct in that “it remains mysterious and deadly” (B. S. Hewlett &
Hewlett, 2008, p. 3). As an emerging infectious disease, Ebola belong to a family of virus species, which scientists are working on getting to know in more detail. For example, there is a common lack of understanding about its origin/source of infection and natural history, as well as there is no licensed treatment or vaccine for the disease. To date, supportive care is the only means of treatment.

More importantly, Ebola is a disease of ignorance in that the 2013-2016 pandemic took everyone by surprise, including medical and public health professionals. We knew very little about this disease because it was the first time it hit the West African region. No one knew much about the disease, including what to do to halt its spread. Paul Richards, an Anthropologist with over 40 years of working and living in West Africa, observed that “Ebola is less a disease of poverty than a disease of ignorance. And that ignorance has to be addressed since it extends to us all” (Richards, 2016, p. 7). Such ignorance can partly be addressed by exploring the socio-cultural contribution(s) to this rapid killer-disease.

Although EVD doesn’t occur on an on-going basis like most common infectious diseases in Africa, such as Malaria, its sporadic outbreak causes health emergencies due to its deadly nature and capacity to infect and kill many people in a very short period. This makes the emerging disease a severe threat to the general public. Specifically, the 2013-2016 outbreak killed nearly 70% of all the people infected with the virus (Roca et al., 2015; Richards, 2016). Prior to the West Africa outbreak, the virus was rarely known around the world. But now, as a result of this outbreak, there is common knowledge of EVD.
For the first time in its history, EVD spread to large urban centers, including major cities in the affected countries (Cenciarelli et al., 2015; Faye et al., 2015; M. Koroma & Lv, 2015; Roca et al., 2015; Richards, 2016; Troncoso, 2015, WHO, 2018a). Richards (2016) explained that the 2013-2016 Ebola outbreak has been considered the first Ebola epidemic because previous outbreaks were “localized,” whereas this outbreak crossed national, regional, and international borders. It affected multiple countries at the same time – Guinea, Liberia, Nigeria, Mali, Sierra Leone, and Senegal, among others. On this basis, few months into the outbreak, WHO declared it a global public health emergency that posed international concern (WHO, 2014). As a result, national and international entities worked together to fight the deadly disease (Cenciarelli et al., 2015; CDC, 2017; Faye et al., 2015; Moghadam, Omidi, Bayrami, Moghadam, & SeyedAlinaghi, 2015).

The West African outbreak represents the longest transmission in the history of Ebola outbreaks. It lasted over 2 years, whereas all previous outbreaks ran for a few months. This in turn resulted in economic and social mayhem for the countries involved. The affected countries experienced economic downturn, whereas as Ebola Survivors continue to experience multiple challenges, such as stigma and health complications (Carey, 2014; Richards, 2016; Richardson et al., 2016; Troncoso, 2015). For example, the President of Guinea, Alpha Conde, affirmed that the Ebola crisis left Guinea in a financial disaster and “feared the total collapse of the economy” (Carey, 2014, p. 7). The same is true for Sierra Leone and Liberia.
The impact of the disease was severely felt by Sierra Leone. More people died in Sierra Leone than the other two affected countries. Specifically, Ebola is estimated to have killed more people in Sierra Leone than any other deadly on-going infectious diseases. According to Yamanis, Nolan, and Shepler (2016), “Ebola likely killed more people in Sierra Leone in 2014 than the second (lower respiratory infections) and third (HIV/AIDS) leading causes of death and may have killed more people than the leading cause of death (malaria)” (p. 2). Richardson et al. (2016) made similar observation in that this epidemic caused severe disease burden and death in a short period of time than any other on-going infectious diseases in the country.

The disastrous nature of this outbreak is evident in the number of health workers killed by the disease. The individuals who were in charge of taking care of the sick suffered severe consequences in that many health workers got infected. They contracted the disease while caring for Ebola patients or working in a hospital/clinic/treatment setting where Ebola patients were being cared-for. While some of them survived, many of them lost their lives. Hundreds of nurses, doctors, and other health workers succumbed to the disease in all the affected countries (Agusto et al., 2015; Buseh, Stevens, Bromberg, & Kelber, 2015; Elston et al., 2016; Kouadio et al., 2015; Moon et al., 2015; Richards, 2016; Troncoso, 2015).

While over 300 health workers contracted Ebola, about 221 of them died from the disease (Elston et al., 2016). For example, at an Ebola holding center in the Kono Government Hospital in Sierra Leone, all 9 nurses working inside the center contracted the disease and 7 died from it (Richardson et al., 2016). In particular, Sierra Leone lost its
only virologist and renowned doctor, Sheik Humarr Khan, who had been working on Lassa Fever in the country for decades – he was also Sierra Leone’s top Ebola doctor. Another famous Sierra Leone doctor, Olivet Buck, fell to the viral disease. The death of many health workers severely constrained the EVD control efforts and serves as a reminder of the disastrous nature of this outbreak.

Now, from an epidemiological standpoint, the determinant of disease refers to the variables that contribute to or cause disease (morbidity) and/or death (mortality) (Friis & Sellers, 2014). Such determinants are comprised of socio-cultural, economic, and environmental factors. In one of his episodes on Ebola on the podcast entitled “Hidden Brain” on National Public Radio (NPR), Shankar Vedantam suggested that “to control an epidemic takes more than medical skill, it requires an understanding of human behavior and forces that drive people to act in certain ways” (Vedantam, 2016). In other words, an understanding of the factors that shape and influence the behavior of individuals are central to contain, control, and stop an outbreak like EVD.

However, the initial global response to the 2013-2016 Ebola outbreak ignored the role of socio-cultural factors in transmitting and spreading the disease (Grey & Devlin, 2015). The socio-cultural aspect of EVD was ignored, which may have contributed to the rapid spread and severe burden of the disease. As such, it is important to explore its potential contribution to the transmission and spread of the disease in Sierra Leone.

More importantly, the re-emergence of Ebola poses a threat to millions of people across Africa and the world at large. Baize (2015) summarized this concern as follows:

International efforts will also be required in the future, as the main consequence of this epidemic is that the number of people at risk of EBOV [Ebola] infection
has dramatically increased, from the populations of a few countries in Central Africa to the entire tropical belt of Africa, from Senegal to Tanzania. From now on, at least 22 million people will be living close to EBOV and about 22 countries must be considered at risk of filovirus emergence. If nothing is done, further catastrophic outbreaks will undoubtedly occur in the next few years, as the rapid and relentless spread we are currently observing may be a specific feature of EBOV circulation among human populations in West Africa. The conquest of new territories by EBOV has, thus, not only resulted in quantitative changes in terms of the population exposed, but also qualitative differences in the risk of dissemination to neighbouring countries and the importation of cases outside Africa, because of the economic, social, and political consequences of an epidemic of this kind (p. 74).

Similarly, Gostin (2015) noted, “what Ebola taught us is that highly preventable health hazards in states with fragile health systems can easily escalate in a world with hyper-crowded cities, intense human-animal interchange, and rapid air travel” (p. 7). The main concern now is not if, but, when would the next outbreak happen. In fact, as of the compiling of this dissertation, there is an active EVD outbreak in the Democratic Republic of Congo. This then warrants the need to conduct research to better understand the holistic nature of this deadly disease, including the socio-cultural contexts that contribute to and/or inhibit its spread and transmission during an outbreak.

This study explored the cultural practices that may have contributed to and/or influenced the transmission of EVD in Sierra Leone. Cultural belief and practices influence people’s behavior, thereby putting them at high risk of contracting EVD. The research revealed cultural belief and practices/factors such as funeral rituals, family care, and norms of traditional healing may have contributed to the transmission and spread of EVD in Sierra Leone.

The goal of this study was not to examine cultural belief and practice(s) of a particular ethnic group in Sierra Leone, but rather to focus on identifying common social
and cultural factors (across ethnic groups) that may have contributed to the transmission and spread of Ebola. This is because, as previous medical anthropological studies indicated, there are certain cultural belief and practices that cut across region, ethnicity, and religion, such as funeral rituals/burial practices and traditional healing, as well as taking care of sick family members at home (DeSalle, 1999; Fairhead, 2014; B. S. Hewlett & Hewlett, 2008; Richards, 2016).

Although cultural factors may take unique forms in terms of belief and practice within certain ethnic group (i.e., different, yet closely related interpretation), they nonetheless represent a core belief and practice among different ethnic groups. For example, Africans view burial as a sacred practice within the context of respect for the dead, which warrants a dignified burial that often falls on the shoulders of family and/or community leaders (e.g., chiefs, religious leaders, etc.). Also, the washing of a dead body (corpse) is considered sacred across Africa. It is these commonalities that often signify the importance of identifying and understanding cultural factors that may contribute/amplify the transmission and spread of EVD. This in turn may help stakeholders in public health to figure-out how to tailor EVD control/preventive and treatment measures that are appropriate in the local context.

It is important to note health and disease is context-based; in this case, socially and culturally situated. As the common saying illustrates, nothing happens in a vacuum. The same goes for health and disease. It is with this mind-set, one needs to view the Ebola outbreak in West Africa within a socio-cultural context largely because the disease is about people. The social environment ultimately influences the emergence and spread
of Ebola. While Richards et al. (2015) pointed that Ebola is a “disease of social intimacy” (p. 1), Fairhead (2014) claimed that “Ebola is a social phenomenon, not just a virus” (p. 21). This in turn makes Ebola a threat to the social fabric of society. This is mainly the case because, as Agusto and colleagues (2015) observed:

> Ebola is one of those rare diseases that forbids the natural love and care, through touch, normally provided to sick loved ones in many cultures. It is difficult for some to see their vulnerable loved ones sick and yet be unable to help. That is generally a hard concept (p. 109).

The research questions for this study are as follows:

1. What cultural practices contribute to and/or influence the transmission of Ebola?
2. How do cultural practices contribute to and/or influence Ebola transmission?

**Conceptual Framework**

Ebola is a disease of context. It is influenced by social, economic, cultural, biological, and political factors. A socio-cultural approach to health and disease helps foster a deeper understanding of the Ebola outbreak in Africa. Armenakis and Kiefer (2007) suggested that health issues needs to be situated within a socio-cultural context by using a socio-cultural approach to explore and understand a particular disease, especially within the African context. This approach comes into play largely as a result of the limitations of the biomedical model (i.e., strict focus on the biology of disease/health, thereby ignoring non-biological disease/health related variables). The socio-cultural approach is important for healthcare because, as Armenakis and Kiefer (2007) reasoned, “in order to be an effective healthcare provider,” one “must understand the ways people think about health and illness; individual behaviors and habits that influence health” (p. 5).
This study is situated within the socio-cultural perspective, which posits that:

Social and cultural factors inevitably interact with biology to impact health. This confluence of factors determines a person’s experience and definition of health and illness (p. 15); access to healthcare (p. 16); response to disease, pain, disability; experience of pain and healing (p. 17); treatment expectations and options; and health outcomes (Armenakis & Kiefer, 2007, p. 19).

As such, in order to gain a holistic understanding of health and disease, one needs to examine socio-cultural factors such as religion, tradition, economics, and people’s perspectives on health and illness. One needs to recognize that disease is context-specific and is influenced by, not only the biology, but also the social and cultural environments.

Within the realm of the socio-cultural approach, a central theory emerges; Dunn’s (1984) theoretical framework. Frederik Dunn, a physician and anthropologist, developed a conceptual framework for integrating anthropological work into disease control measures. This theory posits that the control and containment of a disease should address or be based on four key areas: “(1) Factors in the community that are health enhancing; (2) Factors in the community that are health lowering; (3) Factors outside the community that are health enhancing; and (4) Factors outside the community that are health lowering” (B. S. Hewlett & Hewlett, 2008, p. 30). In this respect, the phrase ‘in the community’ refers to local cultural belief and practices. On the other hand, the phrase ‘outside the community’ refers to “national and international programs, teams, and structures” (B. S. Hewlett & Hewlett, 2008, p. 30). Specifically, Dunn’s framework suggests the need to identify the beliefs and practices that influence risky behaviors in local communities as well as at national and international levels. Such risky behaviors are termed health-lowering. In summary, this theoretical framework guides this study as
socio-cultural factors may have played a key role in the transmission and spread of EVD in Sierra Leone.

**Significance of the Study**

The 2013-2016 Ebola outbreak that ravaged parts of West Africa and spilled over international borders, including the United States of America (U.S.) and Europe, should be a wakeup call for the need to control and contain emerging viral diseases, such as Ebola, at the source. Such a control and containment mechanism should include understanding of socio-cultural factors that may contribute to or influence the spread and transmission of Ebola.

Culture affects health behaviors. Cultural belief and practices based on patterns of shared behaviors and lifestyles can influence people’s behavior, thereby putting them at higher risk of contracting infectious diseases. Typically, medical anthropology is not combined with epidemiology in epidemics. This is a mistake that cost lives during epidemic outbreaks as evident in the disastrous pandemic in West Africa. It is thus critical to explore and understand cultural practices that may have contributed to the rapid spread and transmission of Ebola in Sierra Leone during the 2013-2016 outbreak. As this study reveals, it is crucial to perform cultural needs assessment with a focus on prevention from a socio-cultural perspective. Understanding socio-cultural factors that influenced or contributed to the West Africa Ebola outbreak warrant the need to incorporate cultural needs assessment as part of any strategy(s) and measure(s) to control, contain, and prevent health emergencies related to infectious diseases; in this case Ebola.
In other words, understanding the socio-cultural factors that contributed to and/or influenced the rapid transmission of EVD in West Africa is key to effective control and containment as well as prevention of the disease from spreading among the general public. Culture being a determinant of health, it makes sense to study its influence on this outbreak. Such finding(s) may support the critical need to incorporate cultural awareness in public health and medical undertakings.

A limited number of studies exist that examine the contribution of socio-cultural variables on emerging infectious diseases such as EVD. During their decades of investigating the connection between cultures and diseases, B. S. Hewlett and Hewlett (2008) observed that although the last two decades have witnessed an increasing focus on the link between cultural factors and the management of infectious and parasitic diseases, in general, the focus on similar link between culture and emerging infectious diseases is very limited. At best, most of the cultural and social analysis on the EVD outbreak “has been fragmented, anecdotal, and sensationalized” (Abramowitz et al., 2015, p. 4).

Similarly, Abramowitz et al. (2015) acknowledged that socio-cultural factors are often ignored or unaccounted for in most fights against Ebola transmission and control measures such as quarantine. The focus tends to be heavily placed on quarantine and isolation of individuals infected with the Ebola virus. This epidemiological approach limits the effectiveness of such emergency response in that it fails to address the underlying variables contributing to the disease transmission in the first place, such as socio-cultural factors like family care of loved-ones who are sick.
Nevertheless, public health professionals, including Epidemiologists, are gradually recognizing the role and importance that communities play in the fight against disease outbreak. This was evident in the 2013-2016 outbreak, as Joel Montgomery – a CDC Team Leader in Liberia during the outbreak – observed, “communities are doing things in their own, with or without support” (Abramowitz et al., 2015, p. 3). In a similar light, Tambo, Ugwu, and Ngogang (2014) admitted “there is a need to analyse the socio-economic and cultural factors, the status of prevailing health systems, and the risk factors and determinants of the emergence and spread of outbreaks in Africa” (p. 36). In other words, the focus on socio-cultural factors’ contribution to emerging infectious disease is gradually picking up steam.

However, no study has exclusively studied the socio-cultural influence on the 2013-2016 Ebola outbreak in Sierra Leone. Nearly all previous studies on the outbreak only highlighted the general notion that cultural belief and practices played a role in the transmission of Ebola during the outbreak. In essence, no single study has exclusively examined cultural practices and their role in the transmission and/or spread of Ebola during the outbreak in Sierra Leone.

This study is probably the first to be conducted in Sierra Leone to explore the socio-cultural practices that may have contributed to the transmission and spread of Ebola. Most of the articles on culture and Ebola in West Africa are not based on empirical studies, but are in the form of commentaries, opinion papers, news articles, and expert opinions. In fact, “to date, most studies of Ebola have focused on the biology of the disease, potential vaccines and medications, and strategies for infection control”
(Ravi & Gauldin, 2014, p. 303); but rarely on the socio-cultural contexts of the disease such as investigating the potential role played by cultural factors on the spread and transmission of the disease.

Similarly, as Richardson et al. (2016) acknowledged, since EVD was discovered several decades ago and more than 20 outbreaks since then, “our understanding of the disease is limited, in particular the social, political, ecological, and economic forces that promote (or limit) its spread” (p. 115). To date, this is still the case. In their extensive systematic review of epidemiological, social and behavioural literature on the West Africa EVD outbreak, Abramowitz, Hipgrave, Witchard, and Heymann (2018) found “the research evidence on the relationship between Ebola transmission, interventions, and behaviour change is scant, indicating poor understanding of the relationship between sociocultural factors and EVD transmission” (p. 6). On this basis, this study aim to contribute to the existing literature and body of knowledge on the role of cultural practices on infectious diseases, in particular, on emerging infectious diseases with a specific focus on the socio-cultural dimension of EVD.

Additionally, although previous studies claim that cultural variables often influence the transmission of infectious diseases, most studies on EVD examined the pathophysiological nature of the Ebola virus, with a particular focus on the medical treatment and containment of the disease. In Africa, there is limited studies conducted that specifically investigated the influence of cultural practices and beliefs in the transmission of infectious diseases. As a result, this study aim to contribute to the field of public health. The findings may help support and guide future research on this subject.
More specifically, the devastating outcome of the Ebola outbreak was largely due or attributed to a combination of poor healthcare infrastructure, traditional belief, and cultural practices, including the consumption of bush-meat and the performance of certain burial rituals that amplified the transmission of the disease (Richards, 2016). For example, denial is a common feature of all previous Ebola outbreaks (B. S. Hewlett & Hewlett, 2008; Hewlett & Amola, 2003; Kouadio et al., 2015; Lamunu et al., 2004). Such a denial may be due to the influence of socio-cultural, political, and historical contexts. This may have led to distrust of national governments in the three affected countries, including Sierra Leone, and international responders. This in turn may have impeded on efforts to control and contain the outbreak, and thereby resulted in it being the worst outbreak to date in the history of this deadly disease.

This study has implication for community health education programming in that the findings reveal the need to create social awareness campaigns on the influence of socio-cultural factors on EVD transmission. This may help educate the general public to prevent themselves from getting infected with EVD through ways that are related to their behaviours, and influenced by their cultural belief and/or practices. Arming the general public with such knowledge and awareness can go a long way in empowering them to take control and actively engage in the containment, control, and prevention of future EVD outbreak(s) in Sierra Leone. As the common saying goes, prevention is better than cure. It is thus crucial that the general public is prepared and armed with knowledge on ways to prevent themselves from getting infected with EVD that is linked to their cultural practices. This is something they can control and are able to control unlike other factors
such as weak health systems.

Another implication is for global health response to Ebola outbreaks, especially in the West African region. This is because, the findings of this study warrants the need for cultural awareness among international responders in health emergencies to take note of the influence of local socio-cultural factors that may influence the control, containment, and prevention of Ebola transmission. This is because, according to Kieny, Evans, Schmets, and Kadandale (2014), most of the time national governments and international organizations’ response to “a health crisis posed by a communicable disease, such as Ebola, is often to solely focus on reducing transmission and the effect of the disease. However, such a response is insufficient” (p. 850). As such, being aware of other factors, such as socio-cultural contexts, public health personnel and health emergency responders could tailor their strategies and programs to account for the need to incorporate socio-cultural factors to help improve the effectiveness of their community health initiatives aimed at stopping the chain of transmission and spread of this rapid killing disease.

From this backdrop, this study explored the perceived influence of cultural practices in the transmission of Ebola. The results of this study indicate there is a need for change in behaviour of individuals and society as a whole regarding the containment, control and prevention of potential future Ebola outbreak in Sierra Leone. It is not a matter of whether the disease will return, but when it will do so in West Africa. In particular, Ebola has become endemic in the three-affected countries in that the virus lives in this region, and thus would most likely cause another outbreak in the future. According to Roca et al. (2015), “Serosurveys conducted in the region [Africa] suggest
that EV [Ebola virus] has been endemic in equatorial Africa at least during the last decades and specifically in West Africa for about a decade” (p. 859). Buseh et al. (2015) similarly admitted that Ebola is going to strike again in this region of Africa based on the virus’ historical ability to mutate and become endemic as exemplified by the multiple outbreaks that have occurred in the DRC since it emerged in that country over 40 years ago, as well as the multiples, but separate, outbreaks in Uganda and Sudan. In fact, as of the compiling of this paper, the DRC was experiencing another Ebola outbreak (i.e., May 2018).

It is therefore crucial for West Africa, as a region, to prepare itself for potential future Ebola outbreak(s). Such preparation needs to incorporate knowledge on the influence of socio-cultural factors in the transmission and spread of Ebola. It is vital to understand the cultural variables that may have helped the sporadic transmission of the disease so as to better craft primary health prevention strategies based on modification of human behaviours. This study is a first step in that direction.

**Delimitations**

This study self-imposed parameters/inclusion criteria that delimit the research. They are as follows:

1. Research participants consisted of Ebola Survivors who: (i) lived in Sierra Leone during the Ebola outbreak; (ii) were 18+ years old; and (iii) were recruited in Makeni city, Bombali District, Northern Province of Sierra Leone.
2. Limited to only 3-5 Ebola Survivors.
3. Purposeful sample was utilized in that participants included anyone who satisfied the inclusion criteria listed above (1) and gave consent to participate in the study.

Limitations

Unlike delimitations of the study, which are under the control of the researcher, the limitations consist of things beyond the researcher’s control that affects the study. First, the plan to recruit 3-5 research participants limited the scope of the study and possibly, the potential to generalize the findings.

Second, time constraint placed limitation on this study. The researcher had three weeks to recruit research participants and collect data in the field. The time constraint was due to circumstances beyond his control as a result of family and financial issues. Anyone who has conducted a qualitative study that involved face-to-face interview knows recruitment of research participants and data collection take several months, if not a year or so, depending on the size/scope of the study.

Finally, this study experienced limited resources. The researcher covered all expenses associated with the study. Some of the expenditure items included a round-trip flight ticket to Sierra Leone and research supplies such as printing papers, ink for a home printer, and tape/audio recorder.

Definition of Terms

Each professional and scholarly endeavour use terminology(s) that includes basic concepts within its area of expertise. Sometimes, such concepts may be less known or confusing to individuals outside the field. The domain of infectious diseases and medical anthropology has certain terminologies and concepts that may not be familiar to people
outside these disciplines. This paper contain terms that are important to fully understand the context and analysis presented. These terms are defined below:

*Ebola Virus Disease (EVD)* is also known as Ebola hemorrhagic fever (EHF), or Ebola. This study uses these short versions interchangeably – Ebola or EVD.

*Cultural Practice* refers to the physical actions and activities performed by an individual or group that are guided and/or influenced by one’s culture. For example, washing a dead body is sacred practice in West Africa. As such, people in this region wash dead bodies as part of the funeral ritual.

*Infectious Disease* is an illness that is caused by a specific infectious agent or its toxic products through transmission of that agent from an infected person or animal to a human host, either directly or indirectly through the environment (Friis & Sellers, 2014). Ebola is an infectious disease.

*Zoonotic* refers to an infectious disease that is transmitted from an animal to a human being. Viruses, bacterial, and parasites cause such a disease.

*Reservoir* refers to the natural habitat for an infectious agent/organism. The reservoir serves as a house for the infectious agent to live in which it can multiply and infect other individuals.

*Prevalence* is the total number of existing cases of disease or health condition among a population in a given place during a point in specified time-period. It represents the overall number of people with a particular disease or health condition within a population over a specific time-period.
Incidence refers to the number of new cases in a population in a given place for a specific time-period.

Nosocomial refers to an infection that happens in a hospital/medical facility due to treatment in such facility. This includes treatment of Ebola patients in a medical facility (hospital) that leads to cross-infection.

Patient-zero/Index case refers to the first person to get sick during a disease outbreak. He/she is officially determined to be the first one to get sick with the disease.

Contact Case refers to “someone who had regular contacts with a person who is sick with Ebola. Contact cases are usually followed (i.e., healthcare workers go to their home every day to see if they had any symptoms for twenty-one day, which is the incubation period for Ebola” (B. S. Hewlett & Hewlett, 2008, p. 18).

Incubation Period is the “time between when a person gets infected and when s/he shows symptoms” (Sanders et al., 2015, p. 645).

Mortality Rate (Case Fatality Rate) is the proportion/percentage of people who are infected by a disease and died from it.

Suspected Case refers to any person suffering or having suffered from sudden onset of high fever and having had contact with a suspected, probable, or confirmed case, or a dead or sick animal or person with sudden onset of high fever and at least three of the EVD symptoms (Cenciarelli et al., 2015, p. 3).

Probable Case refers to any “suspected case evaluated by a clinician/physician or any dead person suspected to have had a link with a confirmed case in which it wasn’t possible to collect specimens for laboratory test” (Cenciarelli et al., 2015, p. 3).
**Confirmed Case** is any suspected or probable case with a positive laboratory result (Cenciarelli et al., 2015, p. 3).
CHAPTER 2
LITERATURE REVIEW

The purpose of this study was to explore the cultural practices that may have contributed to the transmission of Ebola in Sierra Leone during the 2013-2016 outbreak. This is because culture often shapes individual beliefs and influence behaviour that pose health risk such as contracting infectious diseases. The key focus of the research was to reveal cultural factors such as cultural belief, funeral ritual(s), norms of traditional healing, family care, and religious dynamics, which may have contributed to the transmission of Ebola in Sierra Leone.

This chapter presents a review of the literature on social and cultural issues related to Ebola. To aid the reader in making sense of the literature within the context of this study, the chapter is organized into several sections that are based on the focus of this study. These sections include the epidemiological nature of Ebola, an historical display of Ebola outbreaks in Africa, theoretical foundation of culture and infectious diseases, and finally, the socio-cultural factors that contributes to Ebola transmission, which consist of cultural belief and practices, traditional healing, religious dynamics, family care, and forms of social interaction.

The chapter opens with an analysis of the epidemiology of EVD, which includes definition, how it is transmitted, and treated. This provides a context for the discussion on potential influence of socio-cultural factors on disease transmission during an outbreak. This analysis is followed by presentation of an historical overview of EVD outbreaks in Africa, with a specific focus on West Africa, so as to provide background information on
the disease to help the reader gain a deeper understanding of the disease burden in the region.

Additionally, a conceptual framework/theoretical foundation of the study is presented. Dunn’s (1984) theoretical framework is situated within a socio-cultural perspective. Both conceptual frameworks provide a theoretical foundation for this study. Dunn’s (1984) framework theorises the influence of human culture on disease transmission and prevention with a focus on individual and community factors that influence the culture-disease interaction. Similarly, the socio-cultural approach to healthcare services conceptualizes the role of social and cultural factors in disease transmission and health promotion, including treatment of individuals.

The chapter concludes with an analysis of socio-cultural contexts of EVD under the major heading – cultural practices – which include funeral rituals/burial practices, traditional healing, family care, and forms of social interaction. Under the umbrella of cultural practices, the aforementioned factors are considered to play a key role in the transmission and spread of EVD. In addition, social stigma and migratory patterns of EVD are discussed.

What is Ebola Virus Disease?: An Epidemiological Analysis

Ebola Virus Disease is a deadly viral illness that has a case fatality rate of about 50 to 90% (Agusto et al., 2015; B. S. Hewlett & Hewlett, 2008; Lamunu et al., 2004; Moghadam et al., 2015; Roca et al., 2015; Sanders et al., 2015; WHO, 2018a). The disease itself is caused by infection with the Ebola virus. It comes from a family of viruses known as Filoviridae, which “cause severe hemorrhagic fevers in humans”
It does this by compromising the defence mechanism of the human body that results in destruction of white blood cells that are crucial to fight against infections (B. S. Hewlett & Hewlett, 2008).

EVD is made up of five sub-types, which are known as Zaire, Sudan, Bundibugyo, Tai Forest, and Reston (Baize, 2015; Cenciarelli et al., 2015; Roca et al., 2015). Two of these sub-types are responsible for more than 95% of all Ebola cases in Africa and are very deadly: Ebola-Zaire [80-90% case fatality rate] and Ebola-Sudan [40-50% case fatality rate] (B. L. Hewlett & Hewlett, 2005; Lamunu et al., 2004; Moghadam et al., 2015; Roca et al., 2015).

Certain wild animals, which includes monkeys, chimpanzees, bats, and rodents are considered to be the natural habitat/reservoir for the Ebola virus. In particular, bats (fruit bats to be specific) are believed to be the main culprit serving as suitable reservoir for the virus. This may be the case because fruit bats are always present in large numbers at the locations of Ebola outbreaks across Africa (Baize, 2015; Cenciarelli et al., 2015; Fowler et al., 2014; B. S. Hewlett & Hewlett, 2008; Hewlett & Amola, 2003; B. L. Hewlett & Hewlett, 2005; Moghadam et al., 2015; Peters & Peters, 1999; Richards, 2016; Roca et al., 2015; Troncoso, 2015). This makes it a zoonotic disease. However, the link of fruit bat to Ebola is yet to be confirmed.

A key question surrounding the fruit bat hypothesis as a reservoir for EVD is centered on the emergence of the disease in West Africa for the first time since its discovery more than 40 years ago in Central Africa. Why and how did fruit bats, whose natural habitats are primarily located in Central Africa, end up in West Africa, in
particular, the three affected countries – Guinea, Liberia, and Sierra Leone – located hundreds of miles away from Central Africa? One explanation is that the fruit bat is immune to the virus. As Sanders et al. (2015) claimed, “unlike other animals infected by the virus, fruit bats do not show any symptoms of disease and thus act as the reservoir for the Ebola virus” (p. 645). It is also suggested that the natural habitats of fruit bats may have been shifting, which may explain their presence in an epicenter of the disease. Another explanation is that the disease could have been imported into the region by a person who may have come into contact with the virus in Central Africa, got infected, and brought it to the region where the outbreak began. Nevertheless, these explanations are all hypotheses that are yet to be confirmed.

However, James Fairhead, Professor of Anthropology at the University of Sussex with extensive ethnographic field work in Guinea and Sierra Leone, debunked the widely held epidemiological theory that the interaction between people and forest animals (bats, monkeys, chimpanzees, etc.) may be responsible for the emergence of Ebola in West Africa and in Central Africa. He argued that for centuries people in these parts of the world lived in this so-called forest region and as such have been exposed to bats and other forest animals. But, how come it is only recently Ebola emerged in the region?, he questioned. As Fairhead (2014) clearly put it:

People and bats have long co-habited in this ancient, anthropogenic forest landscape with its mosaic of forest, bush and savannah, shaped by settlement and farming, war and trade, and everyday social and ecological life. The idea that deforestation (whether at the hands of local farmers or modern commerce) is bringing people and the bat inhabitants of ‘viral forests’ together for the first time misconstrues regional landscape history as dangerously as it lays the blame for the epidemic at the feet of the rural people now suffering from it. While there is good evidence that fruit bats are the natural reservoir of Ebola, this particular outbreak
owes its dynamic to human-human transmission. Whether it began with a single spillover event, or reflected the human-to-human amplification of multiple spillovers in the past, remains open to speculation. Meanwhile, misguided exhortations against eating bats or indeed bush-meat in general have not just denied people vital sources of protein and livelihood, but have contributed to the deluge of misinformation that has undermined local trust in what officials say about Ebola (p. 21).

Similarly, in his study of people’s response to Ebola in Sierra Leone, Richards (2016) found nearly 90% of the villagers who participated in the study didn’t believe bush-meat contributed to infection or transmission of Ebola. In other words, most of the villagers “discounted bush-meat as a significant transmission pathway when describing their own beliefs about Ebola” (Richards, 2016, p. 81). This result was largely due to the experience of villagers eating bush-meat for many decades without the emergence of this rare deadly disease. As one of the research participants explained, “we have been eating bush-meat for a very long time and have not experienced this disease. Why only now?” he/she questioned the focus group’s facilitator (Richards, 2016, p. 81). In effect, there is no definite conclusion as to how patient-zero in West Africa was infected with the virus. It still remains a mystery.

**Person-to-Person Transmission**

Despite critique of the forest animal-to-human contact infection pathway, most research suggests the first person to contract the virus is a result of direct contact with an infected animal (B. S. Hewlett & Hewlett, 2008; Moghadam et al., 2015). For example, the 2003 outbreak in the Republic of Congo was “traced to forest hunters who handled infected gorillas or antelopes” (Hewlett, Epelboin, Hewlett, & Formenty, 2005, p. 231). Once the virus enters the host (a human), it can be transmitted to another person.
Transmission happens when a person comes into direct contact with the secretions, blood and/or organs of an infected animal or person (B. S. Hewlett & Hewlett, 2008), or eat raw meat of wild/bush animals that are infected with the virus (Troncoso, 2015).

More specifically, fruit bat is believed to be the prime suspect to carry the Ebola virus, which is then transmitted to humans when they eat its meat that may be infected with the virus and/or eat fruits that have been eaten by fruit bats and/or been soiled with their droplets. Once the virus enters the human host, it is then transmitted from person-to-person via direct contact with body fluids and fomites. This is because the Ebola virus’ RNA can be found in body fluids that include blood, saliva, sweat, urine, feces, vaginal fluid, semen, breast milk, and bed clothes of patients, among others (Borchert et al., 2011; Cenciarelli et al., 2015; Hewlett et al., 2005; Ikuomola, 2015; Peters & Peters, 1999; Richards, 2016; Tambo et al., 2014).

The signs and symptoms of EVD are similar to other infectious diseases in Africa such as Malaria, Typhoid, and Cholera. This makes it difficult for an individual to seek urgent medical attention when he/she experiences such symptoms. With an incubation period of 2-21 days, the course of the disease can be categorized into two phases – dry and wet (Agusto et al., 2015; Moghadam et al., 2015; Richards, 2016). The dry phase last for three days and patient’s symptoms include headache, fever, and fatigue. During the wet phase, a patient shows symptoms that include vomiting, diarrhea, and bleeding from mouth, eye, and nose. This is the most dangerous phase because a patient is very contagious (Richards, 2016). Interestingly, during the dry phase, a patient is not contagious.
In other words, Ebola is characterized by the sudden onset of fever, weakness, muscle pain, headache, and sore throat. This is followed by vomiting, diarrhea, rash, limited kidney and liver functions, and internal and external bleeding, and bleeding, which generally occurs in less than 50% of cases (Agusto et al., 2015; Moghadam et al., 2015; Richards, 2016). Because no specific treatment or vaccine currently exists for Ebola, a patient usually dies within 6 days of becoming symptomatic (Hewlett & Amola, 2003; Lamunu et al., 2004; Roca et al., 2015) or recover from the disease.

Even when an Ebola patient recovers from the sickness or is “clinically cleared of the virus,” it may still be present in the semen for couple months and found in the breast milk of lactating mothers (Agusto et al., 2015, p. 98). Also, individuals who survived the disease (i.e., Ebola Survivors) experience other health problems, such as eye complications and muscle pain. In an interview with the BBC’s Focus on Africa, the President of Sierra Leone Association of Ebola Survivors, Yusuf, Kabbah, explained that even though Ebola has ended in the country, the consequences and challenges experienced by survivors are still on-going such as stigma, eye problems/blindness, sleeplessness, severe fatigue, impotency, lack of access to free healthcare, and worst case; two of their member died from Ebola complications (BBC Focus on Africa, 2018a). For example, Betty Kamara, an Ebola Survivor, reported that after surviving the disease in late 2014, she was blind for nearly three months as well as had severe abdominal pain. As of early March 2018, she was experiencing, again, severe eye pain (BBC Focus on Africa, 2018b). She also said most of her friends who are Ebola Survivors experience Hepatitis to the point that she lost one of her friends to the disease.
Demographic of Infection

EVD equally affects both men and women, with adults being more infected than children. The 2013-2016 Ebola outbreak in parts of West Africa affected all ages, with those between 35 to 44 years old accounting for the increased incidence (Professor J. Glynn, personal communication, August 31, 2015). Most of the infected persons – i.e., Ebola patients – were between 15 and 45+ years old (Moghadam et al., 2015; Richards, 2016). This may have been the case largely because these age groups (15-45+ years) are the ones “most involved in nursing the sick and processing the corpse for burial” (Richards, 2016, p. 38). This suggests that Ebola is a disease of contact, which affects individual at high risk of making body contact with an infected Ebola patient or object.

Treatment and On-going Clinical Research

With regards to the treatment of Ebola patients, the first order of business during an outbreak is to isolate confirmed cases. Patients are isolated in a special facility designed to treat and care for only Ebola patients. The special treatment facility is commonly referred to as Ebola Treatment Center (ETC) or Community Care Center (CCC). ETCs/CCCs are built because having Ebola patients in a hospital with less strict biosafety requirements and vague training for medical staff on safely handling Ebola patients have led and resulted in nosocomial infection. Nosocomial infections have been found to contribute to the spread and transmission of Ebola in all previous Ebola outbreaks, including the one in West Africa (Borchert et al., 2011; B. S. Hewlett & Hewlett, 2008; Hewlett & Amola, 2003; B. L. Hewlett & Hewlett, 2005; Richards, 2016).
For this reason, ETCs/CCCs are built with stringent biosafety requirements to prevent nosocomial transmission.

The current treatment for Ebola is primarily based on supportive care because, as of the writing of this dissertation, there is no licensed vaccine or medicine for treatment. The most important aspect of the supportive treatment is fluid management, which focuses on preventing, avoiding, and treating dehydration, as well as re-balancing the loss of electrolytes, relief of symptoms such as pain, and control of secondary infection such as Malaria and Diarrhea (Ansumana et al., 2015; Baize, 2015; Borchert et al., 2011; Fowler et al., 2014; Moghadam et al., 2015; Richards, 2016). Oral rehydration goes a long way, especially when combined with symptomatic treatment for vomiting and diarrhea. For patients who cannot or are unable to receive oral fluid, intravenous (IV) fluid is administered to rebalance fluid and electrolyte loss.

Other kinds of supportive care have been administered to Ebola patients to improve their recovery. For example, Wolz (2014), a nurse and emergency coordinator for Médecins Sans Frontières – MSF – (Doctors without Borders) who worked in an Ebola emergency care unit in Sierra Leone during the outbreak, described the standard supportive care they gave to Ebola patients included “maintaining their oxygen status and blood pressure, providing high quality nutrition, and treating any complicating infections with antibiotics” (p. 1082). Providing supportive care is crucial in helping a patient fight the disease. When this palliative care is provided during the early phase of the disease, the chances of survival could be improved.
The search for Ebola treatment, including vaccines, have been going on for over two decades. It seems the urge to find a cure or preventive remedy happens during outbreaks. As Peters and Peters (1999) observed during multiple outbreaks in the early and mid-1990s, “although there is no obvious role for an Ebola virus vaccine today, there are promising efforts toward experimental filovirus vaccines (p. xii). However, nearly 20 years later, we are yet to have a licensed vaccine or medicine for human use to treat this deadly disease. Nevertheless, the West Africa outbreak galvanized the effort in search of a treatment and/or vaccine. This is because, as Professor J. Glynn argued, periodic EVD outbreaks are actually the only time that treatment remedies and vaccine can be tested/experimented in people (personal communication, August 31, 2015). In other words, sporadic EVD outbreaks often draw attention to the need to find a cure and/or preventive therapy.

The West Africa outbreak led to a rush in establishing clinical trials focused on coming up with a treatment and/or vaccine for preventive purposes. At the time, ZMapp was the only experimental drug available. This drug was given to Western doctors infected with EVD while working in the affected countries (Agusto et al., 2015; Cenciarelli et al., 2015; Moghadam et al., 2015). For example, two American doctors who were medically evacuated from Liberia to Atlanta (U.S.) received ZMapp, which is believed to have contributed to their improved conditions. However, this drug remain in the experimental phase and yet to be licensed.

The initiated clinical trials ran through the entire outbreak. At the official declaration of the end of the outbreak (early 2016), there was no approved or licensed
vaccine or treatment for the virus because clinical trials were on going. For example, in Sierra Leone, an Ebola vaccine trial was on-going [EBOVAC-Salone]. This trial, which was funded by the Innovative Medicines Initiative, coordinated by the London School of Hygiene & Tropical Medicine and the College of Medicine & Allied Health Sciences at the University of Sierra Leone, was “evaluating the safety and immunogenicity of the Ad26.ZEBOV/MVA-BN-Filo prime-boost Ebola vaccine regimen in an affected population” (Tengbeh et al., 2018, p. 35). Like ZMAPP, this vaccine is yet to be approved or licensed for human use.

Good news has emerged out of all the clinical trials. A promising vaccine candidate has shown some effectiveness when used in ring vaccination to protect people with high exposure to the Ebola virus– family members and medical workers. The final vaccine trial revealed positive results in protecting against virus infection among research subjects in a randomized controlled trial based on ring vaccination in Guinea and Sierra Leone (Henao-Restrepo et al., 2017). According to the researchers who developed this vaccine, Henao-Restrepo and colleagues (2017), “the results add weight to the interim assessment that rVSV-ZEBOV offers substantial protection against Ebola virus disease, with no cases among vaccinated individuals from day 10 after vaccination in both randomised and non-randomised clusters” (p. 506). This vaccine is going through the licensing process. In fact, it was recently administered to high-risk population in North Kivu province in the DRC (WHO, 2018b) to help contain and control the transmission and spread of an active Ebola outbreak.
The rVSV-ZEBOV vaccine has been used by administering “investigational doses” during an outbreak because there is no other alternative that is highly effective against Ebola virus infection and safe for human use. For this reason, WHO approved it for “compassionate use” during an outbreak to help in the fight against transmission, while the vaccine goes through the licensing process (WHO, 2018c). This is very good news in the fight against EVD outbreaks. Geisbert (2017) excitingly explained:

After 40 years we appear to now have an effective vaccine for Ebola virus disease to build upon. This success has been achieved by leveraging findings from published preclinical studies to justify the use of the rVSV-ZEBOV vaccine during an outbreak without the need for time-consuming and costly good laboratory practices (p. 480).

Finally, it is important to note that despite the lack of medicine or licensed treatment regimen for Ebola, the case fatality rate can be reduced, and therefore improve the survival rate by administering and improving supportive care (Borchert et al., 2011; Kouadio et al., 2015; Moghadam et al., 2015; Richards, 2016; WHO, 2018a; Wolz, 2014). The diagnostic approach is to maintain electrolyte balance among Ebola patients so as to improve their chances for survival. In sum, the current treatment of Ebola is primarily based on a combination of intensive supportive care and symptom relief (i.e., basic managements of fluids and electrolyte) and the compassionate use of the rVSV-ZEBOV vaccine during an outbreak.

**Containment and Control of Ebola Outbreak**

When an outbreak has been identified, attempts to contain its spread must be instituted quickly. This is because of the high risk of rapid spread of the disease. It is estimated that each Ebola victim potentially comes into contact with an average of 10
people (B. L. Hewlett & Hewlett, 2005). These individuals are then identified as contact cases, who then need to be monitored for signs and symptoms of the disease. Monitoring is often complicated by the fact that initial symptoms of headache, fever, diarrhea, and vomiting are similar to common diseases found in the region, such as Malaria, Dysentery, Influenza, and Cholera.

Also, when contact cases are nurses who subsequently become infected, the potential for a nosocomial spread increases dramatically (B. L. Hewlett & Hewlett, 2005). In other words, when a person or group of individuals are confirmed of being sick with Ebola, the person or individuals are isolated, so are any high-risk contacts they have made. This isolation of sick patients and high-risk contacts is a measure known as ‘quarantine,’ which is geared toward containment and control of transmission and spread of the disease. On a basic level, an Ebola patient and people living in the same household are put in quarantine for 21 days. But, if more cases arise, quarantine is extended until the chain of transmission stops.

Community health education and safe burial practices are also used to contain and control an outbreak. In an interview by Ebola Deeply’s editor, Kate Thomas, with Barry Hewlett, a medical anthropologist specializing in infectious and parasitic diseases, whose work incorporates anthropological approaches to emerging diseases and co-author of *Ebola: Culture and Politics, The Anthropology of an Emerging Disease* that was based on his ground-breaking work on past Ebola outbreaks in northern Uganda and the DRC, noted that the four components of containment of EVD outbreaks consist of contact
tracing, community mobilization, creating isolation units, and taking care of burial
(Thomas, 2014).

The History of Ebola in Africa and Around the World

Most often, Ebola is talked about as afflicting only Africa. But, as the 2013-2016 outbreak illustrate, this emerging infectious disease is a global threat, especially if it is not contained at its source. It has the potential to cause a pandemic. As Moghadam et al. (2015) warned, “EVD is a painful reminder that an outbreak anywhere can be a risk everywhere” (p. 266). Similarly, the former WHO Director General, Margaret Chan, confirmed that the West Africa outbreak represented the first time the disease was transported through air travel (Chan, 2014). This suggest that any city around the world with an international airport is at risk for an imported case. Nigeria and the U.S., for example, experienced imported cases. Therefore, the global health and security focus must be based on eliminating the outbreak at its source before it starts crossing international borders.

Now, it is important to provide an historical display of previous EVD outbreaks. The Ebola virus was discovered in 1976 when it caused concurrent outbreaks in a remote village in the DRC (formerly Zaire) and in Sudan (Cenciarelli et al., 2015; Lamunu et al., 2004; M. Koroma & Lv, 2015; Peters & Peters, 1999; Richards, 2016; Roca et al., 2015; Troncoso, 2015). Ebola is named after a river in the village in DRC where the virus was first identified. The name was given to prevent stigmatizing local people. The 1976 outbreak left 318 people infected with the disease and killed 280 people (B. S. Hewlett & Hewlett, 2008).
Since its discovery, EVD has caused over 30 outbreaks in Africa, including imported cases to countries outside the continent – the U.S., Spain, Italy, and the United Kingdom. Prior to the 2013-2016 outbreak in upper West Africa, there were more than 20 outbreaks in Central Africa. However, the 2013-2016 epidemic was the largest with more cases and deaths than all previous outbreaks combined. While all previous outbreaks accounted for 2,548 cases and 1,689 deaths, the West Africa pandemic resulted in more than 25,000 cases and 11,000 deaths (WHO, 2016).

EVD typically emerges in remote areas and then springboard to other places through nosocomial infection and chain of transmission within a community, especially before the disease is confirmed to be Ebola largely because its symptoms are similar to other common diseases in the region such as Malaria (Tambo et al., 2014). Prior to the West Africa outbreak, EVD was epidemic in Central and parts of East Africa. Table 1 list all the previous outbreaks on the continent by year, number of cases and death, and case fatality rate. For instance, between 1976 and 2012, DRC experienced six separate outbreaks, whereas Uganda suffered four outbreaks since 2000 (WHO, 2018a). These outbreaks were often deadly with case fatality rate ranging between 25-90%. For example, the 2003 outbreak in the Republic of Congo had 143 cases with 129 deaths, resulting in 90% case fatality rate (B. L. Hewlett & Hewlett, 2005).

To aid the reader visualize the spread of outbreaks on the continent, Figure 1 is a map of Africa. The shaded/highlighted areas show the countries on the continent that experienced EVD outbreak(s) at some point in the past since it was discovered in 1976 (note, the map excludes the outbreak in West Africa). This map helps the reader to
visualize the magnitude and spread of the disease in Africa. Note that South Sudan and Sudan used to be one country (previously known as Sudan). After decades of civil war, South Sudan split and gained independence from Sudan in mid-2011.

### Table 1.

*Ebola Outbreaks in Africa (exclude the 2013-2016 pandemic)*

<table>
<thead>
<tr>
<th>Countries</th>
<th>Years</th>
<th>Cases</th>
<th>Deaths</th>
<th>Case Fatality Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>DR Congo [formerly Zaire]</td>
<td>1976; 1977; 1995; 2007; 2008; 2012; 2014; 2017; 2018</td>
<td>318; 1; 315; 264; 32; 57; 66; 8; 87*</td>
<td>280; 1; 254; 187; 14; 29; 49; 4; 47*</td>
<td>88%; 100%; 81%; 71%; 44%; 51%; 74%; 50%; 54%</td>
</tr>
<tr>
<td>Sudan</td>
<td>1976; 1979; 2004</td>
<td>284; 34; 17</td>
<td>151; 22; 7</td>
<td>53%; 65%; 41%</td>
</tr>
<tr>
<td>Gabon</td>
<td>1994; 1996; 2001;</td>
<td>52; 91; 65;</td>
<td>31; 66; 53</td>
<td>60%; 73%; 82%</td>
</tr>
<tr>
<td>Côte d'Ivoire</td>
<td>1994</td>
<td>1</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>South Africa [ex-Gabon]</td>
<td>1996</td>
<td>1</td>
<td>1</td>
<td>100%</td>
</tr>
<tr>
<td>Uganda</td>
<td>2000; 2007; 2011; 2012</td>
<td>425; 149; 1; 31</td>
<td>224; 37; 1; 21</td>
<td>53%; 25%; 100%; 68%</td>
</tr>
<tr>
<td>Republic of Congo</td>
<td>2001; 2003; 2005</td>
<td>59; 178; 12</td>
<td>44; 156; 10</td>
<td>75%; 88%; 83%</td>
</tr>
</tbody>
</table>

*Estimate of on-going outbreak as of August 16th, 2018.

Data Sources: CDC (2018); B. S. Hewlett and Hewlett (2008); Tambo et al. (2014); WHO (2018a & 2018d).
was followed by the death of other members of his family – mother, grandmother, and 6 year old sister (Buseh et al., 2015; CDC, 2017; Fowler et al., 2014; Kieny et al., 2014; Moghadam et al., 2015; Richards et al., 2015; Stadler, Kühnert, Rasmussen, & du Plessis, 2014).

Figure 1. Countries with EVD Outbreaks in Africa since 1976
Map template modified from https://mapchart.net/

There is no clear evidence as to how the boy contracted the Ebola virus. The hypothesis, yet to be proven, suggests the boy may have come into contact with bat(s) carrying the
virus (Baize, 2015; Buseh et al., 2015; Carey, 2014; CDC, 2017; Ikuomola, 2015; Richards et al., 2015).

This West Africa region has porous borders in that people from the three neighbouring countries move freely across borders in this area and many other areas. This is because villages and towns are made up of family members who are scattered across borders. So, people cross back and forth to visit family members, go to markets, trade goods, attend funerals, and so forth (Richards, 2016). The outbreak’s first epicenter is not as remote/isolated as previous outbreaks in Africa.

Meliandou is located near busy regional business routes, where trade takes place among and between villages along the porous borders of Guinea, Liberia, and Sierra Leone. These trading routes helped transport the virus from Guinea across the borders into Liberia and Sierra Leone. As a result, Ebola cases immediately began traveling into border towns/villages in Sierra Leone – Kailahun district – and Liberia – Lofa county (Ikuomola, 2015; Richards et al., 2015). Specifically, Koindu, a hub for cross-border trade/market on the Sierra Leone side, is only 18.64 miles (30km) from Meliandou in Guinea and 11.19 miles (18km) from Lofa county in Liberia. Because the first cases of the disease were identified across the borders of Guinea, Sierra Leone, and Liberia, the porous nature of their borders led to explosion of cases in all three countries. Figure 2 is a map of Africa. The shaded/highlighted areas show the countries in upper West Africa that were affected by the 2013-2016 EVD outbreak. This map helps the reader to visualize the magnitude and spread of the disease in the region during the outbreak.
The Zaire species of the Ebola virus was responsible for the outbreak in West Africa. It is the deadliest species, with a case fatality rate of 50-90% (Fowler et al., 2014; Kouadio et al., 2015; Richards et al., 2015).

This outbreak had 28,646 cases and 11,323 deaths worldwide (WHO, 2016). Three most affected countries – Guinea, Liberia, and Sierra Leone – suffered the heavy burden of the disease. In this outbreak, for every 5 individuals who got the disease, 2 of them died. In Sierra Leone alone, there were more than 8,706 confirmed cases in which
3, 956 died (CDC, 2016). In fact, all of the country’s 14 districts were affected (Ross, Welch, & Angelides, 2017).

Other West African countries that saw cases include Nigeria (20), Mali (8), and Senegal (1) (WHO, 2016). Globally, the disease migrated across international borders affecting Italy, Spain, the United Kingdom, and the U.S. (see Table 2 for number of cases and deaths, including case fatality rate for each affected country). Nearly all of the spill-over cases to neighbouring countries in the region and the western hemisphere was due to imported cases. For example, the first case in Nigeria was believed to have been brought into the country through airplane by a passenger from Liberia, whereas the case in Senegal was brought into the country through ground transportation by a passenger from Guinea.

Also, the first case in the U.S. was diagnosed in Dallas (Texas), which was considered to be an imported case of a traveller from Liberia – sadly, the patient died several days later (Agusto et al., 2015; CDC, 2017; Grey & Devlin, 2015; Konneh, 2014). Interestingly, a person-to-person transmission was responsible for the case in Spain (Agusto et al., 2015; Buseh et al., 2015; Carey, 2014; Faye et al., 2015; Ravi & Gauldin, 2014). Because this dissertation focuses on Sierra Leone, it is important to discuss the transmission and spread of Ebola in the country.

Ebola in Sierra Leone

Sierra Leone’s first official confirmed case was detected in late May 2014 in Kenema, Kailahun District, Eastern Province (M. Koroma & Lv, 2015; National Ebola Response Centre, 2016; Ross et al., 2017). Patient-zero is believed to be a nurse who was
a midwife living in Koindu, Kailahun District, Eastern Province. She treated a patient from Guinea without knowing the patient had Ebola. Upon returning home, the nurse fell ill. She tried to go to the Kenema hospital for treatment, but didn’t make it. She was too weak to continue all the way to Kenema. Instead, she was admitted to a clinic in Daru. The wife of the Paramount Chief of Jawei Chiefdom, a good friend of the nurse, rushed to the clinic upon hearing the news of her sick friend. She nursed and cared for her friend (Richards, 2016). Up to this time, Ebola had not reached Sierra Leone, and thus people were not aware of the disease.

Few days later, the nurse passed away. Then the Paramount Chief’s wife and several staff at the Daru clinic became sick. Because this nurse was well known among her professional peers in the area, several staff at the clinic visited and sympathized with

Table 2.

The 2013-2016 Ebola Pandemic

<table>
<thead>
<tr>
<th>Countries</th>
<th>Cases</th>
<th>Deaths</th>
<th>Case Fatality Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sierra Leone</td>
<td>14,124</td>
<td>3,956</td>
<td>28%</td>
</tr>
<tr>
<td>Liberia</td>
<td>10,676</td>
<td>4,809</td>
<td>45%</td>
</tr>
<tr>
<td>Guinea</td>
<td>3,811</td>
<td>2,543</td>
<td>67%</td>
</tr>
<tr>
<td>Nigeria</td>
<td>20</td>
<td>8</td>
<td>40%</td>
</tr>
<tr>
<td>Mali</td>
<td>8</td>
<td>6</td>
<td>75%</td>
</tr>
<tr>
<td>Senegal</td>
<td>1</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>United States of America</td>
<td>4</td>
<td>1</td>
<td>25%</td>
</tr>
<tr>
<td>Spain</td>
<td>1</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>Italy</td>
<td>1</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>1</td>
<td>0</td>
<td>0%</td>
</tr>
</tbody>
</table>

Data Source: WHO (2016).
her while on the sick bed. However, no one knew the risk associated with her illness because Ebola had not entered the country. All in all, 27 people who visited the nurse at the clinic got sick and died (Richards, 2016). Later, 68 people who participated in the funeral ritual, including preparation of her corpse, got infected, sick, and died (Richards, 2016).

By July 2014, the virus reached the capital city, Freetown. This led to panic and fear maybe because it was the first time EVD had reached a capital city. It is estimated that Freetown alone was responsible for nearly 40% of all confirmed Ebola cases in the country (National Ebola Response Centre, 2016). By late 2014, the entire country was engulfed by the epidemic. All 14 districts were affected and seeing rapid spread of the disease. It got to the point where Sierra Leone was seeing more than 500 cases per week (National Ebola Response Centre, 2016).

In an effort to control and curtail the rapid spread of the disease that was blanketing the country during the early stage of the outbreak, the government of Sierra Leone ordered a three-day lockdown of the entire country from September 19-21, 2014. All outdoor activities were banned and no travel across town and between towns was allowed. A 24-hour curfew for the entire country was imposed. The purpose of the lockdown was not only to search for unreported/hidden cases, but also to educate the general public about EVD. During this three-day lockdown, 30,000 health workers went door-to-door, visiting about one million homes (Carey, 2014). This effort resulted in some positive outcomes. Specifically, “200 individuals came forth for testing, of which 50 were positive for the virus, and 92 unreported infectious corpses were discovered by
day 2” (Carey, 2014, p. 5). However, the virus continued to cause mayhem in the country.

By early 2015, the disease was still raging. This prompted the government to initiate another country-wide lockdown largely because it was believed that people were still hiding the sick and dead bodies in their homes. A three-day lockdown was initiated in late March 2015. This exercise resulted in the identification of 10 new cases and discovery of several dead bodies hidden in homes (IRIN, 2015).

However, the lockdowns are not without shortfalls. Many Sierra Leoneans did not like the curfews as it restricted people’s movement for critical needs. For example, low-income/poor families that relied on their daily market sales for subsistence were negatively affected in that providing food for their family became challenging during those days. Also, the local economies in small towns were impacted because trading was banned, thereby affecting income generation for these towns and the business community. Finally, local farmers who relied on their farming activities to feed their families were also affected in that all outdoor activities were prohibited, including farming.

In conclusion, from when the first EVD case in Sierra Leone was declared in late May 2014 and by March 17, 2016 when the country was declared free of Ebola transmission for the second time, a total of 14,124 confirmed, probable and suspected cases (nearly half the West Africa regional total), with 3,956 deaths, had been reported to the World Health Organization (WHO, 2016). Even though Sierra Leone had the highest
number of Ebola cases, its death rate was low, around 28%. Nevertheless, more people died in the country than all other countries affected in the region.

Multiple factors are blamed for amplifying the disastrous nature of the West Africa Ebola outbreak. These factors include migratory pattern, slow national and international response to the outbreak, fear and panic, lack of trust for national governments and foreign aid workers, and weak health systems, as well as socio-cultural issues. These factors are discussed in the forthcoming sections.

**Migratory Pattern and the Spread of Ebola**

The spread of Ebola began in remote villages that share porous borders between the three affected countries in upper West Africa – Guinea, Liberia, and Sierra Leone. It then spread from remote villages to urban centers within each country. Migration patterns in the region and within each country significantly influenced this rural-to-urban spread. This section describes this migratory pattern and the factors that influenced such migration.

A major spreader of EVD was migration. The movement of people in Sierra Leone from rural to urban and back, including trade and family visits between villages and towns, helped amplify the spread of EVD. The disease spread from East to West due to migration. Also, cross-border networking transported the virus across international boundaries, particularly among the three severely affected countries in the region.

In Sierra Leone, EVD travelled from East to West and then North to West. The road network in the country enabled such travel. Ground transportation carried the virus across national boundaries. According to Richards (2016),
The disease appears to have made a grand circular tour, starting in Kailahun, reaching Freetown and then spreading back up the main road system to the north of the country, finally completing the tour by arriving in the diamond districts bordering Kailahun on the west (p. 45).

The migration of the disease was enabled by the use of local transportation such as motorbike taxi, which is the most common form of transportation in deep rural areas because, unlike vehicles, these taxis go everywhere and are better at navigating the poor road system in Sierra Leone. Motorbike can travel to areas in the rural parts of the country where cars cannot reach due to poor roads. This makes motorbike taxi more accessible to villagers, and thus the common choice and form of transportation between villages. It was no surprise that villagers used motorbikes for all sorts of transportation needs during the outbreak. For example, some villagers used motorbikes to transport their sick family members either to local traditional healers or another village to seek medical treatment.

Another example of migration lies in the cultural arrangements related to caring for the sick. In Mogbisi, Gbo chiefdom in the Bo District, Sierra Leone, for wives born outside the village [of their husbands], this implies either moving the patient back home, or that a person from the home village will move to the sick woman’s marital location to offer care. In cases of Ebola such mobility could be a factor in inter-village spread of the disease (Richards, 2016, p. 88-89).

For inter-village movement of the sick for treatment, many remote villages in Sierra Leone cannot be accessed/reached by car or motorbike due to poor road network and/or unpaved roads. As a result, villagers transported sick people to a treatment facility outside their village via a hammock. As Richards (2016) observed in his survey of 26 villages in Sierra Leone during the outbreak, people from villages that were cut-off from
road networks used hammocks to transport their sick relative or member(s) of their community. However, the people who used hammocks didn’t wear protective clothing during the Ebola outbreak. This may have led to inter-village transmission of the disease. As one of the villagers who participated in the study explained, “[The] hammock swings [so there is risk that] the carrier will contract sickness from [an Ebola] patient” (Richards, 2016, p. 87).

For socio-cultural reasons, some people in Sierra Leone want and request to be buried in their hometown or village. This is a tradition that is observed and practiced by many of the ethnic groups in the country. People living in urban areas often require their family to bury them in their home village (this is also true for individuals living outside of their own village or town). As such, moving corpses from urban to rural areas and between villages is a common practice in Sierra Leone. As Richards (2016) observed during his decades of anthropology work in West Africa, “many males wanted their bodies [corpses] to be repatriated to be close to the focus of family life” (p. 91). This is because, Richards (2016) found, “in a patrilineal community, repatriated male bodies help guard the land rights of descendants of deceased person” (p. 91). In other words, culture tends to influence the reason behind the movement of corpses across Sierra Leone for burial. But, one needs to understand that not every ethnic group in the country engage in this socio-cultural practice.

Richards et al. (2015) and Richards and Mokuwa (2014) observed similar migratory patterns due to inter-village marriages in Sierra Leone. A Mende village in the Bombali district exemplifies a rural place where an inter-village marriage and funeral
rites play a key role in movement of the living and the dead (Richards et al., 2015). This is because a woman who is married into a village that is not her own is considered to be a stranger, and thus upon the death of her husband may end up being repatriated to her village. Upon her death, the husband may have to return the dead body to her family in another village. This cross-village transportation of dead bodies posed a serious risk of EVD transmission and the spread of the disease.

All this inter-village and rural-urban migration is made possible largely due to the socio-cultural makeup of a country. In particular, movements in the rural area between villages is very porous mostly due to the intimate presence of social networks. The rapid spread of EVD among and between the three affected countries in West Africa has been attributed to inter-village migration. For example, Richards et al. (2015) argued that,

Cross-border family-based and market networking among the Kissi-speaking settlements divided by colonial boundaries into three separate states (Guinea, Liberia, and Sierra Leone), has been a major factor behind the rapid build up of the disease in its epicentre (p. 9).

As a result, government authorities in the three affected countries banned the movement of dead bodies under the health emergency laws imposed during the Ebola outbreak with a focus on ‘safe burial’ practices. Burial teams were established to perform safe burial with a particular focus on biosafety measures based on safely handling dead bodies to mitigate the transmission of Ebola. However, such a mobility restriction was met with resistance, and not as effective as expected.

For example, Valdez, Rêgo, Stanley, and Braunstein, (2015) conducted a study that investigated the effects of mobility on the spread of the Ebola virus in Liberia. Based
on a quantitative method, they used a mathematical model to describe the spread and transmission of Ebola in Liberia in 2014, including a description of how migratory pattern across counties contributed to Ebola transmission. This study also attempted to predict the end of the spread of Ebola.

The results showed that restricting the movement of people (i.e., population mobility) had a minimal effect in the containment of the Ebola spread across counties. Specifically, “reducing mobility among counties only delays the spread of the disease, and has no practical effect in containing the Ebola epidemic” (p. 3). In other words, travel ban during Ebola outbreak is not effective in halting the spread of the disease. For example, people in the country boycotted the travel restriction that was established by the government known as “country lockdown.” People found a way to by-pass the lockdown. The spread of the diseases is inevitable. Therefore, reducing the mobility of people must be accompanied with other Ebola control and containment strategies for it to be effective such as countrywide sensitization campaign.

Nevertheless, some communities in the region took it upon themselves to restrict migration within and from outsiders into their areas so as to help contain and prevent Ebola transmission. For example, Abramowitz et al. (2015) found that some local communities in Monrovia – Liberia – came up with their own strategies that helped contain and prevent the Ebola transmission. Some of the strategies used by communities include restricted movement into and out of the community, self-quarantine, safely transporting the sick to ETCs or clinics, among others. In essence, local communities wanted to be trained in ways they can protect themselves and their communities. This
warrants the need to focus on socio-cultural factors aimed at changing people’s behavior to enhance the effectiveness and sustained control of the transmission and spread of EVD during an outbreak.

**Slow Response**

The late response by the international community, especially the World Health Organization exacerbated the Ebola outbreak. Although the international community eventually responded to the pandemic, they came to the game late – several months into the outbreak after it had been declared an international public health emergency and was out of control (Boozary, Farmer, & Jha, 2014; Roca et al., 2015). A panel of experts that was put together by Harvard Global Health Institute and the London School of Hygiene & Tropical Medicine (this independent panel was made up of members of the academia, civil society, and think tanks), which focused on the global response to the Ebola outbreak, concluded in its report that Ebola exposed WHO as unable to meet its responsibility for responding to such situations and alerting the global community (Moon et al., 2015) and that the global community as a whole responded to the outbreak too late.

There was a fragmented international response to the outbreak. WHO didn’t declare the outbreak as an international public health emergency until several months later. The global community as a whole responded at different times with different logistical supports (Richards, 2016; Sanders et al., 2015). For example, the United Nations Security Council approved the establishment of the UN Mission for Ebola Emergency Response (UNMEER) nearly 6 months into the outbreak. This resolution that led to the creation of UNMEER was historical because it received 134 co-sponsors,
which made it the most support received by a resolution within the UN system since it was founded in 1946 (Boozary et al., 2014). Ross and colleagues (2017) painted a picture of the weak global response as follows:

The initial response to the outbreak was characterized by confusion, chaos and denial. While a country can be overwhelmed by a serious outbreak, a situation in which WHO fails to mobilize the assistance needed to help a national government take control of an epidemic is unusual. The rest of the international community was, meanwhile, slow to rally. The window of opportunity to contain the outbreak through conventional control approaches closed, and the outbreak became a humanitarian crisis (p. 2).

On the other hand, national governments of the three affected countries were also slow in their response to the outbreak. This may be due to the fact that, as Abramowitz et al. (2015) noted, they lacked capacity and foresight in EVD, which emerged in this region of the world for the first time as well as due to their poor healthcare infrastructure.

Despite the late response, it was the international response, coupled with national actions that helped stamp out the outbreak. Even though the pledged response and resources from the international community arrived late in the region, it still helped with containment of the disease, which eventually resulted in ending the outbreak. Committed resources comprised of finance, health workers/personnel and other logistical supports such as personal protective equipments (PPEs), laboratories, ETCs, and ambulances, just to name a few. Major international players consisted of the African Union, the European Union, the U.S., China, The United Kingdom, Cuba, The World Bank, the International Monetary Fund, MSF, and the UN system, including WHO. Financially, about 5 billion U.S. dollars were committed for the fight against Ebola by early 2015 (Moon et al., 2015). Whether the entire amount was disbursed remains unclear.
Fear and Panic

As in previous EVD outbreaks in Africa, the pandemic in West Africa resulted in fear, panic, and misinformation. This may have been the case because EVD was a new disease in the region and no one knew how to effectively deal with this sudden rapid killing monster. Also, fear and panic happened mainly because, as B. S. Hewlett and Hewlett (2008) acknowledged, “the rapid spread of information is also a characteristics of an Ebola outbreak. Rumors and other information about the outbreak spread like wildfire via family and friends” (p. 123).

In particular, in their study that explored and assessed the public’s knowledge, attitudes, practices, and barriers related to EVD in Sierra Leone, FOCUS 1000, CDC, and the United Nations Children’s Agency [UNICEF] (2014b) found that even though awareness about the disease was high, and denial was low, there was significant misinformation about EVD. This may have led to distrust, fear, and panic among the general populace. Specifically, while 97% of respondents (out of 1,413 participants) believed EVD was real, 2 in 5 (42%) believed the disease can be prevented by washing with salt and hot water, whereas 1 in 5 (19%) believed traditional healers can treat it. For example, in their study on the Ebola epidemic in Sierra Leone, Tengbeh et al. (2018) found that rampant rumors about the disease in Kambia were often based on misinformation and/or distrust of government authorities, international health workers, and Non-governmental organizations (NGOs) working in the country. Some of these rumors included chlorine being used in ambulances and ETCs to suffocate patients (Tengbeh et al., 2018) and that body parts were being harvested in treatment centers.
(Richards, 2016). The same was true for Liberia where people believed that body parts were being dissected from dead people and that NGOs were keeping this practice a secret inside ETCs (Abramowitz et al., 2015).

As a result, Ebola victims did not want to be taken to ETCs, which in turn led many families to hide the sick and themselves provided care for their loved-ones. This reduced their chances of survival as well as resulted in the spread of the disease through emergence of new clusters of infection. For example, FOCUS 1000 et al. (2014b) found that during the early months of the outbreak, some people in certain districts across the country heavily resisted the intervention by health officials largely due to misconceptions, myths, and disinformation about Ebola. This in turn made it difficult to fight against the disease.

Fear and misinformation may have led to panic among the public and individuals in the region. In its August 2014 report on barriers to rapid containment of the outbreak, WHO mentioned fear as a serious problem impeding on rapid containment (Richards, 2016). This fear, as the report noted, led people to run away from quarantine areas; attack international workers/responders; and airlines refusing to transport PPEs. In their study of the barriers that prevented people from trusting the Ebola Response System (ERS) during the peak of the outbreak in Sierra Leone, Yamanis et al. (2016) found that most people in the country did not trust ERS largely because of fear and misperception of the system. This resulted in people choosing not to use ERS, which led to delay in seeking care, if any. They also found that people were afraid to call the Ebola Emergency Hotline/toll-
free nationwide number – 117 – because they believed that once taken to an ETC, they would die there.

Similarly, during previous outbreaks, local people ran away from ambulances and refused to take their sick family members to a hospital and/or ETCs or an isolation unit mainly due to fear and panic (Breman & Johnson, 2014; B. S. Hewlett & Hewlett, 2008; Hewlett et al., 2005; Hewlett & Amola, 2003; Richards et al., 2015). Fear, panic, and misinformation seem to be key characteristics of Ebola outbreaks as a whole.

Despite the negative portrayal of fear in the literature, it is important to realize fear can result in both positive and negative consequences. It can motivate individuals to take health-promoting (preventive/control) measures such as not to touch a sick person and to call an Ebola response team when someone is sick. On the other hand, fear can lead people to make poor health decision and engage in health-lowering activities such as denying the existence of the disease; blaming its origin on others like foreigners, the government; as well as stigmatizing individuals with the disease and survivors of the disease. In spite of this potential dual outcome, the literature on Ebola outbreaks primarily focuses on the negative consequences of fear.

In the case of the West Africa outbreak, fear was mostly manifested in poor health decisions as stipulated earlier. This in itself does not paint a holistic picture of the consequences of fear during Ebola outbreaks. Therefore, there needs to be more studies that take into account the potential health promoting consequences that may stem from fear of contracting EVD.
Lack of Trust

The distrust of national governments and foreign aid workers was blamed for amplifying the outbreak. This is largely the case because, as Buseh et al. (2015) explained, “trust is a critical component of public health because trust influences how people and a community respond to public health interventions and messages during complex emergencies” (p. 34). Trust is also a key factor that determines “personal compliance with and the overall success of public health efforts in developing countries (Yamanis et al., 2016, p. 3). The lack of trust in a public health system is detrimental to any health promotion and prevention strategy and/or program focused on either improving people’s health and/or prevention and treatment of disease. Distrust ultimately hinders public health initiatives, which are key to address health emergencies such as this outbreak.

Distrust was not only true for the West Africa pandemic; previous outbreaks in Africa experienced similar fate (Borchert et al., 2011; Breman & Johnson, 2014; B. S. Hewlett & Hewlett, 2008; Hewlett et al., 2005; Hewlett & Amola, 2003; Richards et al., 2015). During the West Africa outbreak, local people, in general, didn’t trust their national authorities and foreigners working in their country. The then President of Sierra Leone, Ernest Bai Koroma, wrote in an online World Street Journal article, “the devastation caused by Ebola was symptomatic of wider problems... Public skepticism of government hindered the national response early on as warnings, guidance, and advice went unheeded” (E. B. Koroma, 2015, para 2, 7). In all the affected countries, there was serious distrust of government personnel and foreign workers (Agusto et al., 2015;
Cenciarelli et al., 2015; Carey, 2014; Maxmen, 2015; Roca et al., 2015; Ravi & Gauldin, 2014; Schroven, 2014).

The issue of distrust of national governments may be due to longstanding socio-political realities in the countries affected, which were recovering from long civil wars and suffered from rampant corruption. In Sierra Leone’s case, when Ebola hit the country, it was recovering and rebuilding from a decade (1991-2002) long civil war that devastated the nation. People were traumatized as a result. The legacy of the war caused serious damage to the social, economic, and political fabric of the country. For example, it fuelled distrust of government authorities and destroyed its infrastructure such as schools and the health system.

In a multi-year survey of multiple villages in rural Sierra Leone with a focus on exploring people’s trust for local and national public institutions – i.e., police, political leaders, community leaders representing the government, courts, and national authorities – Richards and colleagues (2015) found low levels of trust for national public institutions. People also didn’t trust strangers (members outside of their community). Interestingly, as expected, the respondents trusted extended family members, friends, and community members more than national authorities. Some trust for local authorities was rated better than national authorities. This then warrants the need for a focus on community-based sensitization to control and contain disease transmission as distrust may have contributed to the rapid transmission of EVD across the region.

In addition to distrust of national authorities, foreign aid workers and NGOs experienced similar fate. One only needs to look at recent history to contextualize the
distrust of Westerners in Africa. The poor legacy of colonialism on the continent and the slave trade resulted in serious dislike and distrust of Westerners within the region. The common African sentiment/feeling is that the West is always out to benefit from Africa’s vast natural resources at the expense of Africans. So, it is no surprise that such a distrust was evident during the outbreak. For example, some West Africans believed EVD was introduced to the region by white foreigners (Western governments and/or companies) as a means of population control (Grey & Devlin, 2015) and that white doctors were intentionally infecting West Africans with the Ebola virus in order to perform drug test (Professor J. Glynn, personal communication, August 31, 2015) at the expense of African lives.

The consequences of distrust for both national authorities and foreign workers was also evident as local people refused to seek medical help at minimum and in some instances became aggressive towards health workers and Ebola response teams. For example, several months into the outbreak, MSF doctors reported more than 15 villages in the hot zone around Guéckédou, Guinea, denied medical teams access into their communities. Similarly, many villages in Guinea and Sierra Leone resisted invasion of strangers into their communities. Deep distrust of outsiders led many villages in Sierra Leone and Guinea to isolate themselves from the outside world by, for example, cutting bridges and/or blocking roads that linked them to nearby villages or towns (Fairhead, 2014).

Such a nation-wide resistance to health workers took an aggressive turn in some communities in the region. This led to local people being hostile to international health
and NGO workers, which included physical attacks and destruction of ETCs and medical equipments. Physical attacks on health workers were fatal as evident in the Nzerekore prefecture/district in Guinea where villagers attacked and killed eight Ebola responders who were there to explain to local communities about the risk of Ebola in late 2014 (Fassassi, 2014; Fairhead, 2014; Maxmen, 2015; Richards, 2016). Similarly, in a Kissi village called Tekoulo in Sierra Leone, a group of young people from the village beat and chased out a team of health workers who were there to raise awareness about the disease and damaged the vehicles that belonged to this team of humanitarians (Richards, 2016).

When it is all said and done, lack of trust for national authorities and foreign aid workers impeded on the control and containment of the outbreak. For example, Moon et al. (2015) reported “a growing lack of trust between population groups and government authorities hindered community mobilization and public education” (p. 2206.). On a similar note, Tengbeh and colleagues (2018) found that individuals in Kambia (Sierra Leone) who participated in their study, distrusted the Sierra Leone healthcare system. As a result, they did not go to public hospitals and specialist treatment centers for fear of getting infected or dying there. Tengbeh et al. (2018) also observed community-wide distrust for national healthcare in Sierra Leone during the outbreak. They blamed this distrust on the failure of the health system to provide adequate healthcare, even before and during the outbreak.

Similarly, in their study on the impacts of Ebola on community health and the health systems in Sierra Leone, Elston et al. (2016) found that individuals in two districts – Moyamba and Koinadugu – were disappointed at, and thus distrusted the health system
because it failed to take care of them. One of the participants in their study, a senior member of the District Ebola Response Center, reported that “nurses will ignore the people for fear of being infected” (p. 674). This in turn created a negative perception on the side of the general public that the healthcare sector is rigged with negligence; it does not meet their health/medical needs. In effect, it is useless as far as they are concerned.

However, one must use caution not to generalize the distrust of government officials and foreigners to majority of the population. This is because the issue of distrust is complex and difficult to assess among the general population, especially for health workers and politicians. For example, a study conducted by FOCUS 1000 et al. (2014b) in Sierra Leone contradicts previous findings on the distrust of health professionals and government authorities. They found that while majority (60%) of participants (out of 1,413 respondents) perceived health and medical professionals as the most trusted source of information on Ebola related issues, government ranked second with 48%. In two of the districts surveyed – Kailahun and Kenema – trust for health professionals ranged from 70-86%.

Nevertheless, it is important to acknowledge that FOCUS 1000 et al. (2014b) finding is in the minority, especially in post-conflict countries that include Liberia and Sierra Leone. While most of the studies on Ebola outbreaks in Africa found a high level of distrust of government, and to some extent, public health professionals, including NGOs, this study found the opposite. This may warrant a follow-up study in Sierra Leone to determine the level of trust for health professionals and government during the Ebola outbreak.
In summary, fear, panic, misinformation, and lack of trust for national authorities and public health personnel, especially foreign aid workers, are believed to have helped worsen the rapid spread of EVD in this region. This is particularly true for Sierra Leone and Liberian (both recovering from a decade of civil war) and Guinea. For one, the fatal attacks on NGO health workers by villagers in Sierra Leone and Guinea is a clear illustration of people’s fear and distrust of national authority and foreigners.

**Weak Health Systems**

The weak state of the health systems in the three affected countries was also blamed for the poor response to the EVD outbreak. Guinea, Liberia, and Sierra Leone have very weak health systems. This weakness can be “attributed to poor resource management, corruption and years of chronic under-spending on health and social care services” (Tengbeh et al., 2018, p. 37). Also, the legacy of war in the region played a part in destroying the infrastructure of these countries. The health systems collapsed as a result of the decade-long civil war in Sierra Leone and Liberia. Hence, when Ebola hit the region, the health systems were not able to respond adequately.

For Sierra Leone, the health system “was undoubtedly overwhelmed by the sheer magnitude of the outbreak, but the inability of the state to deliver health services had been apparent well before Ebola” (Tengbeh et al., 2018, p. 37). Ebola only exposed the weakness of the health system, which eventually levelled the little care that was there before the outbreak. The poor state of the system in the country has been around for decades. It did not start with the outbreak.
For the three affected countries as a whole, the weakness of the health systems was manifested in poor health facilities and significant shortage of health workers (Agusto et al., 2015; Boozary et al., 2014; Buseh et al., 2015; Carey, 2014; Gostin, 2015; Kieny et al., 2014; Kouadio et al., 2015; Richardson et al., 2016; Stadler et al., 2014; Tengbeh et al., 2018; Yamanis et al., 2016). On average, there were only 2 doctors for every 100,000 people and these doctors were mostly concentrated in urban areas (Chan, 2014; Ikuomola, 2015). In particular, at the time of the outbreak, Sierra Leone had 136 doctors for a population of 7.2 million (Piot, 2016).

Poor health management administration, weak surveillance system, and limited/inadequate drug supply were the signs of the weak health systems in West Africa (Buseh et al., 2015; CDC, 2017; Kieny et al., 2014; Kouadio et al., 2015). This severely affected the region’s capacity to handle the outbreak. As Margaret Chan mentioned, during the first few months of the outbreak “isolation wards and even hospital capacity for infection control are virtually non-existent” (Chan, 2014, p. 1183). These countries didn’t have the capacity to deal with the outbreak or any other major outbreak for that matter. The healthcare capacity was non-existent.

There was a lack of quality of care, which was evident in shortage of basic health resources needed to provide adequate and quality care such as “protective gloves and gowns, intravenous fluids, and straightforward protocols and guidelines” (Boozary et al., 2014, p. 1859). As a result, health facilities were not equipped with critical resources, in particular, health/medical workers and supplies, which significantly impacted the efforts by local and international medical personnel, resulting in delayed response. For Sierra
Leone, Tengbeh et al. (2018) found individuals in Kambia complained about “disappointing care… lack of professionalism among healthcare workers, and previous experiences of inadequate care” (p. 37). Richardson and colleagues (2016) who conducted a study in Sierra Leone on Ebola Survivor’s experience, added that broken-down healthcare, coupled with, among other factors, poor quality of care provided to sick Ebola patients, played a key role in spreading the disease.

Now, cultural factors that may have contributed to the transmission and spread of Ebola in Sierra Leone include traditional healing, burial practices/funeral rituals, religious dynamics, and family care. To contextualize this discussion, it is important to first present the theoretical foundation related to socio-cultural contexts and infectious diseases.

**Conceptual Framework**

Ebola is a disease of context, which is influenced by social, economic, cultural, biological, and political factors, just to name a few. On this basis, a socio-cultural approach to health and disease help foster a deeper understanding of infectious diseases such as the Ebola outbreaks in Africa. As Armenakis and Kiefer (2007) suggest, health issues need to be placed within a socio-cultural context by using a socio-cultural approach to explore and understand a particular disease, especially within the African environment. This socio-cultural perspective is important for healthcare because, as Armenakis and Kiefer (2007) assert, “in order to be an effective provider,” one “must understand the ways people think about health and illness; individual behaviors and habits that influence health” (p. 5). In essence, the effectiveness or success of public health initiative(s) is dependent, in part, on understanding the factors that influence one’s
attitude and behavior towards health promotion and disease.

To assist the reader in understanding the theoretical discussion on the culture-disease dynamic, it is important to first define culture as well as situate it within the context of this study (i.e., operationalization of human culture). For this research, human culture is based on an anthropological definition and characterization. Although there are varieties of definitions of human culture, anthropologists tend to define and characterize culture as “knowledge and behaviours transmitted and acquired through social learning” (B. S. Hewlett & Hewlett, 2008, p. 13). The main elements of human culture include habits and practices, knowledge and schema, artifacts, and institutions such as economic, educational, political, and social (B. S. Hewlett & Hewlett, 2008).

Culture is also characterized in terms of people’s beliefs and behaviors. For Cresswell (2013), culture “consists of what people do (behavior), what they say (language), the potential tension between what they do and ought to do, and what they make and use, such as artifacts” (p. 95). The beliefs and behaviors as key characteristics of culture are critical in understanding the reason(s) an individual or a group of people think the way they do and why they behave in certain ways with regard to their attitudes and actions toward certain health conditions or diseases. Ultimately, culture may influence how individuals respond to such health issues. Therefore, it is crucial to situate disease outbreak within a socio-cultural context. This study uses a socio-cultural perspective to explore and understand the cultural practices that may have influenced the transmission and spread of EVD in Sierra Leone.
More specifically, the socio-cultural perspective posits that:

Social and cultural factors inevitably interact with biology to impact health. This confluence of factors determines a person’s experience and definition of health and illness (p. 15); access to healthcare (p.16); response to disease, pain, disability; experience of pain and healing (p. 17); treatment expectations and options; and health outcomes (Armenakis & Kiefer, 2007, p. 19).

Socio-cultural perspective fosters a deeper understanding of health within the means of key factors that includes culture, religion, politics, history, and economics as well as society’s view of science in influencing a person’s well-being. Within the realm of the socio-cultural perspective, a central theory emerges – Dunn’s (1984) theoretical framework. This theory postulates the control and containment of a disease outbreak should address or be based on four key areas:

(1) Factors in the community that are health enhancing; (2) factors in the community that are health lowering; (3) factors outside the community that are health enhancing; and (4) factors outside the community that are health lowering” (B. S. Hewlett & Hewlett, 2008, p. 30).

In this respect, while the phrase ‘in the community’ refers to local cultural belief and practices, ‘outside the community’ relates to domestic and international initiatives and teams of individuals (B. S. Hewlett & Hewlett, 2008). Dunn’s (1984) framework suggests the need to identify the beliefs and practices that influence risky behavior(s) in local communities as well as at a nationwide and international level. He terms such risky behavior(s) as health-lowering. On the other hand, the framework emphasizes the need to identify factors that may help promote positive health outcomes, which are referred to as health-enhancing.

In summary, the framework provides guidance for this study as socio-cultural factors may have played a key role in the transmission and spread of EVD in Sierra
Leone. This framework does not paint a romantic picture of local cultures in that it acknowledges that some beliefs and practices are detrimental to health and well-being. Only certain practices and beliefs contribute to poor health outcomes. This being said, one must use caution not to draw sweeping conclusion about a culture, but rather to focus only on those unique beliefs and practices that have been identified as detrimental to health. In this endeavor, Dunn’s (1984) framework is useful as a tool to guide the collection of data and serves as a framework to analyze results.

Although the specific goal of this study is focused on the health-lowering spectrum of Dunn’s (1984) framework, extensive review of the literature supports the health-enhancing side of this framework. Past studies found that some communities affected by Ebola in all previous outbreaks, including the one in West Africa, played a significant role in ending the transmission of the disease in their respective communities by modifying their cultural practices as well as using traditional norms to fight against the disease (Borchert et al., 2011; B. S. Hewlett & Hewlett, 2008; Hewlett et al., 2005; Hewlett & Amola, 2003; Lamunu et al., 2004). Together, this study’s focus on health-lowering through socio-cultural factors that contributed to the transmission of EVD and the findings in the literature on health-enhancing through communities’ active participation in the fight against EVD, illustrate the appropriateness to use this conceptual framework for the study.

More specifically, socio-cultural factors are believed to have played a role in the Ebola outbreak in West Africa. According to Abramowitz et al. (2015), key international health organizations, in particular the CDC, WHO, and MSF noted that multiple socio-
cultural factors, including culture and people’s behaviors, contributed and exacerbated the outbreak in the three affected countries in West Africa. For example, in their study of epidemiological and surveillance response to the EVD outbreak in one of Liberia’s counties, Kouadio et al. (2015) observed that socio-cultural factors, such as unsafe burial practices, were among the variables that contributed to making the outbreak much worse and increased the rapid spread of the disease. On this basis, the remainder of this chapter reviews the literature on cultural belief and practices that potentially influenced the transmission and spread of EVD during the outbreak. These factors include family care, funeral rituals/burial practices, and traditional healing, as well as social norms such as communal dining and handshake.

Table 3 displays the literature sources for socio-cultural contexts on health and diseases, with a particular focus on infectious disease outbreaks such as EVD. More than 30 research articles were reviewed. As the literature table illustrates, more research is needed in this area, especially with regards to emerging rapid killing infectious diseases such as EVD.

**Cultural Belief and Practices**

Multiple cultural factors (beliefs and practices) have been linked to the transmission and spread of EVD during the 2013-2016 outbreak. These factors consist of traditional healing, caring for loved-one, funeral rituals/burial practices, including religious dynamics as well as forms of social interaction such as communal hand washing and dinning, and handshake.
Table 3.

**Literature Sources**

<table>
<thead>
<tr>
<th>Socio-Cultural Context of Infectious Diseases</th>
<th>Sources</th>
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<tbody>
<tr>
<td>Abramowitz, Hipgrave, Witchard, &amp; Heymann (2018); Abramowitz et al. (2015); Armenakis &amp; Kiefer (2007); Agusto, Teboh-Ewungkem, &amp; Gumel (2015); Borchert et al. (2011); Buseh, Stevens, Bromberg, &amp; Kelber (2015); Carey (2014); Cenciarelli et al. (2015); Dunn (1984); Elston et al. (2016); Faye et al. (2015); FOCUS 1000, CDC, &amp; UNICEF (2014a &amp; 2014b); Fairhead (2014); B. S. Hewlett &amp; Hewlett (2008); Hewlett &amp; Amola (2003); Hewlett, Epelboin, Hewlett, &amp; Formenty (2005); Ikuomola (2015); Kouadio et al. (2015); M. Koroma &amp; Lv (2015); Lamunu et al. (2004); Moghadam, Omidi, Bayrami, Moghadam, &amp; SeyedAlinaghi (2015); Maxmen (2015); Ravi &amp; Gauldin (2014); Richards (2016); Richards et al. (2015); Richards &amp; Mokuwa (2014); Richardson et al.(2016); Roca, Afolabi, Saidu, &amp; Kampmann (2015); Sanders, Sengupta, &amp; Scott (2015); Schroven (2014); Stadler, Kühnert, Rasmussen, &amp; du Plessis (2014); Troncoso (2015); Tengbeh et al. (2018); Tambo, Ugwu, &amp; Ngogang (2014).</td>
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Paul Richards (2016), Emeritus Professor of Technology and Agrarian Development at Wageningen University in The Netherlands, Adjunct Professor at Njala University in Sierra Leone, and anthropologist who has been living and working in West Africa for over three decades, conducted an ethnographic field study in Sierra Leone where he surveyed 26 villages in eastern and central regions of the country in December 2014 (i.e., peak of the Ebola outbreak). He examined people’s perspectives and actions in response to the outbreak. This study culminated into a book, which showcases the people’s science in responding to Ebola at the peak of the outbreak. The study used
purposive sampling, which included 7 villages with Ebola cases and 19 without. Most of the villages spoke Mende, with some Temne-speaking villages. It utilized a combination of qualitative and quantitative data collection techniques that included focus groups, field observations, face-to-face interviews, and a questionnaire that contained open-ended questions to get data on causes of sickness, death, quarantine, normal ways of preparing dead bodies for burial and reaction to safe burial, and access to healthcare centers. The book concluded that while local responses and cultural practices such as family care, traditional healing, and unsafe burial practices contributed to the transmission and spread of the disease across the country, the way local people responded to the Ebola epidemic in Sierra Leone helped to end it (i.e., a people’s science).

The book presents an interesting perspective on local people’s response and contribution to end the EVD outbreak, while at the same time arguing that socio-cultural factors played a central role in amplifying disease transmission. It is, therefore, crucial to look at the two sides of the coin so as to gain a holistic view and understanding of the role of local people in health emergency(s) such as disease outbreaks.

However, the book’s primary ethnographic focus on two ethnic groups in Sierra Leone (Temne and Mende) limits the generalizability of the findings. This is because Ebola doesn’t discriminate in terms of ethnicity, religion, or race. It cuts across ethnicity and religion. For instance, while some cultural practices may be common across ethnic groups in Sierra Leone, such as burial, others may be different and unique to one ethnic group, such as mourning ceremonies. It is therefore important not to generalize the finding to other ethnic groups or the general population. Nevertheless, the book presents
key cultural factors that play a role in the EVD outbreak both in terms of spreading the
disease as well as the people’s response and active participation in ending the outbreak.

From this backdrop, this section presents in-depth review and discussion of the
aforementioned cultural belief and practices. Table 4 presents the literature sources on
cultural factors related to EVD with a particular focus on the study areas – cultural belief,
family care, traditional healing, and funeral rituals. In addition, social norms and stigma
are included in the study area because the literature shows they are a psychosocial
phenomenon in EVD outbreaks.

Cultural Belief

Cultural belief shapes and influences an individual’s or a group’s attitude towards
a health issue or disease. It then influences traditional perception and explanation of such
a health condition or disease. Some of the traditional beliefs that are mentioned in the
literature with regards to infectious diseases, such as Ebola, includes witchcraft (Buseh et
al., 2015; B. S. Hewlett & Hewlett, 2008; Carey, 2014; Fairhead, 2014; FOCUS 1000 et
al., 2014b; M. Koroma & Lw, 2015; Roca et al., 2015; Tambo et al., 2014), sorcery
(Buseh et al., 2015; B. S. Hewlett & Hewlett, 2008; Hewlett et al., 2005; Roca et al.,
2015), evil spirit (Carey, 2014; B. S. Hewlett & Hewlett, 2008; FOCUS 1000 et al.,
2014b; Hewlett & Amola, 2003; Roca et al., 2015; Tambo et al., 2014), and curse (Buseh
et al., 2015; Carey, 2014; Fairhead, 2014; FOCUS 1000 et al., 2014b). In particular, Roca
and colleagues (2015) observed that many communities in West Africa attributed EVD to
evil spirits, witchcraft, or sorcery. For example, some people in Sierra Leone believed a
curse by the gods or spirit of dead ancestors were the cause of the disease and rapid death inflicted on the country, and as such, there is no such thing called Ebola (Fairhead, 2014).

Table 4.

*Literature Sources by Study Area*

<table>
<thead>
<tr>
<th>Study Areas</th>
<th>Sources</th>
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<tbody>
<tr>
<td>Cultural belief</td>
<td>Agust, Teboh-Ewungkem, &amp; Gumel (2015); Buseh, Stevens, Bromberg, &amp; Kelber (2015); Carey (2014); Fairhead (2014); FOCUS 1000, CDC, &amp; UNICEF (2014b); B. S. Hewlett &amp; Hewlett (2008); Hewlett, Epelboin, Hewlett, &amp; Formenty (2005); Hewlett &amp; Amola (2003); M. Koroma &amp; Lv (2015); Roca, Afolabi, Saidu, &amp; Kampmann (2015); Tambo, Ugwu, &amp; Ngogang (2014).</td>
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<td>Family care</td>
<td>Abramowitz et al. (2015); Borchert et al. (2011); Faye et al. (2015); B. S. Hewlett &amp; Hewlett (2008); Hewlett &amp; Amola (2003); Peters &amp; Peters (1999); Ravi &amp; Gauldin (2014); Richards (2016); Richardson et al. (2016); Richards et al. (2015).</td>
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<td>Traditional healing</td>
<td>Buseh, Stevens, Bromberg, &amp; Kelber (2015); Borchert et al. (2011); Carey (2014); Fairhead (2014); FOCUS 1000, CDC, &amp; UNICEF (2014b); B. S. Hewlett &amp; Hewlett (2008); Hewlett, Epelboin, Hewlett, &amp; Formenty (2005); Hewlett &amp; Amola (2003); Ikuomola (2015); Maxmen (2015).</td>
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<tr>
<td>Funeral rituals</td>
<td>Agust, Teboh-Ewungkem, &amp; Gumel (2015); Borchert et al., (2011); Chan (2014); Carey (2014); Cenciarelli et al. (2015); Fairhead (2014); FOCUS 1000, CDC, &amp; UNICEF (2014b); Gostin (2015); B. S. Hewlett &amp; Hewlett (2008); Hewlett, Epelboin, Hewlett, &amp; Formenty (2005); Hewlett &amp; Amola (2003); M. Koroma &amp; Lv (2015); Maxmen (2015); Moghadam, Omidi, Bayrami, Moghadam, &amp; SeyedAlinaghi (2015); Richards (2016); Ravi &amp; Gauldin (2014); Roca, Afolabi, Saidu, &amp; Kampmann (2015); Richards et al. (2015); Richards &amp; Mokuwa (2014); Stadler, Kühnert, Rasmussen, &amp; du Plessis (2014); Troncoso (2015).</td>
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<tr>
<td>Social norms</td>
<td>Hewlett &amp; Amola (2003); Ravi &amp; Gauldin (2014); Richards et al. (2015).</td>
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<td>Stigma</td>
<td>FOCUS 1000, CDC, &amp; UNICEF (2014a); B. S. Hewlett &amp; Hewlett (2008); Hewlett &amp; Amola (2003); Moghadam, Omidi, Bayrami, Moghadam, &amp; SeyedAlinaghi (2015); Richardson et al. (2016); Richards (2016); Tambo, Ugwu, &amp; Ngogang (2014).</td>
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The consequences of certain beliefs are far reaching in that they form, shape, and influence traditional explanation(s) of disease. Such explanation(s) often creates a barrier to health promotion and disease prevention. This can give rise to development of myths, rumors, and prevent people from seeking medical attention. For example, witchcraft is commonly attributed to illness in many parts of West Africa, especially in rural areas.

A common myth about Ebola was that it is caused by witchcraft. Many people in the northern part of Sierra Leone believed that individuals got infected with Ebola by invisible witches who shot their victims with the Ebola virus (Professor J. Glynn, personal communication, August 31, 2015). Another closely related explanation for the emergence of Ebola in the country was that an airplane full of witches crashed somewhere in the country, and this is a reason why lots of people were dying from the disease (M. Koroma & Lv, 2015). The people in different parts of Sierra Leone attributed the emergence of EVD to different phenomenon. While people in the northern part of the country blamed the transmission of the virus to witchcraft, those in the Western area and Freetown attributed the spread to well water poisoning (M. Koroma & Lv, 2015).

In addition, sorcery is widespread in West Africa. It serves as a key factor to explaining daily events. Sorcery is used as a common explanation for the sickness and death of adults. This is mainly the case because, as B. S. Hewlett and Hewlett (2008) confirms, “sorcery is often used to explain the illness of early Ebola cases because this is how local people understand rapid unexplained deaths of otherwise healthy adults” (p. 71). People use sorcery for multiple reasons such as to explain misfortune or to inflict harm (like sickness or death) on individuals they don’t like or are jealous of either their
wealth or other successes like higher social status. This was also true for previous Ebola outbreaks. For example, many people in the DRC, Gabon, Republic of Congo, and Sudan attributed the early cases of EVD to sorcery (B. S. Hewlett & Hewlett, 2008).

Using sorcery to explain sickness or disease outbreaks has negative consequences for the control and containment of Ebola outbreaks. Individuals with such traditional explanation don’t believe the disease is or can be transmitted through physical contact because an illness due to sorcery cannot be transferred to another person through physical contact and can only be treated by a traditional healer (i.e., herbalist). This eliminates the need to avoid physical contact of someone who is sick with whatever disease. This in turn can amplify the transmission and spread of Ebola during an outbreak largely because people won’t limit their physical contact with an Ebola patient. For example, Agusto et al. (2015), who used a mathematical model with sensitivity analysis to assess the role played by cultural belief and practices in the spread of EVD in Guinea, found the aforementioned cultural factors played an important role in amplifying the outbreak largely because most people refused to follow and adhere to the public health guidelines related to disease prevention.

However, the literature on this matter is limited, as most studies did not involve in-depth assessment or examination of the influence or impact of witchcraft, evil spirits and/or sorcery on the transmission of EVD in West Africa. They mentioned these beliefs in a paragraph or so within their respective texts. Nevertheless, there is a consensus in the literature that cultural belief, such as witchcraft, evil spirits, and sorcery, played a role in shaping, and thus forming of traditional explanation(s) of the EVD outbreak, which in
turn influenced people’s perceptions of the disease and their responses to it. And such response resulted in negative outcomes in the form of transmission of the disease in communities. Such a limited study of cultural belief in EVD outbreaks warrant the need for more research on this issue so as to build a body of knowledge on the unique role that cultural belief play in EVD outbreaks.

Family Care

Caregiving (nursing) or caring for a sick family member/relative is human nature. Humans are nurturing beings. We tend to care for our loved-one(s), especially members of our family. It is no surprise to care for each other when we are faced with difficult situations such as a disease outbreak. This was the case during EVD outbreaks. Specifically, caring for sick family member(s) is a common practice in Sierra Leone, Liberia, Guinea, and West Africa as a whole. Families cared for each other, despite the dangers inherent in doing so. This section discusses family care with a focus on why, how, and the consequences of such care during an EVD outbreak.

Ebola is a nasty disease that is uniquely different from other diseases in that it attack the very basis of family life – the daily care we provide for each other. In particular, “it punishes those who care for the sick” (Richards, 2016, p. 2). This is largely due to the fact that, as Richardson et al. (2016) noted, “Ebola is fundamentally a disease of people who care about others, but lack the staff, stuff, space, and systems to do so safely” (p. 121). As such, the individuals close to a dying person have been the ones nursing their relatives. This puts those family members who provide care for their loved-ones at high risk of contracting the disease.
Caregiving for a sick person with EVD mainly consist of: (1) bathing; (2) feeding; (3) cleaning up after the sick; and (4) washing his/her belongings such as clothes and bedsheets. However, caring for a loved-one who is sick with Ebola, such as handling bedclothes soiled with vomit or feces, can result in infection. These physical objects lead to infection as a result of handling the fluids of the sick person.

In his extensive review of the literature on the Ebola virus, including earlier outbreaks, Peters and Peters (1999) found that family caregivers “suffered the major burden of secondary infections” in Kikwit, DRC (p. xi). Similarly, caring for sick family members/relatives contributed to the spread and transmission of Ebola in Liberia (Ravi & Gauldin, 2014), Guinea (Faye et al., 2015), and Sierra Leone (Abramowitz et al., 2015; Richards, 2016; Richards et al., 2015; Richardson et al., 2016).

More specifically, Richardson and colleagues (2016) conducted a study in Sierra Leone on Ebola Survivors’ experience. They analyzed the outbreak using a biosocial model to explain the multiple factors that may have contributed to EVD and/or helped stop transmission in Sierra Leone within the context of human rights. As a qualitative study that used an ethnographic research design, participants consisted of four (4) Ebola Survivors in Kono, Eastern Province. The face-to-face interviews were done in Krio, audiotaped, and transcribed. The findings revealed that all research participants/Ebola Survivors took care of family members/relatives who were sick, and soon afterwards, they got infected with EVD. In other words, participants contracted Ebola after they had taken care of their sick loved-ones.
Even though informed consent was obtained from research participants with a compensation of 50,000 Leones (equivalent to $10 USD), an Institutional Review Board (IRB) approval was not obtained, because, as Richardson et al. (2016) claimed, their institution’s review board – Stanford Institutional Review Board – did not require IRB application/protocol to be submitted if research participants for a study is less than five individuals. However, regardless of the number of research participants, ethical review should be undertaken for any research involving human subjects. Qualitative studies often involve limited/small number of participants, with some studies only focused on one (1) research participant. Are we to say the safety or ethical consideration of one participant is less important than say 4, 5, 6, or 50 participants?

Ethical procedures should be followed for every study involving a human subject. The purpose of an ethical research review board is to ensure that every study to be conducted meet ethical standards established for research involving human subjects. Therefore, the number of participants to be included in a study should not matter. For example, the mid-size Midwestern University in the United States of America that hosted the researcher of this study required him to submit an IRB application for approval even though the proposed number of research participants was 3-5 individuals.

Furthermore, in his field work in Sierra Leone, using an ethnography and case study methods, Richards (2016) found that one of the contributing factors to the “person-to-person infection pathway is through family care.” This is because, Richards (2016) observed, “the main risks, from virus load in body fluids, are encountered in the ‘wet’ phase of the sickness, and in preparing the corpse for burial” (p. 26).
Similarly, Sharon Abramowitz and colleagues (2015) studied community responses in Liberia during the outbreak by using a qualitative methodology. They examined 15 communities in the capital city of Liberia, Monrovia, in mid-September 2014. Focus groups were conducted with 386 community leaders with a goal to come up with strategies and recommendations to end the Ebola outbreak. The study found that some of the participants felt a natural duty to take care of their sick family members/relatives. As one of the women stated, “it will be impossible that my child or husband is sick and I refuse to touch them. I do not have the courage or heart to do that” (Abramowitz et al., 2015, p. 11). This woman echoed the feelings and perspectives of many people across Africa.

For example, in their study of Ebola transmission in Conakry, Guinea, Faye et al. (2015) found that, after controlling for multiple sources of infection, “72% of transmissions occurred between family members” (p. 323). This is mostly due to taking care of sick family members. In fact, Faye and colleagues (2015) argued that the second epidemic wave that hit Conakry was largely due to lack of cooperation from families who refused to comply with advice from health authorities regarding close contact with each other.

Previous outbreaks in Africa revealed similar outcome. During the outbreak in Uganda (2000-2001), the index family in Masindi that was under quarantine ignored and refused to comply with the Ebola Response Team’s advice to limit physical contact within the family. They cared for their sick relatives (Borchert et al., 2011). Similarly, in their study of the same outbreak in Northern Uganda among the Acholi people, Hewlett
and Amola (2003), found that caring for a family member, especially among women, significantly contributed to the transmission of the disease by about 63%.

Also, B. S. Hewlett and Hewlett (2008) found that during the outbreaks in Congo in the early and mid-2000s, caring for sick family members contributed to the transmission and spread of the disease. This was largely due to lack of access to clinic/hospital and better transportation in the rural areas where the outbreak occurred. These areas had very poor road. As a result, sick family members were cared for at home. But some people opt to transport their sick family member to a nearby clinic by using “a pushcart, or on the back of a bicycle” (p. 116). For those who have access to a vehicle, they used this means of transportation, which is very limited in the rural area.

As the literature illustrates, it is important to focus on the culture of family care in Ebola endemic areas. This is because caring for relatives is a human nature even when it is fatal to do so. As Abramowitz et al. (2015) suggested, “we need to better understand how strong and dense the emotional ties that bind families and communities together are and can be, precisely how Ebola, and the failed Ebola response, is doing violence to those social ties” (p. 4). It is only after such a deep understandings of emotional and social ties can public health initiatives be in a better position to begin to effectively address the risks associated with family care in the midst of disease outbreaks.

Traditional Healing

Many people in Sub-Saharan Africa, especially in the rural areas, visit/consult traditional healers (also known as herbalists) for a variety of reasons: from seeking treatment to an illness to pursuing explanation and cure for a misfortune befalling a
person or family; to performing spiritual cleansing, funeral rituals and burial ceremonies; and to conducting traditional initiation like circumcision (male and female). The services of traditional healers are highly demanded and respected, and thus sought by many people in this part of the world. This makes traditional healing a vital source for consultation and cure during an EVD outbreak.

First and foremost, it is important to acknowledge both biomedicine and ethno-medicine (i.e., traditional healing) are used in Africa, but not integrated (Buseh et al., 2015). While both models exist together and used parallel to each other, they are not integrated. Ethno-medicine has been used in Africa for centuries. For most Africans, especially those living in rural areas, traditional healing is their first choice to seek healthcare for infectious and non-infectious diseases. If it fails, they may seek modern medicine (i.e., biomedicine). Nearly 85% of the population in Sub-Saharan Africa often consult and/or seek primary healthcare from traditional healers (International Development Research Centre, 2011).

Often, some people combine both modern medicine and traditional healing to maximize the outcome of their health needs. Most Africans trust traditional healing, and thus it has been popular for centuries (Ikuomola, 2015). People abide by whatever a traditional healer tells them to do. For instance, if a healer tells a patient not to go to the hospital, or not to visit a family member, he/she would do as told. Regardless of what happens at the consultation with a healer, even if a patient dies, the family would revisit the healer to figure-out why the person died. This is how much faith and trust many Africans have for their traditional healers. So, it makes sense for people to seek
traditional healing for a disease (in this case Ebola) that is known to not have a cure. It is therefore understandable that many people in the affected countries sought healthcare from traditional healers during the outbreak.

Buseh et al. (2015) claimed, in the absence of a biomedical treatment for a particular disease such as Ebola, it makes sense for local people to seek treatment from traditional healers. Fairhead (2014) observed a similar outcome in that because some people didn’t believe Ebola was real, it made no sense to seek western medicine for something that doesn’t exist. For example, according to Boakye, Pietersen, Kotze, Dalton, and Jansen (2014), majority of people in Sierra Leone depend on or use traditional healing/medicine for health and medical purpose.

Specifically, FOCUS 1000 et al. (2014b) conducted a follow-up study that used mixed methods to explore and assess the public’s knowledge, attitudes and practices associated with EVD in Sierra Leone as well as identified roadblocks/barriers that hindered the containment of the outbreak. They used interviews, focus groups, and survey instruments to collect data. A survey was administered to 1,413 participants in all four regions and all 14 districts across the country in October 2014. The findings showed increased levels of comprehensive public knowledge on EVD and ways to prevent it. Positive attitude and behavioral changes were also found among participants relating to prevention and treatment of EVD largely due to social mobilization efforts.

The study also found that in Sierra Leone even though awareness about the disease was high, and denial was low, there was significant misinformation about EVD. While 97% of respondents (out of 1,413 participants) believed EVD was real, 1 in 5
believed traditional healers could treat the disease. This finding illustrate that it made common sense to local people to consult traditional healers who are perceived as experts in treating curses and other evils in this world – something that Western medicine cannot treat or fix.

The FOCUS 1000 et al. (2014b) conclusion is somewhat questionable in that it feels like the study was designed to arrive at results that may then be used to help the Sierra Leone government in the fight against EVD outbreak. Although the study was done in collaboration with CDC and UNICEF, which provided logistical support, the design of the study seemed to be a bit biased toward expected results. This may have resulted in crafting of questions geared toward expected results. Nevertheless, this is not to question the credibility of the study, but rather observe that the study design could have been more robust and minimize bias as much as possible.

Traditional medicine has been linked to the transmission of EVD in nearly all outbreaks in Africa (Borchert et al., 2011; B. S. Hewlett & Hewlett, 2008; Carey, 2014; Fairhead, 2014; Hewlett et al., 2005; Hewlett & Amola, 2003; Ikuomola, 2015; Maxmen, 2015). This linkage is due to the risks of infection associated with the practice of traditional healing. The practice does not only involve the use of herbal remedies, but also includes “attempt to placate and remove the supernatural curse or offending spirit” (Carey, 2014, p. 2). Some of the healing procedures involve cutting the skin and inserting medicines into it, rubbing some kind of herbal lotion on the skin of a person, making herbal drinks, and sucking out poison from a person (B. S. Hewlett & Hewlett, 2008; Carey, 2014; Hewlett et al., 2005).
Traditional healing also involves direct physical contact between the healer and patient or victim, which sometimes include the touch of bare skin and contact with body fluids. Physical contact primarily makes this ethno-medicine practice high risk for EVD infection as the virus is not only transmitted via body fluids, but also through other objects that have been infected. As a result, traditional healers have been linked to the transmission and spread of EVD in West Africa and previous outbreaks.

Carey (2014) examined the socio-cultural and political realities that contributed to the spread of Ebola in West Africa, including a discussion on the role of secret societies in the transmission of the disease. It utilized a qualitative method that included field observation and visual research techniques, as well as review of the literature. Thirty three (33) selected examples of sacred Poro art and artifacts were examined to illustrate the traditional beliefs and healing practices of this secret society, including the ritual activities of Poro.

The results illustrate that a number of socio-cultural and political factors contributed and exacerbated the transmission of Ebola in Sierra Leone. These factors included ignorance about Ebola, traditional healers of secret societies, and burial practices. Specifically, activities of secret societies, particularly traditional healing, contributed to the disease transmission in the country. For example, a traditional healer in a border village called Sokoma in Sierra Leone, neighbouring Liberia and Guinea, was linked to a chain of transmission. It is believed that a person from a nearby village in Guinea crossed into Sierra Leone to visit this traditional healer who had claimed to have
the power to cure Ebola. Following this visit, the healer got sick and died. Many individuals who had contact with her also got sick and died.

In their separate studies of the 2000-2001 outbreak in Northern Uganda using mixed methods, Hewlett and Amola (2003) and Borchert et al., (2011) found that traditional healing practices contributed to the transmission of Ebola during that outbreak. This local practice of indigenous healing amplified the outbreak in Northern Uganda. In fact, some traditional healers in Sierra Leone lost their lives while trying to heal suspected or probable Ebola patients. As Ikuomola (2015) observed during the outbreak, many traditional healers in the region thought they had the power to treat Ebola, and thus most of them end up losing their lives.

Interestingly, Carey’s (2014) study is the only research that I am (the author of this dissertation) aware of that actually examined and assessed the activities and sacred art and artifacts of a secret society in Sierra Leone within the context of the Ebola outbreak. This being said, there needs to be more of this kind of research to build a body of knowledge on secret societies and infectious diseases.

Although secret societies like Poro in Sierra Leone are popular, majority of people do not belong to a secret society. For this reason, one needs to use caution not to generalize the findings to all secret societies in the country. Secret societies are exclusively member-driven. Their beliefs and practices are only well known to members and kept secret. This makes research on secret societies very challenging, and thus may explain the limited number of studies on secret societies and infectious diseases.
However, while traditional healing practices have been found to amplify EVD transmission, healers may also help in the fight against EVD outbreak. For example, an interview conducted with a traditional healer – Fallah James – in Sierra Leone, by the International Federation of Red Cross and Red Crescent Societies, illustrates the crucial role that traditional healers played in Sierra Leone. Mr. Fallah was the leader of nearly 200 traditional healers in Kailahun district. This region was highly infected as it was where patient-zero emanated from, which is at the intersection of the Guinea and Liberia borders. Mr. Fallah claimed to be a Muslim as well, which in turn gives him some religious influence as a spiritual healer among his people. Despite acknowledging his ignorance of Ebola, Mr. Fallah cooperated with health workers and promised to relay the health awareness messages about Ebola to his other traditional healers (Carey, 2014; Mueller, 2014).

Although traditional healing poses high risk of infection and therefore transmission of EVD, traditional healers could also play a role in the fight against the disease. This is because they are well trusted in this region and many people seek their help. It is, therefore, crucial that public health initiatives take into account traditional healing practices when designing and implementing community health programs during health emergency(s), such as EVD outbreaks.

**Funeral Ritual: Burial and Mourning Ceremonies**

Like other cultural practices, funeral ritual, which is manifested in the form of burial practices, is part of daily life in Africa. Religious systems shape and influence this human practice. They play a major role in the cultural underpinnings of individuals and
societies. This in turn shape a person and society’s value system, including the traditional customs and practices, such as funeral rituals.

Spirituality is a common way of life in Guinea, Liberia, and Sierra Leone. Majority of people belong to either Islam or Christianity with a small portion of the population belonging to the indigenous belief system. All these belief systems have one thing in common; they view death as sacred, and thus the need to perform certain funeral rituals, such as washing a dead body (Fairhead, 2014; Grey & Devlin, 2015; Jarasevic, 2014; Maxmen, 2015; Richards, 2016; Roca et al., 2015; Ravi & Gauldin, 2014; Richards et al., 2015; Troncoso, 2015).

Certain religious principles dictate certain traditional customs, especially when it comes to funeral rituals and mourning ceremonies. For example, while Islam requires that a dead person be buried within 24 hours, Christianity does not impose time limits. Also, all belief systems in West Africa require the preparation of the corpse in some form before burial, which always involve some kind of touching. Whereas Christians close the eyelids of the dead, wash and dress the corpse, Muslims wash the dead as well, but wrap him/her in a white cloth. While Christians bury the dead in a casket, Muslims bury the dead without a casket (only wrapped in a white cloth).

Certain communities across Africa hold a unique view of life after death. Many cultures believe the ultimate goal of life after death is to become “an ancestor in the spirit world” or go to heaven to be with God (Roca et al., 2015, p. 863). On this basis, certain prescribed funeral rituals must be performed in order to prepare the dead for the after-life journey. This is where certain religious belief systems come into play. They have a
prescribed way of preparing and burying the dead. Following such prescribed principles is crucial because, as Roca et al. (2015) explains:

The person might be subjected to severe torture, rejected by the ancestors, or transformed into wandering ghosts or torments if these rules are not followed. In some cultures improper burials are only reserved for witches and sorcerers, whose bodies are sometime subjected to burning, fed to carnivores, or secretly disposed of in isolated places and away from family graves (p. 863).

From a socio-cultural perspective, carrying-out a burial is considered to be a social obligation in many cultures across the continent. Africans have more respect for the dead than the living. For example, some West Africans in the affected countries held the common belief that “to die of Ebola is one thing, but to be deprived of an afterlife is quite another” (Fairhead, 2014, p. 9). As such, funeral rituals are performed primarily as a way to obtain a better after-life. It is preparing the dead for the journey to the after-life in which he/she would join his/her ancestors. Therefore, a proper burial ceremony is key to enabling the dead person to safely travel to the village of the dead, where his/her ancestors would welcome him/her.

However, if the necessary rituals are not performed in accordance to a cultural belief and practice, this journey may not take place, thereby getting the dead spirit to be trapped in this world of the living. If this happens, the dead is then believed to return to torment his/her family members. This warrants the need to treat a dead body with respect and perform traditional rituals to prepare the corpse for the after-life.

It is therefore critical to understand why Africans, in general, perform certain funeral rituals and mourning ceremonies the way they do. It is not just out of their liking, but rather based on a belief system ingrained in culture, which in turn makes burial a
sacred custom. For example, all the spiritual systems (Islam, Christianity, and others) in Liberia hold some kind of mourning ceremony (a wake) for the dead before burial so as to “console each other and celebrate the life of the deceased. Family members usually handle the corpse themselves, and funeral attendees pay their respects by touching or kissing the body of the deceased” (Ravi & Gauldin, 2014, p. 302). The mourning custom is also common in Sierra Leone (Richards, 2016) and Guinea (Aguto et al., 2015), as well as in Uganda among the Acholi people (B. S. Hewlett & Hewlett, 2008; Hewlett et al., 2005).

Now, one may be thinking, how do funeral rituals/burial practices cause transmission of EVD? The answer to this question lies in the process involved in preparing a corpse for burial and the mourning ceremony performed to pay last respect to the dead. Firstly, it is crucial to recall that Ebola virus is very active on a dead body. A corpse contain high viral load, thereby making it highly contagious. Dead bodies are severely infectious because, as Borchert et al. (2011) acknowledged, “body fluids tend to leak out of corpses in abundance, dead bodies are a significant source of contamination” (p. 371). As a result, a corpse poses high risk of transmitting the Ebola virus.

It is not the funeral ritual that leads to infection, but rather the process of preparing the dead body for burial. This is because foreigners, especially Westerners, often confuse the two vehicle of transmission. Richards (2016) observed that “in much of the region [West Africa] there are no professional undertakers. The family prepares a dead body for burial” (p. 7). As a result, Richards (2016) concluded, “…body-handling was one of the key infection pathways powering the Ebola epidemic” (p. 8). Handling of
the corpse during the preparation phase and mourning ceremony is what leads to EVD infection.

The handling of a dead body for burial primarily involves physical contact. Touching of the dead body takes many forms at different phases of the burial preparation. B. S. Hewlett and Hewlett (2008) vividly summarized these forms of touching as:

Washing and dressing the deceased for observation and burial; placing the deceased on a bed for twenty-four hours while family members kiss, hug, and lay next to their loved ones; wrapping the deceased in a sheet before being buried; performing the communal washing of hands after the burial; participating in social interactions, such as dancing and sleeping together, that occur for several days after the burial (p. 116).

These forms of touching enable a corpse to serve as a pathway for viral infection.

In most parts of Africa, the preparation, including washing of dead bodies, is performed by relative(s) of the deceased or a close family member (Borchert et al., 2011; B. S. Hewlett & Hewlett, 2008; Cenciarelli et al., 2015; Fairhead, 2014; Hewlett & Amola, 2003; Moghadam et al., 2015; Ravi & Gauldin, 2014; Richards, 2016). At the funeral, lots of touching take place as a way of bereavement and empathizing with the family of the deceased. People attend funerals to offer emotional support to the bereaved. Additionally, touching of the corpse is a way to express sympathy and/or bid farewell (Richards & Mokuwa, 2014). So, it makes sense to connect the high risk of infection to touching of the corpse of someone suspected to have died from Ebola.

The consequences of funeral rituals/burial practices are severe, especially in terms of EVD transmission. Funeral rituals and burial practices, including mourning ceremonies, contributed to transmission in almost all previous outbreaks, including the one in West Africa (B. S. Hewlett & Hewlett, 2008; FOCUS 1000 et al., 2014a; FOCUS
In 2014 alone, over 300 Ebola cases were linked to a funeral in Sierra Leone during the first six months of the outbreak (WHO, 2014). Similarly, nearly 60% of Ebola cases in Guinea were associated or traced to traditional burials in 2014 (Chan, 2014).

Individuals who attended the mourning ceremony and funeral of patient-zero’s grandmother in early December 2013, in Guéckédou, were hypothesized to have been responsible for the initial chain of EVD transmission in their villages (Carey, 2014). They may have contracted the virus at the funeral and brought it with them to their respective villages, which in turn led to the first earlier EVD transmission in the region. This happened long before there were any cases reported in Sierra Leone and Liberia. Some of these mourners lived in remote villages neighboring Sierra Leone and Liberia, which ultimately made it easier for the cross-border disease transmission and spread that followed.

For Sierra Leone in particular, funeral rituals/burial practices, including mourning ceremonies, were linked to EVD transmission. Nearly 70% of new infection cases in the country were traced to funeral rituals (Maxmen, 2015). The first 14 cases were linked to the funeral of a traditional healer (Richards, 2016; Stadler et al., 2014). FOCUS 1000 et al. (2014b) found that most of the research participants surveyed in all 14 districts had been around a dead body and/or participated in a funeral/burial ceremony in the previous month. Specifically, 12% (out of 521 responses) in the Western area, which include the capital city, had participated in a funeral/burial ceremony in the previous month. Of those...
who reported attendance of funeral ceremonies, 5.1% reported (out of 124 responses) to have touched the corpse, whereas 2.7% reported to have participated in washing the dead body. This practice was common in all the provinces and among both gender.

The initial transmission of EVD in Sierra Leone was traced to a traditional healer who treated a sick person from Guinea, who turned out to have had Ebola. Few days later, the healer got sick and died (Carey, 2014; Jarasevic, 2014; M. Koroma & Lv, 2015). The healer was given a traditional burial rite, which lots of people from nearby towns attended. Later, more than 300 deaths were linked to this initial funeral (Carey, 2014; Jarasevic, 2014).

Another example in Sierra Leone came from a village in Bumpe – Kono district – where a funeral was linked to several Ebola related deaths. A taxi driver transported a sick woman from Ndogboi village – an EVD epicentre – to Kono Government Hospital. A week later the taxi driver got sick and died. The community held a funeral for the driver. Several days later many people got sick, which resulted in 40 deaths (Richardson et al., 2016). Similarly, in a rural town called Dolo in Liberia, the deaths of 52 people were traced to the funeral of a woman (Hinshaw, 2014; Ravi & Gauldin; 2014).

Faye et al. (2015) conducted a mixed methods study that investigated the chain of transmission of EVD in Conakry, Guinea, including the different strategies used to control the spread of the disease. They utilized meta-analysis, cross-sectional observation, and interview research techniques to collect data. Using existing data on probable and suspected EVD cases between February and August 2014, they “mapped chains of transmission, identified which setting infections most probably originated from
(community, hospitals, or funerals), and computed the context-specific and overall reproduction numbers” (p. 320). Research subjects comprised of 152 Ebola patients. The mean age of the patients were 34.4 years, with females making up 45% of the sample.

The results reveal that although funerals and hospitals contributed to the transmission of the Ebola virus in Conakry, the situation changed overtime toward a declining nature. Funerals accounted for 15% of the transmission. Nevertheless, infectious disease control measures influenced the decline in transmission from funerals and hospitals.

While the article detailed research procedures, explanation and description of the research methods were confusing. For example, whereas the researchers claimed that interviews with patients, their families, and neighbors, were necessary, they did not provide in-depth analysis of the number of individuals interviewed, who was interviewed, and results from such interviews. It is unclear whether interview data were used to supplement the mapped data retrieved from existing data on confirmed and probable cases. This should have been made clear to aid the reader in understanding the data analysis and conclusion that were derived from data collection. In turn, this makes it difficult to accurately evaluate the data analysis of the study, thereby its findings.

Furthermore, in previous outbreaks funerals/burial practices were associated with Ebola transmission. Barry Hewlett and Bonnie Hewlett co-authored a book titled *Culture and Politics: The Anthropology of an Emerging Disease*, which is based on their groundbreaking work on past Ebola outbreaks in northern Uganda and DRC. Barry was one of the first Anthropologists invited by WHO to work on the first Ebola outbreak that
occurred in the DRC in 1976. Their book presents case studies that investigated and explored how local people cope with the deadly Ebola virus in Central Africa, including their perceptions and responses to the disease as well as the socio-cultural, political, and structural factors that played a role in disease transmission and prevention.

The authors’ qualitative case studies used multiple data collection techniques that included interview, field observation, and focus groups. As a whole, the book concluded that local people’s perceptions of EVD, including multiple socio-cultural, political, and structural factors, influenced their response to the disease in Central Africa. People also used different cultural models to explain and respond to EVD. While some of their responses amplified the disease, other responses helped control and contained the transmission and spread of the disease.

Specifically, as presented in the book, in their case study of the cultural aspects of Ebola in Uganda, B. S. Hewlett and Hewlett (2008) observed that among the 60 Ugandan Ebola Survivors that participated in their study, “23 percent of the women and none of the men who survived Ebola believed they were infected by washing the body of an Ebola victim” (p. 55). The findings also indicated that “thirty-two percent of the men and 19 percent of the women believed giving a love touch at a funeral infected them” (p. 55). In essence, handling of a corpse, which include washing and touching a dead body, contributed to Ebola infection, which in turn may have resulted in the spread of the disease.

As a result of the key role that funeral/burial practice played in EVD transmission in the three affected countries, safe burial protocols were instituted. This safe burial
practice is commonly referred to as barrier nursing. It is central to minimize or prevent infection due to handling of corpse for burial. For this reason, governments and health workers in all the affected countries in West Africa established safe burial protocols to help aid communities engage in safe burial practices. This resulted in the creation of burial teams across the region.

Burial teams were trained in biosafety and infection control measures related to handling of an infected corpse and perform burial in a safe manner. Religious and community leaders – Imams, Pastors/Priests, and Chiefs – were also used by national authorities to help discourage people from engaging in unsafe interaction with the dead and the need to modify funeral rites by working with burial teams for safe burial of their relatives (Maxmen, 2015). For example, Figure 3 shows one of several public notice billboard erected across Freetown, Sierra Leone, that warned the general public on the dangers of touching a dead body.

However, many communities rejected and refused to engage in barrier nursing. This was largely due to the sacred nature of burial as described above. From the outset, there was a huge resentment of burial teams by communities in Sierra Leone. They felt that dead bodies were handled disrespectfully. In other words, the burial teams did not engage in dignified handling of corpses in a way that conformed to traditional burial practices.

Because it is the relative or family’s responsibility to bury the dead, not a stranger, burial teams were more unacceptable. In their follow up study on the public knowledge, attitudes, and practices relating to EVD during the outbreak in Sierra Leone,
FOCUS 1000 et al. (2014b) found that 32% of research participants rejected “alternatives to traditional funeral/burial practices not involving the washing or touching of the dead body” (p. 9). This was mainly due to the sacred nature of burial practices in the country, which involves washing and/or touching dead body during burial preparation.

![Figure 3](image.png)

*Figure 3. Public Awareness Billboard in a Neighbourhood in Freetown
Photo credit: Abubakarr Jalloh, author of this dissertation*

Due to the sacred nature of funeral rituals in Africa, coupled with concerns from Ebola responders on the ground who emphasized a critical need to incorporate traditional burial practices, WHO came up with a new strategy based on safe and respectful/dignified burial in late 2014 (Richards, 2016; Richards et al., 2015). The new
approach to safe and dignified burial allowed religious and community leaders to be part of burial teams to lead prayers and family members to look from a distance while loved-ones are buried as well as sometime allowing families to hold grieving ceremonies that conform to local customs in memory of the dead. This strategy eased the tension and provided some sort of acceptance from some local communities. For example, the Imams (Muslim priests) were allowed to pray on a corpse before burial.

However, local participation in direct burial was not allowed as strangers performed burial practice (team members were not from within the community). This in turn complicated the burial process, as local communities wanted to be trained to perform safe burials. As Richards (2016) found in his survey of 26 villages in Sierra Leone during the outbreak, “the idea of villagers being trained and equipped to take over the work [of burial teams] was raised without prompting in nearly a quarter of all focus group sessions” (p. 103). This finding rose to about a half in villages that had Ebola cases. But, this community’s need was not incorporated into the new burial team approach.

To ensure their loved-one(s) gets a better after-life preparation, one tactic used by some communities was to perform all the necessary funeral rituals before handing the corpse to a burial team. An Ebola Contact Tracing Officer observed that washing of dead bodies by local people before the arrival of burial teams contributed a lot to the amplification of Ebola transmission in Sierra Leone (Richards, 2016). My friend, Saidu Bah, who was a Contact Tracer during the outbreak in Sierra Leone experienced similar situations in the city of Makeni (personal communication, February 20, 2017). Although safe burial protocols were instituted in all the countries affected, many communities did
not adhere to it even when it included the performance of certain safe rituals such as
allowing an Imam or Priest to pray on the corpse before a burial team take the body for
burial. At the end, funerals continued to amplify EVD transmission in the region.

Social Norms

Another important socio-cultural factor in this region relates to forms of social
interaction. The way people interact, socially, is significantly shaped and influenced by
culture. In particular, touching is a socio-cultural practice in West Africa. I like to refer to
us, West Africans, as “social beings” in that we love to socialize with each other, which
often involves touching such as handshaking, fist pounding (especially among youth),
sharing food with each other (i.e., communal dinning), and lots of dancing. Other forms
of social norms include communal hand-washing, marriage and naming ceremonies, as
well as local market social interaction, just to name a few. These social norms have direct
implication for EVD transmission.

First and foremost, it is vital to acknowledge the literature on the aforementioned
social norms is almost non-existent. A number of studies have mentioned the role that
traditional social norms play in health emergency(s) such as EVD outbreaks. Nearly all
research articles mention a form of social interaction in passing or to make a point
regarding social issues in disease outbreak. In other words, social issues in EVD outbreak
have received little attention. For example, while Hewlett et al. (2005) mentioned
handshake in their discussion on traditional greetings during the 2003 EVD outbreak in
the Republic of Congo, Lamunu et al. (2004) briefly discussed communal hand-washing
in an analysis of the 2000-2001 Ebola outbreak in Uganda. Nevertheless, my lived-
experience as a Sierra Leonean, coupled with my public health background, I am in a better position to make the connection between traditional social norms in Sierra Leone and infectious disease transmission such as EVD.

One of the most commonly referenced traditional African social norm that plays a role in EVD transmission is communal hand-washing (i.e., everyone washes their hands inside the same container or bowl). This practice often takes place at social events such as naming ceremonies and funerals. For example, Hewlett and Amola (2003) observed that, during the 2000-2001 outbreak in northern Uganda, the Acholi ethnic group “at the funeral, all family members ritually washed their hands in a common bowl (p. 1245). This practice also happens in Liberia (Ravi & Gauldin, 2014).

For Sierra Leone, during the naming ceremony of a newborn, which happens within a week of childbirth, and marriage ceremony, a lot of social interactions take place that include handshake, hugging, and dancing together. Also, everyone shares food by eating from the same plate or bowl. Everyone washes and rinses their hands in the same bowl with the same water before and after eating. These social interactions pose high risk of EVD transmission. According to M. Koroma and Lv (2015), during the outbreak in Sierra Leone many people in the Western Area –regarded as the most informed region – continued to hangout in market places and hosted birthday parties without any regard for the high risk posed by these social encounters.

Richards et al. (2015) conducted a qualitative study that examined the socio-cultural factors that influenced the transmission of EVD in rural Sierra Leone. The research was based on a case study that utilized field observation and interview
techniques. The research relied on existing data from 4 years of rural household surveys in Sierra Leone. These surveys comprised of:

(i) a study of household structures and food security in three isolated communities in northern Moyamba District adjacent to Fogbo, undertaken in May-June 2014, (ii) a national random sample of 2200 rural households in 117 villages in 47 chiefdoms undertaken in 2014, (iii) a survey of 91 villages in 7 chiefdoms around the Gola Rainforest National Park in Kenema, Kailahun and Pujehun districts undertaken in 2013, and (iv) a survey of 187 village communities and 2460 households undertaken in 2010 in the same region (p. 5).

For this particular article, the researchers used specific data on Fogbo village located in the Moyamba district. The case study focused on this village. The results indicated that multiple socio-cultural factors contributed to the spread of EVD in rural Sierra Leone. These social factors includes inter-village social networking, marriages, family care, and land tenure.

In addition, it is worthwhile to share my lived-experience on communal-dinning, another potential contributor to EVD infection. This form of dinning involves everyone eating on the same plate or bowl. Most common is eating with bare hands (not spoon or fork). The food is placed on a large plate or bowl with everyone seating in a circle format and eating from it. Most often, individuals wash their hands without soap from a water container before eating. The same water is used to wash hands after the eating is complete. This practice is common among family members, especially those that live in the same household.

In my household and that of my friends and many other families in Freetown and Makeni (the two cities where I grew up and lived), communal dinning is a common practice. This practice poses high risk of infectious disease transmission such as
Influenza and Ebola. This is because, not washing hands with soap before sharing food with others on a single plate, an infected person is most likely to transmit such infection, especially when everyone washes their hands with the same water in a bowl. This form of communal dining increases the risk of infection or transmission of infectious disease largely because individual(s) infected with the virus may infect others indirectly via the hand-washing water or the food being shared. It is thus crucial to raise community awareness regarding this issue and disease infection, especially during an EVD outbreak.

Another common theme discussed in the literature relates to the unique experiences by individuals who survived EVD (i.e., Ebola Survivors). The literature agrees that Ebola Survivors experienced stigma primarily as a result of having had the disease. The next section discusses this issue.

**Stigma and Surviving Ebola**

Stigma is a socially connected issue related to infectious diseases. Even though it is not part of the social fabric of society, stigma often manifests itself during and in the immediate aftermath of infectious disease outbreak. As Buseh and colleagues (2015) observed “social stigma as a response to a disease is not a new phenomenon. Historically, the following infectious diseases are associated with a stigma: influenza, tuberculosis, HIV/AIDS, and severe acute respiratory syndrome” (p. 33). In the case of EVD, Ebola Survivors are often the victims of stigma. Such stigma could result in psychosocial difficulty such as social isolation.

Most, if not all, Ebola Survivors experienced stigma in previous EVD outbreaks (Abramowitz et al., 2018; Buseh et al., 2015; B. S. Hewlett & Hewlett, 2008; FOCUS
1000 et al., 2014a; Hewlett & Amola, 2003; Moghadam et al., 2015; Richardson et al., 2016; Richards, 2016; Tambo et al., 2014). For instance, Richardson and colleagues (2016), who conducted a study in Sierra Leone on Ebola Survivor’s experience using a biosocial approach, found that all research participants reported experiencing stigma after being discharged back into their respective communities. One of the participants explained that “people don’t come near you when you’ve had Ebola. They say we don’t want you near our place again” (Richardson et al., 2016, p. 118).

Stigma poses a serious challenge for Ebola Survivors in nearly all the affected countries. Previous studies found similar outcomes. For example, Hewlett and Amola (2003) found that many of the Ebola Survivors of the 2000-2001 outbreak in northern Uganda experienced stigma within their family and community. Some of the difficulties (stigmatizing events) encountered by them within their families included not being allowed to return home; clothes and other belongings destroyed/burnt; being abandoned by a spouse; children stayed away from their parents/warned not to touch them; and wives told to return back to their own village/banished from their husband’s village. In addition, the discrimination against survivors by the community and/or neighbours included being feared by other people in the community, which in turn resulted in being rejected or turned away from public places such as local markets.

For Sierra Leone, many Ebola Survivors experienced stigma from their communities. Some of them have been shunned by communities (Richards, 2016). FOCUS 1000 et al. (2014b) found in Sierra Leone that most Ebola Survivors experienced
stigma in the forms of discrimination (96%), not being welcomed back into the community after recovery (76%), and discriminated/bullied in school (32%).

The story of Maima Kiawu (Aidoo, 2014) in Liberia illustrates the severity of stigma and the potential harmful effects on Ebola Survivors. She fell to the disease after being sick for only a few days. Maima left behind six young children who were stigmatized by their local community to the extent that people in the local markets refused to sell food to them. These children were also shunned by their own friends who refused to play or spend time with them, despite the fact that they underwent quarantine and were declared Ebola-free. One can only imagine the psychosocial impact, such social isolation, this experience may have on a child.

For this reason, a major community sensitization campaign in the region focused on creating awareness on accepting back survivors into the community was initiative by government authorities. One message was focused on assuring the general public not to be afraid of Ebola Survivors because they are disease-free and don’t pose risk of infection to others. On this basis, the Sierra Leone government erected billboards across the country that showed the then/former President, Ernest Bai Koroma, interacting with Ebola Survivors. Figure 4 represents an example of one of the billboards in Freetown, Sierra Leone (note: the President is in the front row seat with a child on his lap).

Despite the community sensitization campaign, some Ebola Survivors continue to experience stigma as the studies by Richardson et al. (2016) and Richards (2016) illustrated above. In fact, as reported by the President of the Sierra Leone Ebola Association in a recent interview, stigma is among the post-Ebola challenges facing the
Ebola Survivor community (BBC Focus on Africa, 2018a). As such, this issue is worth being explored in post-Ebola Sierra Leone so as to understand the extent of this discriminatory social practice.

Figure 4. Billboard in a Neighbourhood in Eastern Freetown, as Part of a Country-wide Sensitization Campaign on the Fight against Stigma of Ebola Survivors

Photo credit: Abubakarr Jalloh, author of this dissertation

Chapter Summary

This chapter analyzed and synthesized relevant literature on the role that cultural practices play in the transmission and spread of EVD in Africa with a particular focus on West Africa. The chapter also discussed socio-cultural factors that may have helped the rapid spread of the Ebola virus across West Africa and Sierra Leone in particular. These
factors include fear and panic; distrust of government authorities and foreign workers; and stigma of Ebola Survivors, as well as norms of social interaction.

The purpose of this study was to explore the cultural practices that may have contributed to the rapid transmission and spread of EVD in Sierra Leone by using a socio-cultural perspective. As revealed by the literature reviewed, these cultural practices include funeral rituals, traditional healing, cultural belief, and family care. The literature indicates a need for more research on socio-cultural issues related to emerging infectious diseases such as EVD. As such, this study was aimed at revealing cultural practices that may have influenced the transmission and spread of EVD in Sierra Leone. Also, it identify lessons learned from response to the 2013-2016 EVD outbreak in West Africa with a particular focus on Sierra Leone so as to provide recommendations to respond to potential future outbreaks of this deadly disease in Sierra Leone and the region as a whole.
CHAPTER 3
METHODOLOGY

The purpose of this study was to explore the cultural practices that played a role in the transmission and spread of Ebola during the EVD outbreak in Sierra Leone. Cultural belief and practices influence people’s behavior, thereby putting them at a high risk of contracting Ebola. The aim was to reveal cultural practices/factors such as funeral rituals, cultural belief, traditional healing, and family care which may have contributed to the transmission of EVD in Sierra Leone. The study attempted to answer these questions: (1) What cultural practices contribute to and/or influence the transmission of Ebola?; and (2) How do cultural practices contribute to and/or influence Ebola transmission?

This chapter presents and describes the research methodology, including data collection and analysis techniques used to conduct the study. The first section describes qualitative study. The next section explains the data collection tools used. Then it describes the setting and research procedures, which include the sampling frame and recruitment of research participants. The chapter concludes with description of data analysis, including an explanation of how the data was coded.

This study utilizes a qualitative research design that is based on interviewing. Qualitative methods are commonly used in the social, behavioural, and health sciences (Cresswell, 2013). Several articles published as editorials or commentaries in public health and social sciences journals in recent years have advocated for the use of more qualitative methods to foster holistic understanding of an issue or phenomenon that affects the lives of those who experienced it. More specifically, empirical articles have
advocated for the use of qualitative methods in examining infectious disease transmission. The use of qualitative methods to examine emerging infectious disease, such as EVD, is gradually on the rise, but more needs to be done (e.g., Abramowitz et al., 2015; B. S. Hewlett & Hewlett, 2008; Carey, 2014; FOCUS 1000 et al., 2014a; Hewlett et al., 2005; Hewlett & Amola, 2003; Lamunu et al., 2004; Richardson et al., 2016; Richards et al., 2015; Tengbeh et al., 2018; Yamanis et al., 2016).

Qualitative research uses non-numeric data to comprehend people’s opinions, motives, understanding, and belief(s) about event(s) or phenomena (Scammell, 2010). Qualitative studies are generally designed to explore perceptions of reality, or more specifically, perceptions of a phenomenon. Also, “researchers use the qualitative approach to explore the behaviour, perspectives, experiences and feelings of people and emphasise the understanding of these elements. Thus this is a study of what and why subjectively” (Abosede & Onanuga, 2016, p. 114). I (the researcher/author of this dissertation) will also add that it is the study of “how” because in order to understand the “why” of an issue or phenomenon, one needs to first figure-out the “how.” In other words, the “how” explanation leads to the answer of “why.”

In the case of this research, to understand the role that cultural practices (what) played in the transmission of EVD, one needs to explore “how” these practices contributed to disease infection. For example, the process of handling dead bodies involves “how” corpses are prepared for burial. This preparation of dead bodies, which has a heavy viral load and thus poses a high risk of infection when touched (why), contributes to infection. Therefore, the qualitative approach to research was suitable and
appropriate for this study, which was aimed at exploring the perceived influence of cultural practices on the transmission of Ebola.

Qualitative research tends to focus on the beliefs, attitudes, and experiences of individuals, as well as their perceptions regarding a specific issue/phenomenon. A major characteristic of qualitative study involves a focus on “participants’ perspectives, their meanings, and their multiple subjective views” (Creswell, 2013, p. 46). This makes the research design a way to learn about or explore an issue from the perspective(s) of the individual(s) with lived-experience(s) of the concerned issue or phenomenon. On this basis, a qualitative method was the most appropriate research design to be used for this study as it aimed to reveal the cultural practices that may have contributed to the transmission of EVD in Sierra Leone by interviewing Ebola Survivors.

This research utilized a collective case study approach to qualitative inquiry. The goal of using a case study is to explore an issue or problem with the aim of understanding it by using a case or group of cases (individuals) as specific illustration (Cresswell, 2013). Specifically, “in a collective case study, the one issue or concern is again selected, but the inquirer selects multiple case studies to illustrate the issue” (Cresswell, 2013, p. 99). A case can either be a person, program, setting/place, or an institution. The case or cases become the unit of analysis.

For this study, the multiple cases consisted of Ebola Survivors and the issue of concern was the cultural practices that contributed to the transmission of EVD in Sierra Leone. To better understand this issue, it was important to explore the perspectives of individuals with a lived-experience of the problem or issue. Ebola Survivors served as
appropriate cases to illustrate the link between cultural practices and EVD transmission because they contracted the disease and recovered. Their lived-experiences was vital in discovering and understanding the influence of cultural practices on EVD transmission.

Data collection tools for multiple case studies include “observations, interviews, documents, and audiovisual materials” (Cresswell, 2013, p. 100). This study used a key qualitative data collection technique known as interview. The purpose of interviewing is “to understand the lived experience of other people and the meaning they make of that experience” (Seidman, 2006, p. 9). It is more of a subjective understanding or explanation of an event or experience. For this research, as Seidman (2006) added, “interviewing provides access to the context of people’s behavior and thereby provides a way for researchers to understand the meaning of that behavior” (p. 10). On this basis, a semi-structured face-to-face interview was conducted to allow the researcher to probe and ask for more follow-up detail relating to the questions previously asked or related to the topic/issue being discussed.

Interviewing is a common tool used by previous qualitative studies on Ebola (Abramowitz et al., 2015; B. S. Hewlett & Hewlett, 2008; Carey, 2014; FOCUS 1000 et al., 2014a; Hewlett et al., 2005; Hewlett & Amola, 2003; Lamunu et al., 2004; Richardson et al., 2016; Richards et al., 2015; Tengbeh et al., 2018; Yamanis et al., 2016). For example, in their study that examined the multiple factors that may have contributed to EVD and/or helped stop transmission in Sierra Leone within the context of human rights, Richardson and colleagues (2016) performed semi-structured face-to-face
interviews with 4 Ebola Survivors regarding their experiences during and after the outbreak.

Data Collection: Setting, Participants, and Procedures

This section presents and describes the setting, research participants, and data collection procedures (in that order).

Setting: Makeni, Sierra Leone

The study was conducted in Sierra Leone, which is located in the west coast of Africa, bordering Guinea, Liberia, and the Atlantic Ocean. The country has a population of slightly over 7 million (Statistics Sierra Leone, 2016). Territorially, it is divided into 14 districts within four provinces – Eastern, Western, Northern, and Southern. The people of Sierra Leone represent diverse ethnic groups and religions. The population is comprised of about 15 ethnic groups, with the Temne and Mende being the majority.

Religiously, Islam and Christianity are most common, with some people practicing other forms of religion (BBC, 2018).

This study was undertaken in Makeni City – the capital and seat of government for the Bombali district in the Northern Province. With an estimated population of 125,970 inhabitants, Makeni is the largest city in the district and a major economic hub in the Northern Province, as well as the fifth largest city in Sierra Leone (Statistics Sierra Leone, 2016). Interestingly, the City is characterized as both urban and rural. While some parts of Makeni are urban, other areas are considered rural (Statistics Sierra Leone, 2016).
See Figure 5 to visualize Makeni’s location in Sierra Leone. This map also show all the districts and their capital cities.

Figure 5. Map of Sierra Leone with all Districts and Their Capital Cities
Source: The Village Link at https://www.thevillagelink.org/about-sierra-leone/

During the 2013-2016 Ebola outbreak in Sierra Leone, Makeni was hit hard as it was one of the center of action. Ebola cases in Bombali district and some cases from the Northern Province were brought to ETCs located in the city. This made Makeni one of the central locations for the coordination of Ebola response across the country (Carey, 2014). As expected, many local residents got infected with EVD during the outbreak.
While some people died from the disease, others recovered/survived. As a result, there are many Makeni residents who are Ebola Survivors.

Makeni experienced severe disease burden due to the outbreak. It got to the point where some socio-cultural activities that posed a risk of spreading Ebola were banned altogether. For example, in late 2014 the Awoko Newspaper in Sierra Leone reported that secret societies in Makeni were temporarily banned by the Paramount Chief of the Bombali District as a measure to halt the spread of Ebola due to unsafe and risky traditional/cultural activities. In particular, the Paramount Chief ordered these secret societies – Bondo, Poro, Gbangbani, Ojieh, among others – to abide by the new rule as well as help raise awareness among their members and communities about the dangers of some of their activities in regards to EVD infection (Kamara, 2014). Some of the banned socio-cultural activities included public gatherings, funeral rituals/burial ceremonies and traditional healing practices with a specific warning to traditional healers to stop treating people (Kamara, 2014). On this basis, Makeni City served as an appropriate/suitable location for this study.

Research Participants

This study used purposeful sampling to select research participants. This technique is characterized as a form of sampling in which the researcher “selects individuals and sites for study because they can purposefully inform an understanding of the research problem and central phenomenon in the study” (Creswell, 2013, p. 156). For this research, Ebola Survivors were recruited as participants and Makeni served as the site. Within the purposeful sampling, a criterion sample frame was crafted to guide
the selection of research participants. Criterion sample consists of individuals that “fit particular predetermined criteria” (Hatch, 2002, p. 90). For this study, the specific inclusion criteria for participants were: (1) 18 years old or older; (2) contracted and recovered from/survived EVD; and (3) lived in Sierra Leone during the 2013-2016 outbreak.

Although the initial plan was to recruit 3-5 research participants, only 3 Ebola Survivors participated in the study (see study limitations in Chapter 5 for detailed explanation on why only 3 participants). This specific number of participants is adequate for this study. Cresswell (2013) suggested that the sample size for a case study is a maximum of 4 or 5, but no more than five in a single study. This is because, Creswell (2013) argued, this number should provide ample opportunity to “identify themes of the cases as well as conduct cross-case theme analysis” (p. 157). On this basis, this research stayed within this sample size limit. Although not the maximum, 3 research participants were adequate for this case study.

Research Procedures

The recruitment and interview of research participants took place in Makeni. The researcher (I) directly recruited Ebola Survivors and performed all data collection procedures and analysis. The steps of the research procedures are described in the upcoming paragraphs.

First of all, an interview protocol (i.e., questionnaire) was developed. The questionnaire comprised of multiple semi-structured open-ended questions that aided in the collection of relevant data aimed at answering the research questions stipulated
above. The questionnaire contained questions that elicited the perspective of participants relating to how they contracted Ebola, including their beliefs on the origin of the Ebola virus and its potential causes. Another question was centered on providing room for Ebola Survivors to share their experiences during and after the 2013-2016 outbreak. As a qualitative study, the questionnaire was designed to provide room for research participants to share their perspectives on the contribution of cultural practices on the transmission of Ebola (see Appendix A1 for the complete list of questions asked/questionnaire).

To facilitate the ease of communication, a face-to-face interview was conducted in Krio because it is the common language in Sierra Leone (i.e., Krio is the lingua franca of the country). Although English is the official language of Sierra Leone, not everyone speaks it. But, nearly everyone, except for people living in remote parts of the country, speaks Krio. In Makeni, Krio is the dominant and common language. As a result, the questionnaire was translated in Krio (see Appendix A2 for the Krio questionnaire).

Second, an oral/verbal consent document was developed to seek the consent of potential research subjects to participate in the study. The document explained to Ebola Survivors the purpose of the study and informed them of confidentiality, anonymity, and privacy issues. An oral consent document was prepared because of the extremely low reading literacy in Sierra Leone. As stated earlier, although English is the country’s official language, most people do not read English. Also, Krio is the lingua franca in the country, which is mostly spoken, but not written. In other words, although nearly all Sierra Leoneans speak Krio, this local language is not commonly written, and thus, not
everyone can read and write Krio because only individuals who studied it in school can read and write the language. I studied Krio in secondary/high school, and thus can read and write it. However, it was anticipated that most likely research participants couldn’t read or write English and Krio. This was found to be case as the researcher asked each participant to choose a language of preference (English or Krio) for the interview. All of them chose to be interviewed in Krio.

Socially, Sierra Leoneans are skeptical to place their signature on a document. This may be largely due to the country’s high illiteracy, whereby most people don’t even know how to sign and/or have never signed a document. As such, no one would sign a paper that he/she doesn’t fully understand; much less one that he/she is unable to read what is says (i.e., this was the case for research participants in Makeni). Additionally, Sierra Leone is more of a verbal/oral society where verbal agreements are highly valued than documents, especially in rural areas. Therefore, use of oral consent was the most appropriate form of consent for this study population. Previous qualitative studies have used this form of consent. For example, Yamanis et al. (2016) used verbal consent in their qualitative study conducted in Sierra Leone that explored local people’s perceptions and intentions to use the Ebola Response System during the outbreak in 2014.

Ethically, the Institutional Review Board (IRB) at the mid-size Midwestern University where the researcher studied, approved this study. Once IRB approval was obtained, the data collection phase of the research began. A Community Liaison person in Makeni helped to identify only potential research participants because he knew where to locate them. With his help, the researcher made initial visits to Ebola Survivors and
requested their participation in the study. During the visits, I (the researcher) explained to potential participants the purpose of the study and informed them of confidentiality, anonymity, and privacy issues.

Now, on to the description of how research participants were recruited. To do this, several steps were followed in a chronological fashion. The recruitment of participants consisted of verbal contact/in-person visit. It is important to acknowledge the researcher (I) is from Sierra Leone, and thus conducted a study in his home country. He is knowledgeable of the cultural nuances and societal norms. Also, the researcher’s Community Liaison, who lives in Makeni, helped identify Ebola Survivors because he knew such individuals in the city.

Ebola Survivors are publicly known in their communities largely because of the close-knit nature of the Sierra Leone society where neighbors and community members know each other. Further, based on the researcher’s personal conversation with family and friends in Sierra Leone during the 2013-2016 Ebola outbreak, households including individuals who contracted EVD were publicly known by members of their communities largely to render quarantine more effectively so as to minimize and stop the spread of the disease within the community. As a result, neighbors and community members knew who got sick, or at least, households that had a person who contracted Ebola during the outbreak.

The Community Liaison was not directly involved in the recruitment process. He helped locate/identify Ebola Survivors who the researcher spoke with and requested their participation in the study. The researcher (I) did all the talking and conducted the
interviews. Culturally, and society wide, making an unscheduled visit to an individual or people is the norm in Sierra Leone. One does not need to schedule a visit.

The social norm is to show up and visit or talk to anyone. Unlike the United States of America, one can barely or rarely see a “No Trespassing or No Solicitation” sign posted on private homes or compounds in Sierra Leone. This is because Sierra Leone is a collectivist society in which neighbors and community members are open to each other’s visits, including being receptive to strangers. This in turn made a verbal/in-person visit to recruit potential participants the most appropriate form of recruitment in Makeni, Sierra Leone.

More importantly, due to the stigma that Ebola Survivors were potentially facing at the time, even though the outbreak was over, the researcher was extremely careful the way he went about recruiting participants. Although Ebola Survivors overwhelmingly experienced stigma during the 2013-2016 Ebola outbreak, over the past two years, anti-stigma campaigns were performed. Across the country, communities had been sensitized and cautioned against stigmatizing Ebola Survivors. Friends and family members in Sierra Leone shared with the researcher the ongoing fight against stigma, which many communities across the country were doing a good job in creating public awareness on the negative effects of stigma. These efforts were yielding promising results in that Ebola Survivors were less and less being stigmatized.

However, Ebola Survivors continued to face some kind of stigma in the country. This was actually one area this study explored as the researcher wanted to understand some of the post-Ebola outbreak challenges such as stigma that Ebola Survivors were
experiencing. As stated earlier, the presence of Ebola Survivors within the community was still public knowledge, and thus warranted the use of a Community Liaison to locate potential research participants.

As a Sierra Leonean who understands the cultural nuances and norms, coupled with his public health background, the researcher believed it was appropriate and effective to have sought the help of a Community Liaison to find potential research participants who were actually known by the community. He completely understood the critical importance of maintaining confidentiality and that is why the researcher did everything in his capacity to protect the identities of the interviewees. Nevertheless, it is important to note that the notion of privacy in Sierra Leone – a collectivist society where almost everyone in the community knows one another and shares vital information with each other, including medical conditions – is not viewed the same way as it is deeply viewed in the U.S.

Further, participants had a choice of preference as to the location of the interview. Either in a private room at the University of Makeni (UNIMAK) library or at their own preferred place. Two of the interviews took place at the home of the Ebola Survivors and one in a room at the UNIMAK library.

Before the interviews were started, the researcher read the oral consent in Krio to each Ebola Survivor, which explained the purpose of the study as well as guaranteed to protect the participant’s privacy, anonymity, and keep his/her information confidential. The researcher told each participant that he/she had the right to stop the interview at any
time and/or refuse to answer any particular question(s) during the interview. The interviews ran for, on average, an (1) hour. Each interview was audio recorded.

Prior to starting the interview, the researcher requested permission from each participant to audio record the interview and explained why this procedure was necessary. Tape/audio recording allows the interview to run efficiently and effectively by reducing the distraction involved in trying to take notes of everything an interviewee say. It also ensures the accuracy of representing interviewees’ perspectives or story during transcription. Tape/audio recording an interview gives the researcher ample opportunity to listen to the interviewee attentively during the interview as well as to replay the recording over and over again to accurately transcribe the interviewee’s narrative/sayings. All participants agreed to audio record the interview.

To ensure confidentiality and protect the rights and welfare of participants, the researcher used pseudonyms to protect the identity of research participants. No direct identifier was used that can be traced to a participant. This was done to minimize the risks of harm and to protect the confidentiality of the information provided by participants. Also, audio recordings were kept in a locked drawer at the home of the researcher, who only had access to that drawer. After the interview transcription was completed, the recordings and questionnaires were destroyed.

**Data Analysis**

Each interview was transcribed for data analysis. After all interviews were transcribed, a thematic content analysis technique was used to analyze the texts of the transcripts. This data analysis approach is a major analytic option in qualitative research.
Thematic analysis is a process that involves reading and re-reading the data, recalling the research question(s), the conceptual/theoretical framework, and the literature review, as well as methodology so as to “decide what is most appropriate to do with your data” (Grbich, 2013, p. 61). The process of analysis includes underlining or colouring texts and/or writing descriptive comments alongside the margin to describe the underlined or highlighted texts; grouping the texts that are similar; attaching overarching labels and identify subgroupings; and finally, conceptualizing these groupings and linking them with the literature and conceptual/theoretical framework (Grbich, 2013).

The thematic analysis approach was undertaken primarily because qualitative research by design is based on building patterns, categories, and themes, which are achieved by organizing data into increasingly more abstract units of information (Abosede & Onanuga, 2016). To do this, the coding technique was utilized to guide the analysis of the interview transcripts. According to Grbich (2013), “coding involves the grouping and labeling data in the process of making it more manageable both for display and to provide answers to research question/s” (p. 259). Coding helps to get the data organized in such a way that it is suitable for analysis. In essence, “the process of coding involves aggregating the text or visual data into small categories of information, seeking evidence for the code from different databases being used in a study, and then assigning a label to the code” (Cresswell, 2013, p. 184).

Inductive and deductive coding strategies were utilized so as to develop codes and emerging themes. Inductive coding strategy is a process that “involves researchers working back and forth between the themes and the databases until they establish a
A comprehensive set of themes” (Creswell, 2013, p. 44). The deductive process is based on building “themes that are constantly being checked against the data” (Creswell, 2013, p. 44). In essence, the inductive-deductive logic suggests a thorough analysis of the data so as to allow the data to speak for itself and help make sense of it all.

The inductive-deductive coding framework often relies on creating a provisional list of codes prior to fieldwork, which are derived from the researcher’s conceptual framework, research question(s), and key variables. For this study, two research questions were developed and key variables identified – cultural practices and EVD transmission. The questions were guided by the study’s conceptual framework and literature review.

Transcribing Interviews

To get a sense of the entire database/interviews, a researcher is advised to “read the transcripts in their entirety several times. Immerse yourself in the details, trying to get a sense of the interview as a whole before breaking it into parts” (Agar, 1980, p. 103). This is exactly what the researcher (I) did with the interview transcripts. After all interviews were transcribed, I telephoned each interviewee via WhatsApp, an information and communication/messaging App that is commonly used around the world.

Many Sierra Leoneans use WhatsApp for international communication. The messages on the App are encrypted for privacy. All communication between the researcher (I) and interviewees were encrypted to safeguard privacy and confidentiality. During the audio/voice call, I read the transcripts to ensure they contained exactly what
each participant said in the interview. All participants confirmed the transcripts accurately represented what they said during the interviews.

Taking back transcripts to research participants to assess their accuracy is key to validating the data/transcripts to ensure they represent their true saying. This process is often referred to as member checking, which involves the researcher going back to participants with the data collected to ensure it represents exactly what was said in the interview (Cresswell, 2013). This process fosters credibility and validity of the study’s findings.

After member checking was completed, the next step was to code the transcripts. To do this, as Cresswell (2013) suggested, I wrote notes in the margins of the transcripts, which helped in this initial process of exploring the interviews. The notes or memos are in the form of key words, ideas, short phrases or concepts that occur to the reader (Cresswell, 2013; Grbich, 2013). From this process, the next step involved creating codes that ultimately lead to the emergence of themes. Creating/forming codes represent the “heart” of qualitative data analysis (Cresswell, 2013).

**Coding**

Hypothesis and in vivo coding techniques were used to transcribe the interviews and code the transcripts. Each of these techniques is relevant to the purpose of the study, and thus appropriate for the type of the data that was collected. While hypothesis coding is crucial for data analysis in this study because research questions were generated prior to data collection and thus influenced the way data was coded to reflect the research
questions, in vivo coding involved “using words in the text to create the code” (Grbich, 2013, p. 262).

To guide the coding process, several criteria were established prior to data collection. The coding scheme presented in Table 5 illustrates the criteria used for the data collected, thereby generating descriptive and thematic codes. For instance, a text or group of texts must be clearly relevant to cultural practice and belief as well as clearly linked to the transmission of EVD in order to be labeled as such.

To determine inter-rater reliability, the researcher and his colleague who has experience conducting qualitative research, coded the transcripts separately.

<table>
<thead>
<tr>
<th>Coding Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clearly relevant to cultural practice.</td>
</tr>
<tr>
<td>Illustrate funeral rituals, burial practice, family care, cultural belief, forms of social interaction, religious dynamics, and traditional healing.</td>
</tr>
<tr>
<td>Clearly linked/relevant to transmission of Ebola Virus Disease.</td>
</tr>
<tr>
<td>Clearly related to awareness on the influence of cultural factors on Ebola transmission.</td>
</tr>
<tr>
<td>Clearly indicate stigma associated with being an Ebola Survivor.</td>
</tr>
</tbody>
</table>

Before the coding began, the researcher explained to his colleague the purpose of the study and shared with him the methodology, including the coding process. This was to
ensure that he had a clear picture and understanding of the purpose of the research, including research questions and data analysis approach. Inter-rater reliability is often performed to boost consistency of results generated from a coding scheme. The inter-rater reliability for this study was 88%. This means there was a great deal of consistency in data coding between the two coders. This in turn minimizes potential researcher bias and coding error.

After the codes were identified based on the coding scheme presented on Table 5, a detailed description of each code was drafted so as to clearly enhance the consistency of coding the data. Then, the codes were re-organized to see patterns and emergence of themes. Table 6 presents the description of each code. For example, while the “bush animals” code reflects research participant’s belief/perception that such animals serve as carriers of EVD, the code for “touching the sick” represent the participant’s touch of a person who was sick with Ebola.

The use of pre-existing codes to guide the coding process (often reflected in a coding scheme as shown in Table 5) that are influenced or drawn from a theoretical framework and/or literature is “popular in the health sciences” (Cresswell, 2013, p. 185). However, this coding process tends to limit the analysis of qualitative data because it often focuses mostly, if not entirely, on the pre-selected codes. For this reason, it is advisable when such a coding process is used, a researcher may want to be open to other possible new/additional codes/categories that may emerge during the data analysis phase so as to ensure that participants’ perspectives are represented in their entirety.
Table 6.

Description of Codes

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ebola reality</td>
<td>A belief that Ebola is real</td>
</tr>
<tr>
<td>Bush animals</td>
<td>A belief that bush animals serve as a carrier of EVD</td>
</tr>
<tr>
<td>Bush-meat</td>
<td>A belief that eating bush-meat cause EVD</td>
</tr>
<tr>
<td>Sick touching</td>
<td>A belief that touching a person sick with Ebola cause infection</td>
</tr>
<tr>
<td>Chain of transmission</td>
<td>EVD infection and spread among a group of people, community or compound</td>
</tr>
<tr>
<td>Control and Containment</td>
<td>Strategies to prevent EVD transmission and spread</td>
</tr>
<tr>
<td>Witchcraft; Evil spirit; Curse</td>
<td>A belief in witchcraft, evil spirit, and evil curse from an enemy</td>
</tr>
<tr>
<td>Quarantine</td>
<td>Isolation of individuals within a residence or place due to EVD infection to prevent the disease from spreading outside such a place or residence</td>
</tr>
<tr>
<td>Ebola Treatment Center</td>
<td>A medical setting where Ebola patients are isolated and treated with supportive care</td>
</tr>
<tr>
<td>Death and Survival</td>
<td>Occurrence of Ebola related death and survival among an Ebola Survivor’s family</td>
</tr>
<tr>
<td>Ebola experience</td>
<td>Ebola Survivor’s experience with EVD</td>
</tr>
<tr>
<td>Touching the sick</td>
<td>Touching a person sick with Ebola</td>
</tr>
<tr>
<td>Touching the dead</td>
<td>Touching the dead body of an Ebola victim</td>
</tr>
<tr>
<td>Visit the sick</td>
<td>Visiting a sick family member/relative</td>
</tr>
<tr>
<td>Caring</td>
<td>Caring for sick family member/relative</td>
</tr>
<tr>
<td>Traditional healing</td>
<td>A belief in traditional healing</td>
</tr>
<tr>
<td>Traditional Healer</td>
<td>A visit/consultation with a Traditional Healer (herbalist) and receipt of his/her service(s)</td>
</tr>
<tr>
<td>Patient-Traditional Healer interaction</td>
<td>Physical interaction between a Traditional Healer and the person receiving his/her service(s)</td>
</tr>
<tr>
<td>Washing the dead</td>
<td>Washing dead body of an Ebola victim as part of preparing the corpse for burial</td>
</tr>
<tr>
<td>Prayer</td>
<td>Praying on the dead body of an Ebola victim as part of preparing the corpse for burial</td>
</tr>
<tr>
<td>Discrimination</td>
<td>Prejudicial treatment against an Ebola Survivor</td>
</tr>
</tbody>
</table>

For this study, I was open to the emergence of new codes, which ultimately led to codes that were not pre-selected or part of the coding scheme developed prior to coding the
data. Some of the emerging codes include chain of transmission, control and containment, quarantine, and Ebola Treatment Center.

Chapter Summary

This chapter discussed the qualitative methodology used for this study, which was based on the collective case study research design and interviewing. The chapter also described the study’s setting and research participants—Makeni and Ebola Survivors, respectively. Following this discussion, the data collection procedures were described, including how research participants were recruited and interviewed. Semi-structured face-to-face interviews were performed with Ebola Survivors in Makeni. The chapter concludes with data analysis that was based on thematic content analysis. Coding of the data was explained in detail so as to illustrate the data analysis process.
CHAPTER 4

FINDINGS

This chapter presents the results/findings on the contribution/influence of cultural practices on EVD transmission in Sierra Leone. The findings suggest certain cultural practices influenced the transmission of EVD among research participants in Makeni, Sierra Leone. These cultural practices include taking care of sick family member/relative, touching the dead body of an Ebola victim, and visiting traditional healers to seek treatment. Additionally, majority of the Ebola Survivors believed in witchcraft, evil spirit, and curse. Interestingly, the results indicate research participants were aware of EVD including some factors that cause infection, as well as sought treatment from an Ebola Treatment Center (ETC).

Also, the findings show that an Ebola Survivor engaged in control and containment strategies that ultimately helped her compound cut the chain of transmission. On this basis, this chapter presents the individual findings organized in accordance to the themes that emerged during data analysis. The themes include cultural belief, family care, traditional healing, funeral ritual, social stigma, and EVD awareness.

The chapter first presents the demographic characteristics of research participants, including their encounter with EVD such as death and survival in the family. Then, the aforementioned themes/findings are discussed. To support each theme, direct quotes from Ebola Survivors are used (i.e., verbatim quotation). Whenever a direct quote from the transcript is used, the participant’s pseudonym is cited, followed by the line(s) number within the transcript. In other words, each verbatim quotation is cited by using
participant’s pseudonym and line(s) in the transcript. It is important to note that some direct quotes may include phrases in Krio so as to contextualize the perspective of participants in their own language. Each time a Krio phrase is used, an English translation immediately follows. See Appendix B1, B2, and B3 for complete interview transcripts.

**Description of Participants**

Three (3) Ebola Survivors participated in this research. They comprised of 2 females and 1 male aged 42, 19, and 23 years respectively. Two of them belonged to the Temne ethnic group, whereas the other is a Mende (i.e., both ethnic groups represent the majority in Sierra Leone). This section present demographic characteristics of Ebola Survivors and their encounter with EVD. Pseudonyms are used to protect participant’s identity.

**Mabinty**

Mabinty was a 42-year old female who belonged to the Temne ethnic group in Sierra Leone. She was born and raised in Makeni, where she had been living ever since. Mabinty was living in Makeni when the city was hit with the Ebola outbreak. She and her two children, as well as her mother and sister contracted the disease. Her sister was the first one to get sick, followed by her mother, herself, and her children. She believed the Ebola virus from her sister infected the family. Also, Mabinty’s brother-in-law and niece contracted Ebola.

After the death of her sister and mother, an Ebola Response Team came to their compound and took them to an ETC in Makeni. While Mabinty and her two children
survived/recovered, her mother, brother-in-law, and niece passed away. Then, her
compound was quarantined for over two months as many individuals began falling sick
and showed symptoms of EVD. Mabinty vividly described her loss as follows:

Few days after my sister’s death, mi mama get sik [my mother got sick]. Ten days
later, she died. After my mom’s death, we then realize it was Ebola that killed her
and my sister. After these two deaths, the government came and quarantined our
compound. We were quarantined for more than two months. During this time,
many of our family members began to die. Wi los 11 pipul dem [we lost eleven
people] (Mabinty, 46-50).

Sorie

Sorie was a 23 year-old male and belonged to the Temne ethnic group. Although
he was not born in Makeni, he grew up in the city after his parents moved there when he
was about 8 years old. Sorie was living in Makeni when Ebola arrived.

Sorie contracted Ebola from his parents. They were sick with Ebola. His mother
was the first one to get sick. She died several days later. From there, his father started
feeling sick and died two weeks later. After the death of his father, Sorie and his younger
brother began to feel sick. They were taken to an ETC and diagnosed with EVD. Two
days later his brother passed away. Sorie is now the only living member of his nuclear
family.

Binta

Binta was a 19-year old female and a member of the Mende ethnic group. She
was born and raised in the outskirts of Makeni. Binta was living in Makeni when the
outbreak arrived in the city.

Binta thought she contracted Ebola from her big brother. They lived in the same
house with her entire family. She believed her mother infected her brother because he
took care of her when she was sick. Her mother died few days later. Then, her brother got sick and died. After some days passed, Binta began feeling sick. According to her, “few days later after his death, I started feeling the signs/symptom of Ebola. I started feeling cold [fever] and began vomiting” (20-22). However, Binta didn’t visit an ETC. Instead, her father briefly took care of her before taking Binta to a hospital in Makeni, where she was diagnosed with EVD. She recovered a week later. Luckily, her father did not contract the disease.

**Cultural Practices and EVD Transmission: Emerging Themes**

This study attempts to answer these research question: (1) What cultural practices contribute to and/or influence the transmission of Ebola?; and (2) How do cultural practices contribute to and/or influence Ebola transmission? Toward this end, multiple themes emerged from the coding process. The themes, which represent the findings are discussed within the context of the aforementioned research questions that focused on the contribution/influence of cultural practices on the transmission of EVD during the outbreak in Sierra Leone. Question one (1) is reflected in these themes – cultural belief, family care, traditional healing, and funeral ritual. On the other hand, question (2) is reflected in how those cultural practices (themes) contributed to EVD transmission. Together, the discussion of the findings answer the research questions stipulated above.

In addition to the primary themes identified above, two secondary themes – social stigma and EVD awareness – emerged during data analysis. Although they are not directly linked to transmission of EVD, they represent the impact of the outbreak on the research participants. Together, six (6) themes emerged – EVD awareness, cultural belief,
family care, traditional healing, funeral ritual, and social stigma. Table 7 presents the codes from which each themes were derived.

<table>
<thead>
<tr>
<th>Codes</th>
<th>Themes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ebola reality</td>
<td>EVD Awareness</td>
</tr>
<tr>
<td>Bush animals</td>
<td></td>
</tr>
<tr>
<td>Bush-meat</td>
<td></td>
</tr>
<tr>
<td>Sick touching</td>
<td></td>
</tr>
<tr>
<td>Chain of transmission</td>
<td></td>
</tr>
<tr>
<td>Control and Containment</td>
<td></td>
</tr>
<tr>
<td>Quarantine</td>
<td></td>
</tr>
<tr>
<td>Ebola Treatment Center</td>
<td></td>
</tr>
<tr>
<td>Witchcraft; Evil spirit; Curse</td>
<td>Cultural Belief</td>
</tr>
<tr>
<td>Touching the Sick</td>
<td></td>
</tr>
<tr>
<td>Touching the dead</td>
<td>Family Care</td>
</tr>
<tr>
<td>Visit the sick</td>
<td></td>
</tr>
<tr>
<td>Caring</td>
<td></td>
</tr>
<tr>
<td>Traditional healer</td>
<td>Traditional Healing</td>
</tr>
<tr>
<td>Patient-Traditional Healer interaction</td>
<td></td>
</tr>
<tr>
<td>Washing the dead</td>
<td>Funeral Ritual</td>
</tr>
<tr>
<td>Praying</td>
<td></td>
</tr>
<tr>
<td>Discrimination</td>
<td>Social Stigma</td>
</tr>
</tbody>
</table>

Cultural Belief

A theme that emerged relate to the participants’ cultural belief with regards to EVD. It was manifested in their belief about EVD during the outbreak, in particular, when an entire family contracted the disease and many died from it. Initially, one of the Ebola Survivors – Sorie – believed an enemy bewitched his family through evil spirit and
curse, which caused the sickness and death of his parents. For him, witchcraft explained the sickness that ultimately killed both of his parents. Hence, when Sorie and his brother began feeling sick, he was convinced someone was after his family. According to Sorie,

Afta mi papa dai [after my father died], I began thinking this is not normal. I feel that someone who hate my parents did this to them. Na dis wi kontri ya, wae sombodi nor lek yu, den go put juju pan yu [in our country, when someone hate you, they do evil things to you like witchcraft or evil curse]. When me and my brother started feeling sick, I became more convinced that someone has cast an evil spirit on my family and they plan to wipeout my entire family (68-72).

Interestingly, the finding indicates that the traditional healers who two of the research participants consulted, blamed the cause of their sickness on witchcraft and evil spirit. Two different traditional healers told Mabinty and Sorie that an enemy cast evil curse on them. As Mabinty explained, “he said my sickness is because someone has bewitched me. I got even more scared” (67-68). Sorie reported similar experience with his traditional healer. “When I arrived at his shrine, he told me he will protect me and my brother from any evil curse or witchman [witchcraft]” (Sorie, 78-79).

However, Sorie’s encounter with EVD may have changed his initial belief about the disease. As will be shown later in this chapter, he now perceive Ebola as real largely due to his horrible experience with the disease as an Ebola Survivor.

The cultural belief finding is common in Sierra Leone and previous outbreaks in Africa. Sorie’s initial belief that someone was using evil spirit/curse against his family is common in Sierra Leone and previous outbreaks in some African countries. This finding is consistent with those of previous studies (Buseh et al., 2015; B. S. Hewlett & Hewlett, 2008; Carey, 2014; FOCUS 1000 et al., 2014b; Hewlett & Amola, 2003; M. Koroma & Lv, 2015; Roca et al., 2015; Tambo et al., 2014). For example, Roca et al. (2015)
observed that many communities in West Africa attributed EVD to evil spirits, witchcraft, or sorcery. In particular, some people in Sierra Leone believed a curse by the gods or the spirits of dead ancestors were the cause of the disease and rapid death inflicted on the country (Fairhead, 2014).

**Traditional Healing**

Traditional healing is a common practice in Africa. Individuals visit traditional healers for multiple reasons, which includes treatment for diseases. In this study, two Ebola Survivors – Mabinty and Sorie – consulted with different traditional healers. The participants strongly believed in traditional healing. Before they sought treatment from modern medicine, they consulted with a traditional healer to determine the cause and cure of their sickness.

Mabinty explained her reasoning for visiting a traditional healer after she started feeling sick:

> When I got sick, I went to the Meresin Man [traditional healer] who was in my area. I have visited him before when I was sick and he treated me. When I got sick again, I went to him to treat me. He is a very powerful Meresin Man. He treats many people in Makeni (64-66)… The next day, my sickness got worsened as I started vomiting and felt severe pain in my stomach. I still believed I will get better because I trust the Meresin Man (Mabinty, 78-79).

Although Sorie had not visited a traditional healer prior to the outbreak, he reported that his mother took him to a herbalist when he was little because he got sick frequently. As a result, when both of his parents passed away and his brother started feeling sick, Sorie decided to consult a traditional healer.

> I remember when I was a little boy, my mother used to take me with her to visit a Meresin Man [traditional healer] in the forest. She told me I used to be sick all the time and the Meresin Man cured me each time I got sick. Now that my parents
just died so quickly, I think I need to visit a Meresin Man to help protect me and my brother from whoever is doing this to my family (Sorie, 73-76).

Both of the Ebola Survivors described their encounter with traditional healers in relation to how they performed their healing practices. According to Mabinty:

The Meresin Man then proceeded into his shack. He then came out with a small basket that has shells in it. He then started speaking in tongues with his eyes closed [cantation]. I have no idea what he was saying. It sounded like he was talking to a spirit or God. After he finished the cantation, he looked at me and said, “na sombodi put dis sik pan yu. Mek yu nor wori, ar go trit yu” [someone send you this disease, don’t worry, I will cure you]. He then went back into his shack and came out with a small black bowl. He asked me to drink the liquid that was inside. I drank it. It was very bitter/sour. He then told me to go home and wait for the sickness to go away (70-77).

Sorie painted similar encounter with a traditional healer.

I visit the Meresin Man outside of Makeni in a very remote area with lots of bushes. His place smells very bad like urine. When I arrived at his shrine, he told me he would protect me and my brother from any evil curse or witchman [a witch]. He asked me and my brother to lie down on some leaves. He came out with a small pot that has smoke coming out of it. He then began to say things that I don’t know what he was saying. Suddenly, he stopped and began to shake his entire body. He then stopped suddenly. He approached me and my brother and robs some lotion/oil on our skin. I don’t know what it is. He gave us some liquid to drink. The liquid was very bitter. Then he asked us to go home (Sorie, 77-84).

Certain traditional healing practices make this form of healing a risk factor in infectious disease transmission. The physical contact that occurs between a healer/herbalist and patients poses serious risk of EVD infection. As Mabinty and Sorie described above, traditional healers often touch the skin of patients with their bare hands to apply some kind of powder or lotion/oil on the skin. Sometimes, healers give patients liquid to drink, which are often prepared by mixing herbs with bare hands. This physical contact poses a serious risk for EVD infection, thereby transmission of the disease.
EVD is transmitted when an individual comes in contact with the body fluids of an infected person or object such as sweat, urine, blood, and saliva, among others. As Sorie and Mabinty’s experiences reveal, they could have potentially infected the traditional healers as it seems they were already experiencing symptoms of EVD when they visited the healers. The opposite could also be the case as these traditional healers could have come into contact with other patients who were sick with Ebola prior to the visits of Sorie and Mabinty. This is because traditional healers get to see many individuals in their community. As previous studies have found, traditional healing was linked to transmission of EVD in previous outbreaks (Borchert et al., 2011; B. S. Hewlett & Hewlett, 2008; Carey, 2014; Fairhead, 2014; Hewlett et al., 2005; Hewlett & Amola, 2003; Ikuomola, 2015; Maxmen, 2015).

This study’s findings are consistent with previous research outcomes. First, many people in Africa strongly believe in traditional healing as was the case with Mabinty and Sorie (Boakye et al., 2014; Buseh et al., 2015; FOCUS 1000 et al., 2014b). For example, FOCUS 1000 et al. (2014b) found that while 97% of respondents in Sierra Leone believed EVD was real, 1 in 5 believed traditional healers can treat the disease. As such, it make sense for people to consult traditional healers who are considered to be experts in treating curse and other evils in this world; something that Western medicine cannot treat or fix.

Individuals who strongly believe in traditional healing first seek this form of cure before going to a clinic/hospital or medical doctor. This shows modern medicine takes a backseat when it comes to seeking treatment for a disease, especially for rare and
emerging diseases like EVD. Boakye et al. (2014) found that majority of people in Sierra Leone depend on or use traditional healing/medicine for health and medical purpose. This was manifested in Mabinty’s and Sorie’s experiences. They first visited a traditional healer to figure out why they were sick and to cure them. When they continued to experience the sickness after visiting with the traditional healer, they went to the ETCs to seek treatment.

**Family Care**

Family care emerged as a theme. It surfaced in Ebola Survivor’s explanation on how they perceived to have contracted EVD. All of the participants reported a family member (parent or sibling) infected them with the disease. They all reported to have taken care of a family member when they were sick. Few days later they fell sick. According to Mabinty, when her sister got sick, her mother cared for her. “My mother took care of her [sister]. She cooked for her, wash her clothes, and did many other things for her” (Mabinty, 19-20). Sorie reported similar experience.

Ar get di sik from mi parent dem. Dem bin get Ebola sik [I contracted Ebola through my parents. They were sick with Ebola]. Me and my small brother took care of my sick parent. I am the oldest child in the family. The responsibility to take care for my parents falls on my shoulder. My mother was the first one to get sick. I helped my father took care of her. She died several days later. From there, my father started feeling sick. Me and my small brother took care of him (Sorie, 19-24).

Similarly, Binta illustrates the role of family care during the outbreak.

I got it [Ebola] through my big brother. He was sick and we lived in the same house. When he got sick, I helped to take care of him. My brother actually got the sick from my mother. He took care of my mother when she was sick. Afta wi mama dai, mi broda get sik en ar take kiya of ram [When my mother died, my brother got sick, after that I took care of him] (Binta, 17-20).
The high risk of infection makes family care dangerous when taking care of a sick loved-one during an Ebola outbreak. For example, Peters and Peters (1999) observed during the outbreak in Kikwit, DRC, “family caregivers suffered the major burden of secondary infections” (p. xi). This is mainly because many of the things involved in caring for a sick person include physical contact as well as contact with infected materials that belong to a sick person such as bedsheets, clothes, and food, among others. For this study, the Ebola Survivors reported that taking care of their sick family members (parents and siblings) involved washing dirty/soiled clothes, bedsheets, preparing and serving food, and wiping-off sweats from the body. Sorie reported doing everything for his sick father.

I did many different things. You see, when my father was sick, he was very weak and cannot do anything for himself. Me and my small brother had to do everything for him. We brought him water to drink and food to eat. We washed the plates and cups that he used. I also changed his bedsheets. I helped my father change his clothes and I washed the dirty clothes that sometimes have vomit on them. I also wipe his body with a wet rag to clean his body from the sweat. He was sweating a lot because his body was very hot. We have to clean the sweat. I soak a rag and wipe his body with it. I did many other things that I cannot mention all of them (Sorie, 27-33).

Similarly, in caring for her sick brother, Binta mentioned – “I bring food to him. I prepared his bed where he sleeps. I changed the bedsheets for him. I brook [wash] his clothes and bedsheets. I also get [brought] water for him to wash” (24-25).

This finding aligns with previous studies on EVD outbreaks. Past studies found family care contributed to transmission of EVD, especially within the family (Abramowitz et al., 2015; B. S. Hewlett & Hewlett, 2008; Faye et al., 2015; Ravi & Gauldin, 2014; Richards, 2016; Richards et al., 2015; Richardson et al., 2016). In
particular, caring for sick family members/relatives contributed to the spread and transmission of Ebola in Liberia (Ravi & Gauldin, 2014), Guinea (Faye et al., 2015), and Sierra Leone (Abramowitz et al., 2015; Richards, 2016; Richards et al., 2015; Richardson et al., 2016).

As the participants in this study reported, they all cared for their sick family members, and soon after, they got sick. It is no coincidence that all of them got sick immediately after taking care of a sick parent or sibling, who was confirmed to have died from Ebola. This particular finding is consistent with previous findings. For example, a study in Sierra Leone found similar outcome for research participants, who included Ebola Survivors. Richardson et al. (2016) found that all research participants reported taking care of family members/relatives who were sick, and soon after wards they also got infected with EVD. In essence, caring for a sick family member/relative during EVD outbreak is a common practice in affected countries, which ultimately poses high risk of infection, thereby leading EVD transmission within a family and community as a whole.

Funeral Rituals

Funeral ritual was another theme that emerged from the data analysis. This form of cultural practice is common in Sierra Leone. Some of the Ebola Survivors’ responses illustrate the occurrence and performance of funeral ritual for dead family members. Some of these rituals include washing a dead body and praying on it before burial. Specifically, Mabinty reported that after her sick sister died, the family washed her corpse, despite warning from the government not to touch dead bodies. According to Mabinty, “we washed her [sister] dead body. Even though we were told [by the
government] not to touch any ‘leyley body’ [corpse], we didn’t think our sister was sick with Ebola. When she died, we washed her dead body” (20-22).

As part of the burial preparation, the dead body is washed. This is a common tradition in Sierra Leone. Mabinty and Sorie reported washing a dead body as part of preparing the dead for burial. According to Mabinty, “it is our tradition to wash the leyley body [corpse] of our relative/family member. It is our culture to wash the body of a dead person” (43-44). For Sorie, washing the corpse is part of his religion’s funeral rite (he is a Muslim).

The physical contact between the living and the dead that occurs during preparation of the corpse for burial makes funeral ritual a high-risk cultural practice on infectious disease transmission. Touching a dead body and washing it is very dangerous as the corpse of an Ebola victim has high viral loads. This in turn makes it very contagious. As reported by all the research participants, family members touched and washed the dead bodies of their loved-ones. This touching and washing of the corpses could be responsible for, or at least, contributed to the chain of transmission among the participants’ respective families. For example, as reported by Mabinty, all her family members who touched the dead body of her sister got sick with Ebola and some died from it (i.e., her mother, brother-in law, and niece). Here is what she said during the interview:

We know that my sister had died from Ebola. I think we [Mabinty and her children] got sick because we touched my sister’s dead body (24-25)… Other family members who lived with my sick sister got the Ebola sick. Our mother, my sister’s husband, and step-daughter also contracted Ebola. They touched my sick sister who later died. They also touched her dead body (Mabinty, 33-36).
Similarly, Sorie reported his father who touched the dead body of his mother got sick and died from Ebola.

My father is the one who was with her in the room at night when my mother died. Before he told us she was dead, he had covered her body. We were crying a lot and my father hugged and consoled us. My mother’s dead body was in the bedroom (Sorie, 40-43).

Although Sorie and his brother did not touch the dead body of their mother, he admitted touching his father’s corpse. He described the death of his father and their immediate actions in the following statement.

I went to get water for him to drink and when I came back to his room, he was dead. First I thought he was sleeping, so I went outside and washed his clothes. But then many hours later, he was not waking up. I started pushing/shaking his body to wake him up because he needs to eat. But he was not waking up. I started screaming loud at him to wake up and then my small brother joined me. We both kept shaking his body to wake up. We try to open his eye with our hands. He did not respond. Then we realized he is dead. We started crying. My small brother could not stop crying. I then took one of the bedsheets and covered my father and hold my brother to console him (Sorie, 48-55).

Another participant, Binta, did not touch the dead body of her mother and brother. She reported that her father with some individuals in the community might have touched their dead bodies. This is because, as she described the event that followed the death of her mother and brother – “when my brother died, my father called some people in our area who helped him take my brother’s leyley body for burial. I don’t remember everything. I don’t know what happened when my mother died. My brother and father did everything” (Binta, 37-40).

Praying on a dead body is also part of the preparation of a corpse for burial. Different religions in Sierra Leone, especially Islam and Christianity, perform prayers on the dead before burial. One of the participants described the events that followed after his
parents passed away. Sorie noted praying on both of his parents’ corpses as part of their Islamic religion’s funeral rite. According to him:

My father telephoned someone, who was the Imam [Muslim priest] from our local mosque. He came with some men who then took away my mother’s dead body. We went with our father to the mosque where we prayed on my mother before they took her leyley body to bury her (Sorie, 43-43).

For his father’s corpse, Sorie reported a similar outcome. “One of our neighbors came in to our house and called our local Imam who then came and picked up my father’s dead body. We followed them to the mosque where we prayed on my father before taking him to burial” (Sorie, 55-57). Sorie also described the process of preparing the corpse for burial.

We Muslims perform a holy wash of the dead body before burial. Before we pray on a dead body, the Imam and/or some Muslim people wash the dead body and dress it with a white cloth. We then pray on the leyley body [corpse] and then we go bury him/her. I believe that both my parents’ leyley body were washed at our local mosque before they were buried. This is what our religion [Islam] requires us to do (Sorie, 60-64).

This finding is consistent with previous studies on EVD in Africa. Multiple studies found that funeral rituals, including burial practices, contributed to EVD transmission during outbreaks (B. S. Hewlett & Hewlett, 2008; FOCUS 1000 et al., 2014b; Gostin, 2015; Ravi & Gauldin, 2014; Rocal et al., 2015; Richards, 2016; Richards et al., 2015; Stadler et al., 2014; Troncoso, 2015). Specifically, Richards (2016) found the handling of dead bodies served as a key “infection pathway” that amplified the EVD outbreak in West Africa. Handling of a corpse during the burial preparation phase is what leads to EVD infection. This is because the handling of a dead body for burial primarily involves touching, which in turn takes many forms at different phases of the burial
preparation, and therefore serves as a pathway for viral infection. WHO (2014) found that in 2014 alone, over 300 Ebola cases were linked to a funeral in Sierra Leone during the first six months of the outbreak.

More importantly, although not directly related to the specific goal of this study, two additional themes emerged during data analysis. As a qualitative study, which was guided by thematic content analysis and coding, it is important to holistically represent participants’ perspectives. In addition to the cultural factors, EVD awareness and social stigma emerged as themes. These themes are important to be discussed as they directly relate to the experience of Ebola Survivors and the socio-cultural context of EVD outbreak. On this basis, social stigma and EVD awareness are classified as secondary themes because all the participants’ perspectives reflected them despite not being the primary focus of this study.

**Social Stigma**

Ebola Survivors often, if not always, faces unique challenges as a result of recovering from the disease. In talking about their Ebola experience, all participants reported facing social stigma immediately after recovering from/surviving the disease. Some of the prejudice/discrimination they experienced include: being avoided; not accepted back into the community; lack of social interaction with others; being looked at weirdly; and refusal to sell them food. Mabinty described her post-Ebola experience in terms of the way she was treated by the community (note: by saying “us” and “we,” Mabinty is referring to herself and her two children who are also Ebola Survivors).

Immediately after we have survived the Ebola sick and the government lifted the quarantine of our compound, people were afraid of us. My friends and even some
family members avoided us. Pipul dem bin dæ fred wi [People got scared of us]. Som pipul dem nor bin dæ mingle wit wi [Some individuals stopped interacting with us]. Many of my neighbors also avoided me and even stopped passing near my house because they said they don’t want to get sick. They did not mingle [interact] with me and the people in my compound. Evin wae wi retorn na house, pipul dem nor sell giwi chop [After we return home, people refused to sell food to us]. This was a difficult time. We got hungry a lot because people did not sell food to us (Mabinty, 86-93).

Binta expressed similar experience.

The people in my compound push far away from me. Den sospekt sey ar bin don get Ebola [People suspected I have had Ebola]. Nobody talked to me. Everyone abandoned me. Only my father came close to me and took care of me (Binta, 52-55).

For Sorie, people looked at him like as if he was a bad person. Despite being looked at this way, Sorie didn’t feel discriminated against. “Mi ar nor bin face no stigma [I was not stigmatized]. Even though some people in my neighborhood looked at me differently like I was a bad person, I didn’t feel being discriminated against” (Sorie, 98-100).

Interestingly, at the time of the interview, all the Ebola Survivors reported improvement in their community living situation in terms of their experience with social stigma. They now feel accepted in their communities and living their normal life.

According to Mabinty:

Thanks to God now. It is getting better now. People are starting to mingle with me again and the people in my compound. Wi nor dæ expirens dan dæ again [we are not experiencing those bad things any more]. The situation is now better than before (Mabinty, 95-97).

For Binta, she is back to living her normal life.

It is slowly getting better. My post-Ebola experience is not very bad. I didn’t experience too much problem with people. Some of my neighbors did not talk to me. I don’t know why. But I suspect it was because I am Ebola survivor. But,
many other people talked to me. I am now going back to school and living my normal life (Binta, 57-60).

The overall finding is consistent with past studies on EVD outbreaks, especially with regards to the experience of stigma by Ebola Survivors. Many previous research indicated Ebola Survivors experienced stigma (Abramowitz et al., 2018; Buseh et al., 2015; B. S. Hewlett & Hewlett, 2008; FOCUS 1000 et al., 2014a; Hewlett & Amola, 2003; Moghadam et al., 2015; Richardson et al., 2016; Richards, 2016; Tambo et al., 2014). For example, Richardson et al. (2016) found that Ebola Survivors in Sierra Leone faced significant stigma during the outbreak in the country. Similarly, Hewlett and Amola (2003) found that many of the Ebola Survivors of the 2000-2001 outbreak in northern Uganda experienced stigma within their families and communities. Some of the stigmatizing events were similar to those experienced by the participants in my study such as being avoided and feared by friends, family, and members of the community as well as lack of social interaction with others.

EVD Awareness

Another secondary theme that emerged reflect the participants’ perspectives on EVD, including its origin, cause, and how it is spread. The theme is EVD awareness. In this context, EVD awareness represents individual perception or knowledge regarding Ebola, including its causes as well as how to control and contain infection/transmission (i.e., Ebola prevention). This is an important theme to discuss because there is a need to take into account the perspective and knowledge of local people, especially Ebola Survivors, including control measures and health education. As Buseh et al. (2015) suggested, “this is an opportunity to assess perceptions of those who have the disease as
well as those at risk of contracting it, including family members” (p. 39). In other words, exploring and understanding local knowledge is central to effective control and to prevent emerging infectious diseases such as EVD.

For this study, Ebola Survivors possessed some epidemiological understanding of EVD. This may be because they contracted and recovered from the disease. The unique experience as Ebola Survivors exposed them to the medical and epidemiological realities of the disease. As a result, they gained a first-hand encounter with modern medicine. This may have contributed to their knowledge on EVD. Their perspectives on EVD consist of the view that the disease is real; that it originated from bush-animals; and that infection occurs as a result of physical contact with a sick person and eating bush-meat.

All participants perceived Ebola to be real and that it originated from bush animals. They attributed this knowledge to public health messages they heard during the outbreak as well as to their lived-experience with the disease. Sorie explained his knowledge on EVD’s reality on the basis of his experience with the disease.

As an Ebola Survivor, I want to say the sick is real. People were saying Ebola didn’t exist; it was not real. Ar beliy sey di sik e riyal biko ar ondago am, ar filam, ar no aw ar fil di sik. E kil mi parent dem en mi broda [I believe the disease is real. I had the Ebola sick. I suffered a lot. The disease was very painful. It killed my parents and brother]. Many people in my community also died from Ebola. I thought I was going to die. I was very weak and felt excruciating pain (Sorie, 91-96).

Although she didn’t know the specifics, Mabinty reported Ebola came from bush animals. She perceived bush animals to be carriers of the Ebola virus. Sorie shared similar belief. “According to the medical people, di siknes komot na bush [the disease originated from the bush]. This is what I believe” (Sorie, 10-11).
For Binta:

Ebola is a deadly disease that came to this country [Sierra Leone] and destroyed our lives, killing many people (5-6)… I think that Ebola came from Guinea (8)… It is a disease that is very painful when you get it. I don’t wish anybody to go through this sickness (10-11).

Additionally, all the participants reported that physical contact with a person who is sick with Ebola causes infection. Mabinty said that “someone can be infected with Ebola by touching a person who is sick with Ebola. You can get the Ebola sick by touching a person who is sick with Ebola. This is what I understand” (11-12). Similarly, Binta stated that “someone can get Ebola by getting in contact with someone who has the disease. Touching a sick person can make you get sick with Ebola (13-14). Sorie shared a similar perspective.

Ebola can spread when there is a sick person with Ebola in the house. The disease can then spread when there are people touching a sick Ebola person. Touching the sweat of the sick Ebola person can lead to the spread of the disease. When the sweat of the sick patient transfers to you, automatically you will get the sick (Sorie, 13-16).

Bush-meat was also perceived to cause EVD infection. Although Mabinty didn’t know what kind of bush-meat, she believed that eating this type of meat could cause Ebola. According to her:

I think that eating bush-meat can cause it[Ebola]. I was told that no one should eat bush-meat. I don’t know what kind of bush-meat, but the government and NGOs talking in the radio said we should not eat bush-meat because it can cause Ebola (Mabinty, 12-15).

This finding illustrates that Ebola Survivors had some accurate perspective and knowledge on EVD with regards to its origin, infection pathways, and a strong belief in its reality. This result is consistent with B. S. Hewlett and Hewlett (2008) who found that
some people in previous outbreaks – prior to the one in West Africa – held different perceptions and knowledge about EVD, which included a reflection of the biomedical model in that they perceived the disease to be real and is caused by physical contact such as touching a sick person.

This is an important finding in that Ebola Survivors may be in a better position to protect themselves and possibly their relatives and/or community members against EVD if another outbreak occurs in the future. As will be noted in Chapter 5, Ebola Survivors could play a critical role in community health education and sensitization program(s) in their respective communities with a focus on prevention during an outbreak in Sierra Leone.

**Situating Findings within a Conceptual Framework**

Overall, the emerging themes in this study reflect the socio-cultural perspective on health in that socio-cultural factors play a key role in infectious disease transmission. The findings suggest certain cultural factors – family care, traditional healing, cultural belief, and funeral rituals – may have contributed to the chain of transmission among families of the Ebola Survivors who participated in this study. Additionally, social stigma was evident in that two of the participants experienced discrimination and prejudice as a result of surviving the disease. This shows that health and disease occurs within a socio-cultural context.

Dunn’s (1984) framework support the findings in this study. For one, the cultural practices – family care, traditional healing, and funeral rituals – the Ebola Survivors engaged in are health-lowering in that they are risky behaviors that could have
contributed to their infection with Ebola, including their family members’ contraction with the disease, thereby resulting in a chain of transmission within their households that left many of them dead and some survivors. As Dunn’s (1984) theory posits, factors in the community that are health lowering, which are particularly based on local cultural belief and practices, contribute to transmission and spread of disease. As such, in order to deal with this issue, these heath-lowering factors need to be understood and taken into account so as to come up with control and containment strategies that incorporate such findings to help fight against any potential future EVD outbreak.
CHAPTER 5

DISCUSSION

The purpose of this study was to identify cultural practices that contributed to the transmission of Ebola during the 2013-2016 outbreak in Sierra Leone. The aim was to reveal cultural factors and explore how cultural practices influenced EVD transmission. Cultural factors have been linked to transmission and spread of infectious diseases such as Malaria, Yellow Fever, and Cholera, among others; and are often ignored in health emergencies, especially during EVD outbreaks. Understanding cultural factors that may influence/contribute to the transmission of EVD is essential for effective containment and control of EVD transmission during an outbreak. The study attempted to answer these two questions: (1) What cultural practices contribute to and/or influence the transmission of Ebola?; and (2) How do cultural practices contribute to and/or influence Ebola transmission?

This chapter is centered on the context of lessons learned as reflected by the findings that are supported by the conceptual framework and the reviewed literature. First, a summary of the overall findings are presented, followed by implications of the study with their accompanying recommendations. Then, suggestions for further research is presented. The Chapter concludes with a post-Ebola situation in Sierra Leone with a brief focus on progress being made as part of the recovery from the outbreak.

**Discussion of Findings**

This study reveal a number of cultural practices – family care, traditional healing, funeral ritual – and cultural belief that may have contributed to the EVD transmission
within households of the research participants (Ebola Survivors). All participants physically interacted with sick family members/relatives and their dead bodies. Their physical interactions took the form of caring for a sick parent and/or sibling, as well as touching the dead body of a family member(s) as part of the funeral ritual (i.e., preparing corpse for burial).

Two of the Ebola Survivors physically interacted with a traditional healer, which included the application of oil/lotion on bare skin as well as drinking some sort of herbal liquid prepared by the healers. All of these physical interactions posed a higher risk of EVD infection, which is transmitted via contact with body fluids such as sweat, saliva, and blood.

The findings align with previous research on Ebola outbreaks. A limited number of studies found family care (Abramowitz et al., 2015; B. S. Hewlett & Hewlett, 2008; Faye et al., 2015; Hewlett & Amola, 2003; Ravi & Gauldin, 2014; Richards, 2016; Richards et al. 2015; Richardson et al., 2016), traditional healing (Borchert et al., 2011; B. S. Hewlett & Hewlett, 2008; Carey, 2014; Fairhead, 2014; Hewlett et al., 2005; Hewlett & Amola, 2003; Ikuomola, 2015; Maxmen, 2015), and funeral rituals (B. S. Hewlett & Hewlett, 2008; FOCUS 1000 et al., 2014b; Gostin, 2015; Ravi & Gauldin, 2014; Rocal et al., 2015; Richards, 2016; Richards et al., 2015; Stadler et al., 2014; Troncoso, 2015) played a role in amplifying EVD transmission in nearly all previous outbreaks in Africa.

However, no study has primarily examine cultural practices that influenced the transmission of EVD in Sierra Leone. Thus, the need for this research. The findings of
this research reflect a number of lessons learned on cultural practices’ influence on EVD transmission in Sierra Leone. Because qualitative research is primarily based on interpreting data, such “interpretation involves making sense of the data, the ‘lessons learned,” (Creswell, 2013, p. 187). In essence, the literature reviewed and the themes that emerged from this study reflect the lessons learned with regard to the socio-cultural contexts of EVD transmission during the outbreak in Sierra Leone and West Africa as a whole.

A number of key lessons were learned from this study. First, family members took care of funeral rituals and burial with help from neighbours and/or a religious leader (i.e., an Imam). There was no consultation with an Ebola Burial Team. The participants and their families did not consult or involve an Ebola Burial Team at any point during the burial process of their loved-ones. This finding aligns with the literature in that many people in the Ebola affected countries did not trust burial teams to undertake the burial process of their relative and/or family members. For socio-cultural reasons, they undertook the entire burial process by themselves, despite the countrywide call for people not to bury their dead, but rather to call upon the Ebola Burial Teams who were trained to perform safe burial.

Also, family care, which includes visiting a sick relative during an outbreak, is a common practice in Sierra Leone. All of the cases and deaths reported in this study were linked to family members. EVD Transmission occurred within the Ebola Survivors’ households. Family members/relatives infected each other as a result of their physical contacts due to taking care of sick persons and touching their dead bodies.
Another lesson learned is the use of a parallel approach to treatment. Ebola Survivors first sought treatment from a traditional healer. When this turned-out to be unsuccessful (i.e., not cured), they went to Ebola Treatment Centers for treatment. A parallel use of ethno-medicine (i.e., strong belief and trust in traditional healing) and biomedicine was reflected by the results. While both models of treatment exist together and are/were used parallel to each other, they are not integrated (Buseh et al., 2015).

Ethno-medicine has been used in Africa for centuries. For most Africans, especially those living in rural areas, traditional healing is their first choice to seek healthcare for infectious and non-infectious diseases. If it fails, they may seek modern medicine (i.e., biomedicine). This was the case for Mabinty and Sorie. They first sought treatment from a traditional healer, followed by a visit to an ETC because their visit to the healer did not cure their illness, which turned out to be Ebola.

Interestingly, during the outbreak social stigma of Ebola Survivors was worse immediately after recovering from EVD. After the outbreak ended, community members became more welcoming. At the time of the interviews, all participants reported improved situations as they did not feel stigmatize. This may be due to the fact that at the time of the interviews, the outbreak was over and the fear/panic surrounding the disease was no longer present/visible. Or, it could be due to the community awareness campaigns against stigma of EVD Survivors that was implemented during the outbreak.

However, some Ebola Survivors continue to experience some sort of social stigma. As reported by the President of Sierra Leone Association of Ebola Survivors, Yusuf Kabbah, Survivors continue to experience challenges in post-Ebola Sierra Leone,
which include social stigma and lack of access to free healthcare, among others (BBC Focus on Africa, 2018a). Nevertheless, this finding suggests that while an outbreak is ongoing/active, stigma of Ebola Survivors is often common and severe. Therefore, addressing social stigma during an outbreak and immediately after it is over, is key to significantly reducing, if not completely eradicating, social stigma in affected regions.

The Ebola Survivors interviewed in Makeni have a biomedical approach to Ebola, unlike non-infected individuals. This may be due to the fact they got sick and had a lived-experience with the disease, unlike the general population. All participants perceived Ebola to be real, which is in direct contrast with the most common view held by many Sierra Leoneans during the outbreak. As the literature indicated, many people in West Africa, including Sierra Leone, believed EVD was not real and blamed it on multiple factors such as sorcery, witchcraft, and foreigners, just to name a few. Although the participants at first seemed to have held such beliefs during the outbreak, their perspectives may have changed as a result of their encounter with the disease.

All of the Ebola Survivors seemed to be aware/knowledgeable about EVD. They knew it causes and how to prevent themselves from getting infected. This knowledge/awareness can be attributed to their experience as survivors. They knew, or at least, perceived how they got the disease as well as treated in ETCs. They experienced first-hand the biomedical approach to disease treatment and prevention. This is good news as they should be involved in future potential outbreak to help with community sensitization programs on disease prevention.
The Findings and Conceptual Framework

From a theoretical standpoint, it is important to situate the findings within the socio-cultural perspective (Armenakis & Kiefer, 2007) and Dunn’s (1984) theoretical framework, which posits that the control and containment of a disease should address or be based on these key areas – factors in the community that are health enhancing and/or health lowering as well as factors outside the community that are health enhancing and/or health lowering (B. S. Hewlett & Hewlett, 2008). The phrase ‘in the community’ refers to local cultural belief and practices, while ‘outside the community’ relates to “national and international programs, teams, and structures” (B. S. Hewlett & Hewlett, 2008, p. 30). More specifically, Dunn’s (1984) framework suggests the need to identify beliefs and practices that influence risky behaviors in local communities and at national as well as international levels.

The overall outcome of this research aligns with the conceptual framework and is supported by the literature. While this study found health-lowering factors – family care, traditional healing, and funeral rituals – it also revealed that health-enhancing factors inside and outside the communities such as local, national, and international teams’ responses to the outbreak, helped control, contain, and eventually, stopped the outbreak. The health-lowering factors, which are based on the risky behaviors by the participants during the outbreak on the basis of their culture, may have contributed to the chain of EVD transmission that occurred within their households, and eventually led to the death of several members of their family. For example, all participants reported to have cared for a sick parent and/or sibling, who later died from Ebola. This in turn resulted in the
participants and other family members being infected and leading to their eventual sickness with Ebola.

While all the participants’ cultural practices reflect the health-lowering factors inside the community, one participant’s action aligns with previous findings on Ebola outbreaks in that community-members sometimes engaged in health-enhancing practices with a focus on controlling and containing the transmission of EVD within their community. This was often due to individuals and/or communities modifying their socio-cultural practices to cut the chain of transmission within their households and/or community as whole.

Socio-cultural modification aligns with the health-enhancing factors of Dunn’s (1984) framework. A number of studies on EVD outbreaks found that community members sometimes engaged in health-enhancing practices with a focus to contain and control the transmission and spread of EVD in their communities (Abramowitz et al., 2015; Agusto et al., 2015; Kouadio et al., 2015; Moon et al., 2015; Ravi & Gauldin, 2014; Richards, 2016). In particular, Mabinty and individuals in her compound modified a key cultural practice based on caring for a sick relative by not touching any sick person in their compound. Instead, once a member of the compound started experiencing Ebola symptoms, they stayed away from the person and immediately telephoned the Ebola Emergency Hotline/toll-free nationwide calling – 117 – for an Ebola Response Team to come and check on the individual(s). According to Mabinty, the collective effort among members of her compound ultimately cut the chain of transmission that had caused mayhem in her compound and left more than 11 people dead. The situation could have
been much worse if they had not suspended some of their socio-cultural practices.

Mabinty claimed their effort helped cut the chain of transmission, which eventually saved the lives of many other members in her community. She described their preventive strategy as follows:

It was difficult for us to cut the chain of transmission in our compound. We used our sense to cut the chain of transmission because we were now under quarantine. We cannot go anywhere. We were locked in our compound. We stopped the chain of transmission after the death of the second-to-last person. When he died, we gathered all his children who were living with him in the same apartment and who have had contact with him and sent them to the Ebola Treatment Center. Out of the 7 of these family members that we sent to the Ebola Treatment Center, 3 were tested positive and got sick. These three were taking to the Ebola Treatment Center in Kailahun. Two of them survived and one died. It is from here that the chain of transmission was blocked/cut. We started feeling a bit at ease because we have been able to cut the chain of transmission. Na dis tem wi get alafiya [It was at this time that we got some ease on the situation] (Mabinty, 51-61).

On the other hand, during the outbreak sellers/traders such as the researcher’s (me/my) brother used rubber gloves to collect money from customers for fear of EVD contamination. My brother who runs a pharmacy in Makeni, told me that he modified his interaction with customers to protect himself from getting infected with Ebola. He used rubber gloves all the time to collect cash from buyers/customers. Because the economy in Sierra Leone is heavily cash-based, there is a lot of hand-to-hand interaction that takes place during a business transaction. Such transaction poses serious risk of infection. Also, many of my friends and family members told me people substituted the common practice of handshake with a fist bump as well as stopped hugging each other. These modification of common socio-cultural practices exemplifies the health-enhancing factor inside the community.
Similarly, a traditional healer in a remote village in the Republic of Congo (during the 2003 outbreak) modified his healing practices for the sake of disease prevention. He wore gloves and used bleach when treating a patient suspected of having Ebola; despite his strong belief that the illness is due to sorcery. This healer perceived this rare disease/EVD has two phases: (1) controlling contact with the sick person; and (2) sorcery (Hewlett et al., 2005). These examples demonstrate the possibility of local people to modify their cultural beliefs and practices for the sake of positive health outcome.

Even though this study primarily focused on the cultural practices that contributed to the transmission of Ebola, it is worthwhile to acknowledge that some local people were also instrumental in the control of transmission and spread of the disease largely because they suspended and/or modified certain high risk cultural practices such as funeral rituals. As Dunn’s (1984) framework indicates, “beliefs and behaviors that contribute to the control of the infectious or parasitic disease should be identified and encouraged, while beliefs and behaviors that are health lowering should be targeted for change” (B. S. Hewlett & Hewlett, 2008, p. 111). This was the case in West Africa, where communities played a role that resulted in the end of the outbreak. As Abramowitz et al. (2015) observed, public health professionals, including epidemiologists, gradually recognized the role and importance that communities play in the fight against disease outbreak.

It has even been suggested that Ebola infection in West Africa was significantly reduced due to modification and/or suspension of high risk cultural practices. Paul Richards, an anthropologist who have been working and living in Sierra Leone and other West African countries for over 4 decades, and author of a book on the Ebola outbreak in
the region, observed that “Ebola infection was reduced because people were willing to suspend culture (pace Clifford Geertz) long enough to roll out some empirical common sense” (Richards, 2016, p. 150). For example, Joel Montgomery, a CDC Team Leader in Liberia during the outbreak, noted that “communities are doing things in their own, with or without support” (Abramowitz et al., 2015, p. 3). This suggests the critical role that culture plays in Ebola transmission and prevention during an outbreak.

On the other hand, health-lowering outside the community was evident during the outbreak in West Africa. These factors included weak health systems and slow/late response by national governments and the international community such as WHO. The late response by the international community, especially WHO, exacerbated the outbreak. Although the international community eventually responded to the pandemic, they came to the game too late – several months into the outbreak after it had been declared an international public health emergency and was out of control (Boozary et al., 2014; Roca et al., 2015).

The weak state of the health systems in the three affected countries – Guinea, Liberia, and Sierra Leone – was blamed for the poor response to the EVD outbreak. All three countries had very weak health systems. Such weakness can be “attributed to poor resource management, corruption and years of chronic under-spending on health and social care services” (Tengbeh et al., 2018, p. 37). At the end of the day, the late response and weak health systems were blamed for exacerbating the outbreak and making it the worst in the history of the disease. Interestingly, it was the coordinated national and international efforts that ended the outbreak in all the countries affected, thereby aligning
to the health-enhancing factors outside the community side of Dunn’ (1984) framework. Although it came late in the game, it was the coordinated efforts of national and international initiatives that ultimately helped end the outbreak.

Another lesson learned is based on the heavy focus on quarantine. This epidemiological approach is the most common strategy used in health emergencies that involves infectious diseases such as Influenza and Ebola. At the early onset of the outbreak in the three affected countries, responders primarily, if not entirely, focused on quarantine of areas where the virus had hit first. They used text-book format and experience from previous outbreaks that occurred mostly in isolated/forest areas where quarantined was effective. This was a mistake, as the first epicentre where the virus was first identified – a farming and hunting village called Meliandou – was at the margins of a major city in south-eastern Guinea, which lies along trading routes that link the porous international borders of Guinea, Sierra Leone, and Liberia.

People in this region move freely across each country for trade and family visits. This made it easy for the virus to be transported to nearby towns, and across international borders, which ultimately brought it to major urban areas, including the capital cities of all three countries. According to Kieny and colleagues (2014), most of the time governments and international teams often respond to “a health crisis posed by a communicable disease, such as Ebola, is to solely focus on reducing transmission and the effect of the disease. However, such a response is insufficient” (p. 850). My research findings also indicate this common practice. One of the research participants mentioned that her compound was quarantined. Yet, this epidemiological strategy did not
immediately stop the chain of transmission in her residence. Despite being under quarantine for over two months, Mabinty reported a disastrous chain of transmission within her compound that resulted in 11 deaths.

Another interesting lesson learned is the limitation of the biomedical approach to control Ebola outbreak in this region. As Buseh et al. (2015) explained, the Ebola outbreak revealed the clash between biomedical model and the African traditional healing model (i.e., ethno-medicine). This clash was evident in the inadequate nature of this western medical model in dealing with the outbreak in the region. It failed to assure people to seek it. In fact, many people first sought traditional healing and trusted it more than modern medicine.

According to a Professor of Anthropology and a Global Health Professor at the University of Northern Iowa with extensive work with diverse populations in the State of Iowa and across the U.S., Dr. Mark Grey and Dr. Michele Develin, respectively, noted that the initial response on Ebola in West Africa illustrated a key shortcoming of the biomedical and traditional epidemiological approaches to dealing with communicable disease outbreak. For example,

The initial arrival of the disease in the United States with a Liberian immigrant in Texas exposed the shortcomings of a response system that relied heavily on guidance and protocols from medical organizations emphasizing protective gear, isolation protocols, standardized questions, and other operational and technical details, but doing little to understand the patient as a cultural being (Grey & Devlin, 2015, para. 1).

In essence, a primary focus on biomedical/epidemiological approach to disease outbreak falls short on effective and efficient management of health emergencies that involve disease outbreaks. As such, there is need for use of a combination of the traditional
approach to epidemiology with incorporation of other strategies such as the socio-cultural approach to health promotion and disease prevention.

Limitation of the Study

Although the original plan of the study was to recruit 3-5 research participants, only 3 Ebola Survivors participated in the research. Out of the seven survivors approached for participation, only three gave their consent. The main reason for refusal to participate in the study was lack of feeling comfortable to talk about their traumatic experience. Additionally, two potential participants mentioned having negative feelings about being a research subject as a result of previous negative experience being interviewed by other researchers. This experience made them reluctant to participate in any research. All four of the survivors who did not consent to participate in the study mentioned their distrust of any kind of research in that they felt being used. They expected direct tangible benefits from the study, which the researcher could not promise.

Also, the Sierra Leone Association of Ebola Survivors district office in Makeni was not functional at the time of recruitment of research participants. The office was closed. This made it difficult to find a good number of potential research participants. This local office serve as a place where Ebola Survivors often hangout and conduct their informal and formal activities. It is a good recruitment place for research participants. As a result, the researcher (I/me) made several attempts to contact the person in charge of the office, but to no avail. Although I eventually met with the person in charge, nearly after an entire week of trying, we discussed about the research project. She told me she would consult with other members of the office and get back to me. She didn’t get back to me
until very late (a day before my return to the U.S. and after having conducted 3 interviews).

Most importantly, time constraint severely limited this study. The researcher (I) didn’t have adequate time to recruit potential research participants and conduct interviews due to circumstances beyond his control, which included family and financial issues. As a result, I only spent three (3) weeks in Sierra Leone. With this time-frame, a whole week was spent recruiting participants and another week to conduct interviews.

The small number of participants limit the potential to generalize the results of this study. For this reason, one must use caution not to generalize the findings to the Ebola Survivors population in Sierra Leone or in West Africa for that matter. Nevertheless, the 3 research participants provided valuable and adequate data for analysis, thereby answering the research questions.

Despite the small sample size, research participants provided adequate and relevant data on the topic being studied. Their responses provided additional relevant data on family members, which in turn improved and strengthened the data of the sample size. The participants talked about how members of their family got sick and died. They reported on the impact of the disease not only on themselves, individually, but also on their families as a whole. This in turn provided lots of data for analysis, and from which, to draw conclusions regarding the influence of cultural practices on EVD transmission in Sierra Leone. Specifically, all of them reported contracting the disease from a family member due to physical contacts with the sick and dead bodies, which included taking
care of a sick parent and/or sibling as well as touching the corpse of a parent and/or sibling.

The research participants also reported their family members (parent and/or sibling) engaged in similar physical contacts with a sick loved-one and their dead bodies. They attributed the sickness and death of family members/relatives to family care and touching the corpse of a loved-one. Not only did participants’ perspectives provide insight into their Ebola experience, they also illustrate the experience of family members with the disease.

Two of the Ebola Survivors’ reports of visits to traditional healers was largely due to them having previously being exposed to healers, which was a common practice in their families. While Sorie recalled his mother taking him to a traditional healer when he was little, Mabinty reported visiting a traditional healer was common in her family. She had a history of seeking traditional healing. The participants’ reports on the impact of the disease on their families provided additional data that helped improve the small sample size, which in turn strengthen the findings from the perspectives of the participants as well as on behalf of their families’ experience with EVD and the resulting impacts on their families as a whole.

Finally, two of the participants revealed cultural belief of the traditional healers they consulted to treat their disease. Both traditional healers blamed the cause of their sickness on witchcraft and evil spirit. Two different traditional healers told Mabinty and Sorie that an enemy cast evil curse on them. It is therefore possible to conclude that these two traditional healers believed the strange disease that their patients brought to them was
caused by evil spirit and/or witchcraft. This then indicate a similar cultural belief held by the two traditional healers.

**Implications and Recommendations**

This study has a number of implications for public health education and social mobilization as well as health policy and global health emergency response. For the sake of efficiency, each implication is discussed followed by recommendation(s). The implications and their accompanying recommendations derive from the overall outcome of the research.

**Community Health Awareness and Education**

The first implication of this study is for community health awareness and education. Community health education programming stands to benefit from this research in that the findings reveal a need to create social awareness campaigns on the influence of socio-cultural factors on Ebola transmission. This may help to guide community health education programs to incorporate socio-cultural factors in community awareness and education programs for EVD prevention. This may aid in educating the general public on ways to prevent themselves from getting infected with Ebola that is related to their behavior, which is influenced by their cultural belief and/or practices. Arming the general public with such a knowledge/awareness can go a long way in empowering them to take control and actively engage in the containment, control, and prevention of future Ebola outbreak in Sierra Leone. As the common saying goes, prevention is better than cure. This implication is accompanied by a recommendation.
**Recommendation.** Community health awareness campaigns and education need to involve Ebola Survivors. They are key stakeholders that have a first-hand experience of EVD and its devastating effects on the lives of people. Their lived-experience is central to community health education and awareness campaigns largely because they possess knowledge about the disease, including its causes and how to prevent it. For example, in the compound of one of the participants, which was quarantined for over two months, the survivor worked with residents to cut the chain of transmission.

Ebola Survivors are living proof that EVD is real, which in turn may help to de-mystify the common belief among local people that the disease is not real. Also, survivors are members of the community, which in turn puts them in a better position to build trust within the community as opposed to a stranger or outsider who is foreign to the community.

**Health Policy**

Another implication of this study is for health policy. This is because weak health systems in Guinea, Liberia, and Sierra Leone was a key factor that amplified the outbreak. This warrants the critical need to strengthen the health system in Sierra Leone, as well as in Guinea and Liberia so as to be in a better position to tackle any potential future EVD outbreak.

However, strengthening a health system should not be based solely on the biomedical model (i.e., medical and epidemiological approaches), but, must also focus on social and behavioural approaches to health such as medical anthropology and cultural epidemiology. As the findings in this study indicate, socio-cultural factors played a
central role in amplifying the outbreak. This in turn suggests the need to incorporate a socio-cultural approach to disease, health and wellbeing into any health system so as to holistically be capable to address health crisis of this nature. The goal should be to make the health system stronger and resilient as a whole. This implication is accompanied by two recommendations.

**Recommendation 1.** First and foremost, a key focus should be to improve and strengthen the health system with a particular focus on social and economic development. A better health system requires a strong economy as it needs to be paid for. The key ingredients for building and strengthening a health system, as WHO (2010) suggested, consists of: (1) leadership; (2) information systems; (3) health workforce; (4) financing; and (5) supplies and service delivery. For example, there is a grave need to decentralize the health system so that it provides access to small, rural communities in Sierra Leone. As of the writing of this paper, the health system in the country is centralized, which in turn makes access to healthcare in many parts of the country almost unavailable. As such, decentralizing the health system may boost healthcare access to rural communities, including remote areas in the country, which are often significantly devastated by health emergencies such as an EVD outbreak.

**Recommendation 2.** Another focus should be on funding for education and training in healthcare (i.e., improve medical and public health workforce) so as to develop domestic and national pool of expertise in outbreak preparedness who are familiar with the socio-cultural context of the country. In fact, Sierra Leone suffers a
severe shortage of health workers. At the time of the outbreak, the country had 136 doctors for a population of 7.2 million (Piot, 2016).

In addition to improving the workforce, health worker need to be trained on handling health emergencies, in particular infectious disease outbreak such as EVD. As Agusto et al. (2015) suggested, “health-care workers must be trained in global best practices, vis-à-vis the proper way to manage, handle and care for Ebola-infected individuals and Ebola-deceased patients (to minimize infection among health-care professionals)” (p.109). This recommendation aligns with the reviewed literature which revealed the death of hundreds of health workers during the outbreak largely due to infection within healthcare settings.


National and global health emergency preparedness and response to Ebola outbreaks, especially in the West Africa region, needs to incorporate cultural needs assessment. As the findings of this study illustrate, there is a need for cultural awareness among international responders to health emergencies to take note of the influence of socio-cultural factors that may influence the control, containment, and prevention of Ebola transmission. This is because, according to Kieny et al. (2014), most of the times national governments and international organizations response to “a health crisis posed by a communicable disease, such as Ebola, is to solely focus on reducing transmission and the effect of the disease. However, such a response is insufficient” (p. 850). Consequently, being aware of other factors, such as socio-cultural contexts, health workers and emergency responders could tailor their strategies/programs to account for
the need to incorporate socio-cultural factors to help improve the effectiveness of their community health initiatives aimed at stopping the chain of transmission and spread of this rapid killing disease during an outbreak. This implication comes with two recommendations.

**Recommendation 1.** Any national and global response to EVD outbreak in Sierra Leone need to take culture into account. As this study’s findings indicate, socio-cultural factors in Sierra Leone plays a key role in infectious diseases, in this case EVD. The cultural belief and practices such as funeral rituals/burial, family care, and traditional healing are common cultural practices that provide the context for disease and wellbeing in Sierra Leone and West Africa as a whole. Understanding the cultural practices and beliefs serves as lessons to craft culturally-specific ways to prevent or mitigate the transmission and spread of Ebola during an outbreak.

**Recommendation 2.** It is important for any national and global response to EVD outbreak in Sierra Leone to partner with traditional healers. There is a drastic need for partnership between public health/medical professionals and traditional healers. As this study reveals, many people in Sierra Leone, and West Africa in particular, trust traditional healers more than medical and/or public health personnel. As a result, traditional healing is their first choice of treatment.

Previous studies on Ebola outbreak suggested that traditional healers contributed to hamper the spread of Ebola, especially in rural areas. This was the case as they helped with sanitation and quarantine measures. For example, a traditional healer in a remote village in the Republic of Congo (during the 2003 outbreak) exhibited signs of using the
biomedical model in that he requested for gloves and bleach when he wanted to treat an Ebola patient, despite his strong belief that this illness is due to sorcery (Hewlett et al., 2005). This example demonstrates the possibility of traditional healers to modify their healing practices for the sake of positive health outcomes. They stand to play a vital role in their respective communities to help fight against an EVD outbreak.

Social Mobilization and Community Engagement

An important implication of this study is the need for improved social mobilization, with a focus on community engagement to fight disease outbreak. The main ingredient for social mobilization is trust. As this study reveals, local people distrusted national and international health workers and authorities. This in turn hampered public health awareness campaigns during the outbreak because many people did not trust the messengers, thereby their health messages. This implication comes with two recommendations.

Recommendation 1. There is a critical urgent need for community healing to foster trust between communities and national authorities in Sierra Leone. The aim should be to rebuild trust between citizens and authorities in this post-conflict and post-Ebola nation. Rebuilding such a trust could be far reaching in terms of developing an effective public health campaign during a health emergency such as an Ebola outbreak. In this endeavour, the government should engage all sectors of society including local and national leaders such as Paramount Chiefs, City Councils and Community leaders. This is because engaging/partnering with community leaders in outbreak response and any health emergency for that matter may improve local people’s trust in national and international
personnel. One way to engage the community is to have local/community-based grassroots Ebola response in every community. This in turn may significantly increase trust, thereby fostering an effective control, containment, and stopping an outbreak. In fact, during the 2013-2016 outbreak, some communities contributed immensely to ending the pandemic (Abramowitz et al., 2015; Kouadio et al., 2015; Moon et al., 2015; Ross et al., 2017).

Recommendation 2. Social mobilization through community engagement is key to incorporate local responses with national and international efforts to an outbreak. Such coordination and corporation among all parties involved in the control and containment of disease outbreak is key to fighting against EVD. In the case of the 2013-2016 Ebola outbreak, one key lesson learned is that:

Ebola infection was reduced because people were willing to suspend culture (*pace* Clifford Geertz) long enough to roll out some empirical common sense. The message for future Ebola control seems clear: consolidate ways of working effectively with local communities using basic methods of infection control, and recognize the existence and importance of people’s science (Richards, 2016, p. 150).

The focus should be on working with grassroots/community leaders because, as Buseh et al. (2015) observed, they are “more effective in mobilizing their people around efforts being promoted by the ministries of health and international organizations” (p. 35). However, the initial response to the outbreak in Sierra Leone and the two affected countries saw poor community engagement. This have been the case, as Moon et al. (2015) noted, “there was poor understanding of how to take into account community beliefs, practices, and solutions, properly address rumours, and involve local leaders – with some fatal consequences for health workers and communities” (p. 386).
Nevertheless, some local communities used a variety of community-based strategies that helped successfully in the fight against the disease. Some of the strategies used included restricted movement in and out of the community and the establishment of a local community task force to help coordinate and facilitate community-wide responses to the fight against the disease. In essence, social mobilization through community engagement at the grassroots is essential for a holistic approach on the fight against an Ebola outbreak. It is thus critical for outbreak preparedness and response to partner and coordinate with local communities.

**Recommendation for Further Research**

As research on socio-cultural contexts of EVD is in its infancy stage, there is a great need for empirical studies on this topic. On this basis, there are a number of recommendations for future research.

As this study is limited in scope in terms of the small sample size and single methodology (qualitative study), the generalizability of the findings is somewhat limited in scope. Nevertheless, the study provides valuable data that can serve as a stepping stone upon which a more extensive study with a large sample size could be conducted. In other words, there is a need for more empirical studies that use a mixed-methods approach to research on socio-cultural contexts of EVD in West Africa. Potential research participants may include medical doctors, Ebola Survivors, and government. Such an extensive study may reveal findings that could be generalizable to the general population and/or the Ebola outbreak in West Africa.
An interesting finding of this study was that Ebola Survivors experienced social stigma immediately after recovering from the disease and while the outbreak was active. Could the key reason for the social stigma be due to people being scared because they thought survivors may infect them? This question is worth exploring so as to understand what factor(s) led to social stigma during an EVD outbreak.

On the other hand, post-Ebola Sierra Leone (after outbreak was over), Ebola Survivors did not feel stigmatized. Could this be attributed to lack of an active outbreak with all the fear and panic that came with it? Or was it the health awareness campaigns undertaken across the country during the outbreak and immediately after it was declared over that played a role to significantly reducing stigma? Answers to these questions could shed a light on the determinants of or attributive factors that influenced the decrease, if not complete elimination, of social stigma in post-Ebola outbreak in Sierra Leone and/or other affected countries.

Another important topic to study is the exploration of local perspectives on EVD. There is a need to take into account local perspectives and knowledge on EVD, including control measures and health education. This is because examining local knowledge is central to effective control and to prevent emerging infectious diseases such as EVD. For example, Buseh et al. (2015) affirmed that:

As far as we know, there are no reports about local populations’ beliefs and attitudes about Ebola and what they think about the response efforts from their national governments and international organizations relative to the Ebola outbreak. This is an opportunity to assess perceptions of those who have the disease as well as those at risk of contracting it, including family members (p. 39).
In essence, it is important to explore local perspective and knowledge on EVD so as to determine the awareness of the disease among local people. Findings from such a study may reveal important socio-cultural factors that may need to be incorporated into EVD outbreak preparedness and response, both at the national and local level.

Although a limited number of studies in Africa have suggested the lack of public education/awareness regarding the contribution of traditional practices to transmission of infectious diseases, no study has been conducted in Sierra Leone that exclusively examine the perceptions of Sierra Leoneans regarding the association between cultural factors and infectious diseases, not to mention the recent Ebola outbreak. Therefore, future researchers may want to investigate this topic.

A key question may be framed as: How do local people perceive the influence of cultural practices/factors on the transmission of the Ebola virus disease in Sierra Leone? This is a worthwhile question to ask local people as some may not be aware of this potential link between their cultural belief/practices and Ebola transmission. Finding(s) from this question may shed light on local people’s perspective on the influence of cultural factors on EVD transmission, which in turn could be helpful for community health education programs as well as for national and international preparedness and response during an outbreak.

**Conclusion: Post-Ebola Sierra Leone**

It is important to note that Sierra Leone is on the road to recovery. The country faces multiple challenges that include economic downturn, social stigma of Ebola Survivors, and very weak health system, just to name a few. The country is gradually
recovering and rebuilding. A new president was elected in April 2018. He promised to strengthen the health system, which includes improving the health workforce.

There is a lot of hope and work to be done in post-Ebola Sierra Leone. As a country with resilient people who were making significant progress in recovery and rebuilding from a decade-long civil war (1991-2002), the country suffered tremendous setback from the Ebola outbreak, which wiped-out nearly all the successes made over the years. Nevertheless, the Sierra Leone people are resilient and, once again, on the road to recovery. This is all the more reason to be prepared and improve the country’s capability to handle any potential future EVD outbreak.
REFERENCES


BBC Focus on Africa. (2018a, March 2). Sierra Leone: Ebola has gone, but it is not over yet. Retrieved from https://www.bbc.co.uk/programmes/p05zxjw2


Tengbeh, A. F., Enria, L., Smout, E., Mooney, T., Callaghan, M., Ishola, D., … Lees, S. (2018). “We are the heroes because we are ready to die for this country”: Participants’ decision-making and grounded ethics in an Ebola vaccine clinical trial. *Social Science & Medicine, 203*, 35-42. doi:/10.1016/j.socsimed.2018.03.008


APPENDIX A1

QUESTIONNAIRE – INTERVIEW QUESTIONS

The Ebola Virus Disease: Cultural Belief and Practice

1. What do you think about Ebola?

2. Where do you think the Ebola virus comes from?

3. What do you think causes Ebola?

4. How do you think this disease spread?

Perspective on Cultural Factors and Ebola Transmission

5. How did you contract Ebola (got sick/infected)?

Potential follow-up questions:

a. How did you know you have Ebola?

b. Did you participate/attend any event within the last 21 days before you got sick with Ebola?
   i. If yes, can you talk about the event(s)?

c. Did you visit a sick person before you got sick with Ebola?
   i. If yes, can you talk about it?

d. Did you take care of a sick person before you got sick?
   i. If yes, can you talk about it, including your relationship with the person?

6. Have you ever visited a traditional healer (herbalist)?
   a. If yes, can you talk about it, including why you visited him/her?
Potential follow-up questions:

a. Did you visit a traditional healer (herbalist) during the outbreak?
   
i. If yes, can you talk about it, including why you visited him/her?

Post-Ebola Experience

7. Can you talk about your experience as an Ebola Survivor?

Demographics

8. How old are you (age)? ______

9. Gender: Male____ Female____

10. What is your ethnicity? __________________
APPENDIX A2

Krio Translation of Questionnaire – Interview Questions in Krio

Ebola Sik: Kolchoral Bilif en Praktis

1. Wetin yu tink bot Ebola?

2. Usay yu tink sey di Ebola vayros komot?

3. Wetin yu tink sey dae mek sombodi get Ebola sik (wetin dae koz Ebola sik)?

4. Aw yu tink sey dis sik dae skata na di komyuniti?

Aydiya bot Kolchoral tindem wey dae ep Ebola for mek pipul dem sik

5. Aw yu get di Ebola sik?

Oda Posibul Kweshon dem:

a. Aw yu no sey yu don get di Ebola sik?

b. Yu bin patisipet/go pan eni ivent insay 21 des bifor yu get Ebola sik?
	i. If yes, duya tok bot di ivent.

c. Yu bin visit eni sik posin bifor yu get Ebola sik?
	i. If yes, duya tok bot dis.

d. Yu bin tek kia/ep sombodi wey get Ebola sik?
	i. If yes, duya tok bot dis. Udat na di posin we yu ep/kia for?

6. U don eva visit Meresin Man/Uman?

a. If yes, duya tok bot dis, en tok way u visitam.

Oda Posibul Kweshon dem:

a. Yu bin visit eni Meresin Man/Uman durin di Ebola awtbrek?
	i. If yes, duya tok bot dis, en tok way u visitam.
Ekspirens Afta di Ebola Sik

7. Wetin na yu ekspirens as sombodi we sorvayv Ebola (Ebola Sorvayva)?

Pasonal Karaktaristik Dem

8. Wetin na yu ej? ______

9. Genda: Man____ Uman____

10. Wetin na yu trayb? __________________
APPENDIX B1
MABINTY’S INTERVIEW TRANSCRIPT

AJ: What do you think about Ebola? Where do you think the Ebola virus come from/origin?

M: I heard that Ebola came from Guinea or Liberia. I heard it came from the bush from animals there.

AJ: Do you know what kinds/name of the animals?

M: No, I don’t know.

AJ: What do you think causes Ebola? How do you think this disease spread?

M: Someone can be infected with the Ebola by touching a person who is sick with Ebola. You can get the Ebola sick by touching a person who is sick with Ebola. This is what I understand. I think that eating bush meat can cause it. I was told that no one should eat bushmeat. I don’t know what kind of bushmeat, but the government and NGOs talking in the radio said we should not eat bushmeat because it can cause Ebola.

AJ: How did you contract Ebola (got sick/infected)?

M: Me and my two children contracted Ebola from my younger sister who was sick with the disease. When she got sick, we didn’t think it was Ebola. My mother took care of her. She cook for her, clean her clothes, and did many other things for her. She later died. We washed her dead body. Even though we were told [by the government] not to touch any “leyley body” (corpse), we didn’t think our sister was sick with Ebola. When she died, we washed her dead body. It was later
after we have buried my sister that I got sick and then my daughter and son also got sick with Ebola. It is then we know that my sister had died from Ebola. I think we [Mabinty and her children] got sick because we touched my sister’s dead body. My mother washed her dead body.

AJ: Your sister who got sick with Ebola, do you know if she attended any event or ceremony before she got sick?

M: Well, I don’t know. We didn’t live in the same place/home. We heard about her sickness. Then we visited her at her home.

AJ: From that washing of her dead body, did anyone else got sick after that?

M: Yes, Yes.

AJ: How many people got sick from that?

M: Other family members who lived with my sick sister got the Ebola sick. Our mother, my sister’s husband, and step-daughter also contracted Ebola.

AJ: Did they also interact with or touch your sick sister?

M: Yes, yes. They touched my sick sister who later died. They also touched her dead body.

AJ: How did they know they have the Ebola sick?

M: They knew that they got Ebola disease when they went to the Ebola Treatment Center. The contact team came to our compound and took us away to the treatment center in Makeni. My mother, my sister’s step-daughter and husband died from Ebola. Luckily my two children survived.

AJ: Why do you wash your sister’s leley body?
M: It is our tradition to wash the body of our relative/family member. It is our culture to wash the body of a dead person.

AJ: Can you talk more about how did you know you have Ebola?

M: I got the Ebola sick from my sister who was sick with Ebola. My mother washed her dead body [Mi mama na in was am]. Few days later my mother got sick [Leyta mi Mama get sik]. Ten (10) days later, she died [Afta ten deyz na im I dai]. After my mom’s death, we then realize it was Ebola that killed her and my sister. After these two deaths, the government came and quarantined our compound. We were quarantined for more than two months. During this time, many of our family members began to die. We lost eleven people [Wi los 11 pipul dem]. It was difficult for us to cut the chain of transmission in our compound. We used our sense to cut the chain of transmission because we were now under quarantine. We cannot go anywhere. We were locked in our compound. We stopped the chain of transmission after the death of the second-to-last person. When he died, we gathered all his children who were living with him in the same apartment and who have had contact with him and sent them to the Ebola Treatment Center. Out of the seven (7) of these family members that we sent to the Ebola Treatment Center, three (3) were tested positive and got sick. These three were taking to the Ebola Treatment Center in Kailahun. Two of them survived and one died. It is from here that the chain of transmission was blocked/cut. We started feeling a bit at ease because we have been able to cut the chain of transmission [Na dis tem wi get alafiya].
AJ: Have you ever visited a traditional healer (herbalist)? If yes, can you talk about it, including why you visited him/her?

M: When I got sick, I went to the Meresin Man [traditional healer] who was in my area. I have visited him before when I was sick and he treated me. So, when I get sick again, I went to him to treat me. He is a very powerful Meresin Man. He treats many people in Makeni. When I visited him, he told me not to worry. He said my sickness is because someone has bewitched me [Na sombodi dae pan wich mi]. I got even more scared. “No wori, ar get di pawa for klin yu from dis wichman in siknes,” the traditional healer said [Don’t worry, I have the power to get rid of this evil curse]. The Meresin Man then proceeded into his shack. He then came out with a small basket that has shells in it. He then started speaking in tongues with his eyes closed [cantation]. I have no idea what he was saying. It sounded like he was talking to a spirit or God. After he finished the cantation, he looked at me and said; “na sombodi put dis sik pan yu. Mek yu nor wori, ar go trit yu” [someone send you this disease, don’t worry, I can cure you]. He then went back into his shack and came out with a small black bowl. He asked me to drink the liquid that was inside. I drank it. It was very bitter/sour. He then told me to go home and wait for the sickness to go away.

The next day, my sickness got worsened as I started vomiting and felt severe pain in my stomach. I still believed I will get better because I trust the Meresin Man. But then later the Ebola Response Team came to our compound and quarantine and took some of us to the Ebola Treatment Center.
AJ: After you have survived/recovered from Ebola, can your talk about your experience as an Ebola Survivor? Did you go through any challenges?

M: Yes, yes, it is a lot. Immediately after we have survived the Ebola sick and the government lifted the quarantine of our compound, people were afraid of us. My friends and even some family members avoided us. They got scared of us [pipul bin dae fred wi]. Some of them even stopped talking to us [Som pipul dem nor bin dae mingle wit wi]. Many of my neighbors also avoided me and even stopped passing near my house because they said they don’t want to get sick. They didn’t mingle [interact] with me and the people in my compound. People refused to sell food to us. This was a difficult time. We got hungry a lot because people didn’t sell food to us [Evin wae wi retorn na house, pipul dem nor sell giwi chop/food].

AJ: Is the situation better now?

M: Thanks to God now. It is getting better now. People are starting to mingle with me again and the people in my compound. We are not experiencing those bad things any more [Wi nor dae expirens dan dae again]. The situation is now better than before.

Demographics.

AJ: Mabinty was a 42 years old female at the time of the interview. She belongs to the Temne ethnic group.
APPENDIX B2

SORIE’S INTERVIEW TRANSCRIPT

AJ: What do you think about Ebola?

S: I believe the Ebola Disease is real [di siknes e real].

AJ: Where do you think the Ebola virus come from/origin?

S: When the Ebola first came to Sierra Leone, some people said it started in Liberia or Guinea. I don’t know the true origin of the disease.

AJ: What is your belief? Where do you think it originated from?

S: According to the medical people, the disease originated from the bush [di siknes komot na bush]. This is what I believe.

AJ: What do you think causes Ebola? How do you think this disease spread?

S: Ebola can spread when there is a sick person with Ebola in the house. The disease can then spread when there are people touching a sick Ebola person. Touching the sweat of the sick Ebola person can lead to the spread of the disease. When the sweat of the sick patient transfers to you, automatically you will get the sick.

AJ: How did you contract Ebola (got sick/infected)?

S: I contracted Ebola through my parent. They were sick with Ebola [Ar get di sik from mi parent dem. Dem bin get Ebola sik]. We lived in the same house. Me and my small brother took care of my sick parent [mi Mama en mi Papa]. I am the oldest child in the family. The responsibility to take care of my parent falls on my shoulder. My mother was the first one to get sick. I helped my father took care of her. She died several days later. From there, my father started feeling sick. Me
and my small brother took care of him. My father died two weeks later. After the death of my father, me and my brother began to feel sick.

AJ: What type of things did you do when taken care of your sick parents?

S: I did many different things. You see, when my father was sick, he was very weak and cannot do anything for himself. Me and my small brother had to do everything for him. We brought him water to drink and food to eat. We washed the plates and cups that he used. I also changed his bedsheets. I helped my father change his clothes and I washed the dirty clothes that sometimes have vomit on them. I also wipe his body with a wet rag to clean his body from the sweat. He was sweating a lot because his body was very hot. We have to clean the sweat. I soak a rag and wipe his body with it. I did many other things that I cannot mention all of them.

AJ: Before your parent got the Ebola sick, do you know if they attended any event or ceremony?

S: No. I am not aware of that. I know my mother used to visit her friends in our neighborhood.

AJ: Do you know if any of her friends that she visited were sick?

S: No.

AJ: After both of your parents died, did you touch any of their body?

S: I didn’t touch my mother’s leley body because my father is the one who was with her in the room at night when my mother died. Before he told us she was dead, he had covered her body. We were crying a lot and my father hugged and
consoled us. My mother’s dead body was in the bedroom. My father telephoned someone, who was the Imam from our local mosque. He came with some men who then took away my mother’s dead body. We went with our father to the mosque where we prayed on my mother before they took her leyley body to bury her.

AJ: What about your father, when he died did you touch his dead body?

S: Off course, me and my small brother were the only people spending time with him. We took care of him. I went to get water for him to drink and when I came back to his room, he was dead. First I thought he was sleeping, so I went outside and washed his clothes. But then many hours later, he was not waking up. I started pushing/shaking his body to wake him up because he needs to eat. But he was not waking up. I started screaming loud at him to wake up and then my small brother joined me. We both kept shaking his body to wake up. We try to open his eye with our hands. He didn’t respond. Then we realized he is dead. We started crying. My small brother could not stop crying. I then took one of the bedsheets and covered my father and hold my brother to console him. One of our neighbors came in to our house and called our Imam who then came and picked up my father’s dead body. We followed them to the mosque where we prayed on my father before taking him to burial.

AJ: Do you know if the Imam or anyone else did anything like preparing your parent’s body before burial?
S: Yes, I think so because we Muslims perform a holy wash on the dead body before burial. Before we pray on a dead body, the Imam and/or some Muslim people wash the dead body and dress it with a white cloth. We then pray on the leyley body and then we go bury him/her. I believe that both my parent’s leyley body were washed at our Mosque before they were buried. This is what our religion [Islam] requires us to do.

AJ: Have you ever visited a traditional healer (herbalist)? If yes, can you talk about it, including why you visited him/her?

S: After my father died, I began thinking this is not normal. I feel that someone who hates my parent did this to them. In our country, when someone hates you, they do evil things to you like witchcraft or evil curse. When me and my brother started feeling sick, I became more convinced that someone has cast an evil spirit on my family and they plan to wipeout my entire family. This is why I went to a Meresin Man to help me and my brother. I have never been to the Meresin Man before, but I remember when I was a little boy, my mother used to take me with her to visit a juju man in the forest. She told me I used to be sick all the time and the juju man cured me each time I got sick. Now that my parent just died so quickly, I thought I needed to visit a Meresin Man to help protect me and my brother from whoever is doing this to my family.

I visited the Meresin Man outside of Makeni in a very remote area with lots of bushes [a shrine]. His place smells very bad like piss (urine). When I arrived at
his shrine, he told me he will protect me and my brother from any evil curse or “witchman.” He asked me and my brother to lie down on some leaves. He came out with a small pot that has smoke coming out of it. He then began to say things that I don’t know what he was saying [cantation]. Suddenly, he stopped and began to shake his entire body. He then stopped suddenly. He approached me and my brother and rob some lotion on our skin. I don’t know what it is. He gave us some liquid to drink. The liquid was very bitter. Then he asked us to go home.

The next day we began to feel very bad with fever and started vomiting. One of our neighbor called 117 [Ebola Emergency Hotline/toll-free nationwide calling]. We were then taken to the Ebola Treatment Center. The medical people at the Center tested us for Ebola. They told my brother and me that we tested positive for Ebola. My brother died few days later.

AJ: Can you talk about your experience as an Ebola Survivor?

S: As an Ebola Survivor, I want to say the sick [disease] is real. People were saying Ebola didn’t exist; it was not real. [I believe the disease is real. I had the Ebola sick. I suffered a lot. The disease was very painful. It killed my parents and brother]. I thought I was going to die. I was very weak and felt excruciating pain. Many people in my community also died from Ebola.

AJ: Where you discriminated against like stigma?
S: I was not stigmatized [Mi ar nor bin face no stigma]. Even though some people in my neighborhood looked at me differently like I was a bad person, I didn’t feel being discriminated against.

Demographics.

AJ: Sorie was a 23 years old male at the time of the interview. He belong to the Temne ethnic group.
APPENDIX B3

BINTA’S INTERVIEW TRANSCRIPT

AJ: What do you think about Ebola? What is your general thinking about the disease?

B: Ebola is a deadly disease that came to this country [Sierra Leone] and destroyed our lives, killing many people.

AJ: Where do you think the Ebola virus comes from/origin?

B: I think that Ebola came from Guinea.

AJ: I meant to say, what is your belief about Ebola?

B: It is a very deadly disease that kills many people. It is a disease that is very painful when you get it. I don’t wish anybody to go through this sickness.

AJ: What do you think cause Ebola? How do you think this disease spread?

B: Someone can get Ebola by getting in contact with someone who has the disease. Touching a sick person can make you get sick with Ebola. Touching sick Ebola people can help the Ebola sick to spread.

AJ: How did you contract Ebola (got sick/infected)?

B: I got it through my big brother. He was sick and we lived in the same house. When he got sick, I helped to take care of him. My brother actually got the sick from my mother. He took care of my mother when she was sick. When my mother died, my brother got sick after that I took care of him [Afta wi mama dai, mi broda get sik en ar take kiya of ram]. He later died. Few days later after his death, I started feeling the signs/symptom of Ebola. I started feeling very cold [fever] and began vomiting. I told my father about this. He took care of me.
AJ: What type of things did you do when taken care of your sick brother?

B: I brought food to him. I prepared his bed where he slept. I changed the bedsheet for him. I brook [wash] his clothes and bedsheets. I also got water for him to wash.

AJ: So you never went to the Ebola Treatment Center or any other clinic/hospital?

B: My father took care of me. He gave me water to drink all the time. He gave me some medicine to drink. After 4 days, I was feeling worse. My father then took me to the hospital in Makeni. A week later, I began feeling better. The doctors told me I am very lucky to survive because I was sick with Ebola.

AJ: Before your mother and brother got the Ebola sick, do you know if they attended any event or ceremony?

B: No.

AJ: After your mother and brother died, did you touch any of their body?

B: I did not touch any of their ley ley body.

AJ: Can you tell me more what happened when your mother and brother died?

B: I don’t remember all the detail. I remember when my brother died, my father called some people in our area who helped him take my brother’s leyley body for burial. I don’t remember everything. I don’t know what happened when my mother died. My brother and father did everything.

AJ: Did your father got sick too?

B: No.
AJ: Have you ever visited a traditional healer (herbalist)? If yes, can you talk about it, including why you visited him/her?

B: Ar nor eva visit Meresin Man [I have never visited a traditional healer].

AJ: What about your parents, do you know if any of them have ever visited a traditional healer?

B: I don’t know.

AJ: Can you talk about your experience as an Ebola Survivor?

B: When I got the sick, the people in my compound push far away from me. They suspected I have had Ebola [afta ar don get di sikness, pipul dem na mi kompawnd bin dae push far away from mi. Den sospekt sey ar bin don get Ebola]. Nobody talked to me. Everyone abandoned me. Only my father came close to me and took care of me.

AJ: What about right now, is the situation getting better?

B: Yes, it is slowly getting better. My post-Ebola experience is not very bad. I didn’t experience too much problem with people. Some of my neighbors did not talk to me. I don’t know why. But I suspect it because I am Ebola Survivor. But, many other people talked to me. I can tell you that I was not stigmatized a lot. I am now going back to school and living my normal life.

Demographics.

AJ: Binta was a 19 years old female at the time of the interview. She belongs to the Mende ethnic group.