



RESEARCH ARTICLE

THE SOCIO-ECONOMIC STATUS OF EBOLA SURVIVORS IN MONTSERRADO COUNTY,
LIBERIA: A CLINICAL SURVEY

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ABSTRACT

Ebola virus disease (EVD) is endemic to West Africa, Liberia is no exception. The EVD was first discovered in the Congo basin in 1976. The first outbreak of Ebola (Ebola-Sudan) infected over 284 people, with a mortality rate of 53%. A second attack occurred later the same year when 318 people were affected in Zaire (EBOZ), with the highest mortality rate of the Ebola virus disease at 88% of the infected population. Efforts were made, but the Ebola's natural reservoir was never identified. Subsequently, the third strain of Ebola, called Ebola Reston (EBOR), was first identified in 1989 when infected monkeys were imported into Reston, Virginia, from Mindanao in the Philippines. Since then, the Ebola virus disease (EVD) has been endemic in those regions it was first discovered. The overall objective of this research work is to determine the socio-economic status of the many survivors who finds themselves in hard to bear situations and to identify the health challenges they face as a result of their exposure to the Ebola virus disease. Both quantitative and qualitative methods are deployed in this research to establish the socioeconomic status as well their health challenges as a result of their exposure to the EVD. Research results show that Ebola survivors are faced with numerous socio-economic problems ranging from stigmatization to denial of basic social services. As a result of the many recurrent health challenges they face originating from their exposure to the disease, many survivors are physically challenged. It is therefore concluded that the Ebola survivors are continuously stigmatized, thus resulting into untold sufferings couple with persistent health problems among which eye condition is prominent. This is all due to their exposure to the EVD.

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INTRODUCTION

Ebola Virus disease (EVD) is a viral hemorrhagic fever, which has a history of discovery over four decades ago. It was first discovered in the Congo basin in 1976. Notably, the first outbreak of Ebola (Ebola-Sudan) infected over 284 people, with a mortality rate of 53%. Few months later, the second Ebola virus emerged from Yambuku, Zaire, Ebola-Zaire (EBOZ). EBOZ, with the highest mortality rate of any of the Ebola viruses (88%), infected 318 people. Despite tremendous efforts of experienced and dedicated researchers (Emond, 2014). The Ebola's natural reservoir was never identified. Subsequently, the third strain of Ebola, Ebola Reston (EBOR), was first identified in 1989 when infected monkeys were imported into Reston, Virginia, from Mindanao in the Philippines (Miranda 1999). Fortunately, the few people who were infected with EBOR (seroconverted) never developed Ebola hemorrhagic fever (EHF). The last known strain of Ebola, called Ebola Cote d'Ivoire (EBO-CI) was discovered in

1994 when a female etiologist performing a necropsy on a dead chimpanzee from the Tai Forest, Cote d'Ivoire, accidentally infected herself during the necropsy (Baron RC, McCormick TB, and Zubeir OA. (2009). Since then the EVD has been known to cause thousands of deaths in Africa (Miranda et al. (1999). The outbreak in 1976 as shown in table 1.1 below devastated the countries of Sudan and Zaire; it claimed the lives of many persons as it was the first time in the history of Africa. In the first outbreak, two hundred and eighty-four (284) persons were affected, whilst in the second attack, three hundred and eighteen (318) were affected. Repeated attacks in those countries indicate that the EVD is endemic to those countries. In all, six hundred and two persons were affected by the EVD. In West Africa, the Ebola virus disease (EVD) though appeared for the second in the region, showed a different strain as compared to the one appeared in 1994 in Cote d'Ivoire. The West African region, especially the countries: Guinea, Sierra Leone and Liberia experienced the worst hit for the first time and in recent years and in the history of the Ebola virus disease (EVD). This was due primarily to two main factors: Firstly, all the three countries have weak health systems; and secondly, the cultural and traditional

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practices by people of these countries over the dead placed the population in great disadvantage. These factors mentioned contributed immensely to the fast and wide spread of the disease. The disease appeared a strange disease in these three West African countries. As a result of the strange nature, the population had no prevention and management techniques; thus, the rapid spread of the disease could not be contained. The recent outbreak in West Africa, which first cases notified in March 2014, is the largest and most complex Ebola outbreak in world history so far. It has also spread between countries starting in Guinea, and then subsequently spreading across land borders to Sierra Leone and Liberia; by air (1 traveler) to Nigeria and USA (1 traveler), and by land to Senegal (1 traveler) and Mali (2 travelers). The West African EVD outbreak was unprecedented, highly devastating to the three countries of the Minor River Union (MRU) — Guinea, Liberia and Sierra Leone over a period of two years from 2013 to 2015. Dissemination of the EVD was very rapid and covered wide geographic areas, thereby affecting the highest number of people in West Africa in the history of the disease, unparalleled in impact by previous Ebola outbreaks elsewhere in Africa. In the three countries, Guinea, Sierra Leone and Liberia, it destabilized families, and claimed thousands of lives, grossly affected routine social lives of millions and weakened already fragile economies of the region. The health sector which lost hundreds of healthcare workers to the epidemic felt the heat of the Ebola outbreak. Similarly, other social and development services including education, trade and travel were severely hindered and restricted. Indeed, the outbreak was monumental when compared to any other emergency in recent time.

Table 1. 1976 Outbreaks of Ebola Virus Disease in Sudan and Zaire

OUTBREAK	# of persons infected	Country
First outbreak	284	Sudan
Second outbreak	318	Zaire,
Total	602	Sudan & Zaire

Exactly two years after the first cases of EVD were reported the epidemic resulted in a cumulative 28,601 confirmed, probable and suspected cases in Guinea, Sierra Leone and Liberia, with over 11,000 deaths reported. The experience with the EVD has clearly shown the necessity of establishing resilient and responsive health systems in the Minor River union countries capable of detecting and containing disease outbreaks early enough to avert the catastrophic effects of Ebola and other epidemics. Liberia reported its first two cases of EVD in the Foya District of Lofa County near the border with Guinea on March 30, 2014. Within a few days, the reached Monrovia, the capital city of Liberia through an infected traveler; and by 7 April, 2014, a total of twenty-one (21) cases were reported in Liberia. This heralded the beginning of an arduous battle with a strange emerging infectious disease in the face of an ill-prepared health system still recovering from long years of civil conflict which left behind many challenges for the population and the government in particular. Thereafter, the unfolding events amplified the vulnerability of the country's fragile health system to cope with the rapidly spreading Ebola virus disease (EVD) epidemic. Thus, the fast evolving and deadly nature of the disease led to public panic and despair. The rapid spread of the Ebola virus disease (EVD) was facilitated by the huge urban population, very poor transport system and ill-equipped healthcare facilities, escalated exponentially in the nation's capital. Under such

disadvantaged conditions, contact with first victims ignited multiple chains of transmission among health workers, patients, immediate and extended family members, neighbors of victims, ambulance workers and drivers who ferried the sick to health facilities; this eventually led to extensive dissemination of the disease in communities. It subsequently resulted into several deaths. Statistics showed that the most severely affected countries are Guinea, Liberia and Sierra Leone. These countries have very weak health systems, and they also lack human and infrastructural resources. These countries have all, only recently emerged from long periods of conflict and instability, and lasted a little over a decade. In August, 2014, the WHO Director-General declared the West Africa outbreak a Public Health Emergency of International Concern under the International Health Regulations (2005). The virus family Filoviridae includes three genera: Cuevavirus, Marburgvirus, and Ebolavirus. There are five species of the virus that have been identified so far: Zaire, Bundibugyo, Sudan, Reston and Tal Forest. The first three (Bundibugyo ebolavirus, Zaire ebolavirus, and Sudan ebolavirus) have been associated with large outbreaks in Africa. Researchers have further discovered that the virus causing the 2014 West African outbreak belongs to the Zaire species (WHO Bulletin, 1976).

Literature Review

Liberia has history of epidemics of other diseases such as cholera, measles, smallpox and the like. The epidemic of the Ebola virus disease (EVD) in 2014 was the first in the history of the country, Liberia. In honest, Liberia had not, such experience to fight such a deadly disease and therefore experienced the worst attack as reported by the statistics available at the Ministry of Health. Liberia experienced the first attack and confirmed case of Ebola in March, 2014 when an infected person crossed the border from Guinea and entered into Liberia. This "strange disease" spread very rapidly and infected thousands of persons in the nation's capital primarily as a result of ignorance on the part of the population. Other factors that contributed to the rapid spread of the disease included the lack of trained man power, treatment centers, management protocols and the like. For strong emphasis, among the key factors responsible for the rapid spread of the Ebola virus in Liberia was the persistent denial of the existence of Ebola virus disease in the initial stages of the virus epidemic. Cultural practices, including the bathing of the dead contributed immensely to the rapid spread of the disease. Liberia has a unique history of showing respect for the dead in the form of wake-keeping over the dead, ritual practices over the dead in the traditional settings, and long hours of funeral services over the remains of dear loved ones. As a result of these, and before long, the disease hit every part of the country, thereby causing so many deaths and untold suffering to the population. All counties in Liberia reported EVD cases at different times. Fear, anger, despair and resistance became the hallmark for many months. Every sector of the country got affected by the disease that swept away many lives. As a result of the unbearable situation posed by the Ebola epidemic at the time, the country (Liberia) witnessed the flight of expatriates, the collapse of businesses, and the collapse of all health institutions; closure of schools, very high unemployment rate, closure of international airlines, and the like. Liberia was stigmatized as the host of the disease as the outbreak had been recorded the largest and most complex in history. A total of six (6) countries have been affected and out of which Liberia appeared to be the worst affected in terms of the highest

number of EVD reported cases and deaths. During the peak of the Ebola outbreak, all efforts were basically directed toward containing the spread of the disease to save lives. Though this was the right path, the right thing to do, but there were serious challenges due to the fragile nature of the health system of Liberia. The unprecedented Ebola epidemic in Liberia claimed thousands of lives and has resulted in wide-ranging consequences. It is also estimated that the epidemic has resulted into over five thousand survivors in Liberia, of whom many are faced with multiple sequelae from their illnesses—including immediate and long-term health, psychosocial, and economic impacts. The Ebola outbreak (epidemic) in West Africa, first reported in March 2014, and rapidly became the deadliest occurrence of the disease since its discovery in 1976. In fact, the epidemic in West Africa killed five times more than all other known Ebola outbreaks combined. More than 21 months on from the first confirmed case recorded in Liberia on March 23, 2014, 11,315 people have been reported as having died from the disease in six countries as a result of the recent outbreak in West Africa: Liberia, Guinea, Sierra Leone, Nigeria, the US and Mali. The total number of reported cases in these countries is about twenty-eight thousand six hundred thirty-seven (28,637). However it is a fact, and according to the WHO, these figures are underestimates, given the difficulties experienced in collecting the data. The statistics show that Liberia reported four thousand eight hundred nine (4,809) deaths. This represents 43% of the total deaths, followed by

Sierra Leone with 35 %. Guinea which was the first country to experience the Ebola virus disease (EVD) attack during this period (2013 — 2016), reported 22% of the total deaths. This is an evidence of the underestimates as indicated by the World Health Organization. (WHO Report, 2014).

Table 2. Statistics of Death Distribution by Country

Country	Reported Deaths
Liberia	4,809
Sierra Leone	3,955
Guinea	2,536
Nigeria	8
Mali	6
USA	1
Total deaths reported	11,315

The West African Ebola virus epidemic (2013—2016) was the most widespread outbreak of Ebola virus disease (EVD) in history—causing loss of life and socioeconomic disruption in the region, majorly in three countries (Guinea, Liberia and Sierra Leone). The first cases were recorded in Guinea in December 2013; later, the disease spread to Liberia and Sierra Leone, with minor outbreaks occurring elsewhere. It caused significant mortality, with the case fatality rate reported at slightly above 70%, while the rate among hospitalized patients was 57—59%. Small outbreaks occurred in Nigeria and Mali, and isolated cases were recorded in Senegal, the United Kingdom and Sardinia. In addition, imported cases led to secondary infection of medical workers in the United States and Spain but did not spread further. The number of cases peaked in the West African region in October 2014 and then began to decline gradually, following the commitment of substantial international resources. As of 8 May 2016, the World Health Organization (WHO) and respective governments reported a total of 28,616 suspected cases and 11,310 deaths (39.5%), though the WHO believes that this substantially understates the magnitude of the outbreak. This

number slightly grew to a total of 11,315 according to latest reports. The three worst hit countries in West Africa are Guinea, Sierra Leone and Liberia. A brief account of the three worst hit West African countries is indicated below.

On 25 March 2014, the WHO reported an outbreak of Ebola virus disease in four southeastern districts of Guinea with a total of 86 suspected cases, including 59 deaths, and MSF assisted the Ministry of Health by establishing Ebola treatment centers in the epicenter of the outbreak. On 31 March, the U.S. Centers for Disease Control and Prevention (CDC) sent a five-person team to assist in the response to the outbreak. Thinking that spread of the virus had been contained, MSF closed its treatment centers in May, leaving only a skeleton staff to handle the Macenta region. However, in late August 2014, large numbers of new cases reappeared in the region (Ratnayake 2015). In February 2015, Guinea recorded a rise in cases for the second week in a row. Health authorities stated that this was related to the fact that they “were only now gaining access to faraway villages”, where violence had previously prevented them from entering. On 14th February 2015, violence erupted and an Ebola treatment center near the center of the country was destroyed. Guinean Red Cross teams said they had suffered an average of 10 attacks a month over the previous year; MSF reported that acceptance of Ebola education remained low and that further violence against their workers might force them to leave.

Resistance to interventions by health officials among the Guinean population remained greater than in Sierra Leone and Liberia, raising concerns over its impact on ongoing efforts to halt the epidemic. In mid-March, there were 95 new cases and on 28 March, and a 45-day “health emergency” was declared in 5 regions of the country. On 22 May, the WHO reported another rise in cases, which was believed to have been due to funeral transmissions. On 25 May, six persons were placed in prison isolation after they were found travelling with the corpse of an individual who had died of the disease. On 1 June, it was reported that violent protests in a north Guinean town at the border with Guinea-Bissau had caused the Red Cross to withdraw its workers. In late June 2015, the WHO reported that “weekly case incidence has stalled at between 20 and 27 cases since the end of May, whilst cases continue to arise from unknown sources of infection, and to be detected only after post-mortem testing of community deaths”. On 29th July 2015, a sharp decline in cases was reported, with only a single case left by the end of the week. The number of cases eventually plateaued at 1 or 2 cases per week after the beginning of August, and no new cases occurred from 16th September until 16th October, when 2 new ones were detected — one of these in Forécariah. On 28 October, an additional 3 cases were reported in the Forécariah Prefecture by the WHO. On 6 November, a report indicated Tana village to be the last known place with Ebola in the country, and on 11th November, WHO indicated that no Ebola cases were reported in Guinea. This was the first time since the epidemic began, that no cases had been reported in any country. On 15 November, the last quarantined individuals were released, and on 17 November, the last Ebola patient in Guinea — a 3-week-old baby — had recovered. The 42-day countdown toward the country being declared Ebola-free started on 17 November, the day after the patient yielded a second consecutive negative blood test. The patient was discharged from the hospital on 28 November. On 29 December 2015, upon expiration of the 4.2-day waiting period, the WHO declared Guinea Ebola-free. This was an

important milestone — two years after the outbreak began in Guinea in December 2013.

On 17 March 2016, the government of Guinea reported that 2 people had again tested positive for Ebola virus in Korokpara. It was also reported that they were from the village where members of one family had recently died from vomiting (and diarrhea). On 19th March, 2016 it was reported that another individual had died due to the virus at the treatment centre in Nzerekore. Consequently, the country's government quarantined an area around the home where the cases took place. This was also the same region where the first case was registered on December 2013 at the beginning of the Ebola outbreak.¹⁰⁴ On 22 March, it was reported that medical authorities in Guinea had quarantined 816 suspected contacts of the prior cases (more than 100 considered high-risk); the same day, Liberia ordered its border with Guinea closed. Macent individuals were Prefecture a, 200 kilometers from Korokpara, registered Guinea's fifth fatality due to Ebola virus disease within the same period. On 29 March, it was reported that about 1,000 contacts had been identified (142 of them high-risk), and on 30 March 3 more confirmed cases were reported from the sub-prefecture of Koropara. On 1 April, it was reported that possible contacts, which numbered in the hundreds, had been vaccinated with an experimental vaccine using a ring vaccination approach. On 5 April 2016, it was reported that there had been 9 new cases of Ebola since the virus resurfaced, out of which 8 were fatal. On 1 June, after the stipulated waiting period, the WHO again declared Guinea Ebola-free, after which the country entered a 90-day period of heightened surveillance that was concluded on 30 August 2016.

In September 2016, findings were published suggesting that the resurgence in Guinea was caused by an Ebola survivor who, after eight months of abstinence, had sexual relations with several partners, including the first victim in the new outbreak. The disease was also spread to Liberia by a woman who went there after her husband had died of Ebola. In September 2016, findings were published suggesting that the resurgence in Guinea was caused by an Ebola survivor who, after eight months of abstinence, had sexual relations with several partners, including the first victim in the new outbreak. The disease was also spread to Liberia by a woman who went there after her husband had died of Ebola (Spengler et al, 2016). The first person reported infected in Sierra Leone was a traditional healer who had been treating Ebola patients from across the nearby border with Guinea and died 01126 May 2014. According to tribal tradition, her body was washed for burial and this appears to have led to infections in women from neighboring towns. On 11 June, Sierra Leone shut its borders for trade with Guinea and Liberia and closed some schools in an attempt to slow the spread of the virus. On 30 July, the government began to deploy troops to enforce quarantines, and by 15 October, the last district in Sierra Leone untouched by the disease had declared Ebola cases (Schieffelin, 2014). During the first week of November, it was reported that the situation was "getting worse" due to intense transmission in Freetown. According to the Disaster Emergency Committee, food shortages resulting from aggressive quarantines were making the situation worse, and on 4 November, it was reported that thousands had violated quarantine in search of food in the town of Kenema. With the number of cases continuing to increase, an MSF coordinator described the situation in Sierra Leone as "catastrophic", saying, "there are several villages and communities that have been basically

wiped out ... Whole communities have disappeared but many of them are not in the statistics." In mid-November, the WHO reported that, while there was some evidence that the number of cases were no longer rising in Guinea and Liberia, steep increases persisted in Sierra Leone. Although the international community had responded to the emergency by building and equipping treatment centers, they were unable to function effectively due to poor staffing, low-quality coordination, government mismanagement and inefficiency.

On 9 December 2014, news reports described the discovery of "a scene" — piles of bodies, overwhelmed medical personnel and exhausted burial teams — in the remote eastern Kono District. On 15 December, the CDC indicated that their main concern was Sierra Leone, where the epidemic had shown no signs of abating as cases continued to rise exponentially; by the second week of December, Sierra Leone had reported nearly 400 cases—more than three times the number reported by Guinea and Liberia combined. According to the CDC, "the risk we face now [is] that Ebola will simmer along, become endemic and be a problem for Africa and the world, for years to come." On 17 December, President Koroma launched "Operation Western Area Surge" and workers went door-to-door in the capital city looking for possible cases. The operation led to a surge in the number of cases, with 403 new ones reported between 14 and 17 December. According to the 21 January 2015 WHO Situation Report, the case incidence was rapidly decreasing in Sierra Leone. However, in February and March, it was reported that there was again a rise in the number of cases. The following month, the 5 April WHO report again disclosed a downward trend and the WHO weekly update for 29 July reported a total of only 3 new cases, the lowest in more than a year. On 17 August, the country had its first week with no new cases, and one week later the last patients were released in Kambia District having been tested negative. However, a new case was reported on 1 September, when a patient from Sella Kafta village in positive for the disease after her death; hers eventually resulted in 3 other cases from among her contacts (WHO Publication, 2014). On 14 September 2015, Sierra Leone's National Ebola Response Center confirmed the death of a 16-year-old in a village in the Bombali District. It is suspected that she contracted the disease from the semen of an Ebola survivor who had been discharged in March 2015. On 27 September, a new 42-day countdown began to declare the country Ebola-free, which eventually occurred on 7 November 2015. Thereafter, the country increased its vigilance on the Guinean border.

Sierra Leone had entered a 90-day period of enhanced surveillance that was scheduled to end on 5 February 2016, when, on 14 January, a new Ebola death was reported in the Tonkolili District. Prior to this case, the WHO had advised that "we still anticipate more flare-ups and must be prepared for them. A massive effort was made to ensure robust prevention, surveillance and response capacity across all three countries by the end of March." On 16 January 2016, aid workers reported that a woman had died of the virus and that she may have exposed several individuals; the government later announced that 100 people had been quarantined. Investigations indicated that the deceased was a female student from Lunsar, in Port Loko District who had gone to Kambia District 01128 December 2015 before returning symptomatic. She had also visited Bombali District to consult a herbalist, and had later gone to a government hospital in Magburaka. The WHO indicated that there were 109 contacts (28 of them high-risk),

that there were another 3 missing contacts, and that the source or route of transmission that caused the fatality was unknown. A second new case — confirmed by WHO spokesman Tank Jasarevic to be a 38-year-old relative and caregiver of the aforementioned Ebola victim — had become symptomatic on 20 Jan while under observation at a quarantine center. On 22 January, it was reported that this patient was responding to treatment. On 26 January, WHO Director-General, Dr. Margaret Chan officially confirmed that the outbreak was not yet over; that same day, it was also reported that Ebola restrictions had halted market activity in Kambia District, amid protests. On 7 February 70 individuals were released from quarantine, and on 8 February the last Ebola patient was also released. On 17 February, the WHO indicated that 2,600 Ebola survivors had accessed health assessments and eye examinations.

On 4 February 2016, the last known case tested negative for a second consecutive time and Sierra Leone commenced a second 42-day countdown towards being declared Ebola-free. On 17 March 2016, the WHO announced that the Sierra Leone flare-up was over, and that no other chains of transmission were known to be active at that time. Sierra Leone then entered a 90-day period of heightened surveillance, which was concluded on 15 June 2016, and it was reported that by 15 July, the country had discontinued testing corpses for the virus. In Liberia, the disease was reported in both Lofa and Nimba counties in late March 2014. On 27 July, President Ellen Johnson Sirleaf announced that Liberia would close its borders, with the exception of a few crossing points such as the airport, where screening centers would be established. Schools and universities were closed, and the worst-affected areas in the country were placed under quarantine.

With only 50 physicians in the entire country — one for every 70,000 citizens — Liberia was already in a healthcare crisis. In September, the CDC reported that some hospitals had been abandoned, while those still functioning lacked basic facilities and supplies. In October, the Liberian ambassador in Washington was reported as saying that he feared that his country may be “close to collapse”. By 24 October, all of the 15 Liberian districts had reported Ebola cases. By November 2014, the rate of new infections in Liberia appeared to be declining and the state of emergency was lifted. The drop in cases was believed to be related to an integrated strategy combining isolation and treatment with community behavior change, including safe burial practices, case finding and contact tracing.

In January 2015, the MSF field coordinator reported that Liberia was down to only 5 confirmed cases. In March, after two weeks of not reporting any new cases, 3 new cases were confirmed. On 8 April, a new health minister was named in an effort to end Ebola in the country and on 26 April, MSF handed the Ebola treatment facility, ELWA-3, over to the government. On 30 April, the US shut down a special Ebola treatment unit in Liberia. The last known case of Ebola died on 27 March, and the country was officially declared Ebola-free on 9 May 2015, after 42 days without any further cases being recorded. The WHO congratulated Liberia saying, “reaching this milestone is a testament to the strong leadership and coordination of Liberian President Ellen Johnson Sir leaf and the Liberian Government, the determination and vigilance of Liberian communities, the extensive support of global partners, and the tireless and heroic work of local and international health

teams.” As at May 2015, the country remained on high alert against recurrence of the disease. After three months with no new reports of cases, on 29 June Liberia reported that the body of a 17-year-old boy, who had been treated for malaria, tested positive for Ebola. The WHO said the boy had been in close contact with at least 200 people, who they were following up, and that “the case reportedly had no recent history of travel, contact with visitors from affected areas, or funeral attendance.” A second case was confirmed on 1 July. After a third newcase was confirmed on 2 July, and it was discovered that all 3 new cases had shared a meal of dogmeat, researchers looked at the possibility that the meat may have been involved in the transfer of the virus. Testing of the dog’s remains, however, was negative for the Ebola virus. By 9 July 3 more cases were discovered, bringing the total number of new cases to 5, all from the same area. On 14 July, a woman died of the disease in the county of Montserrado, bringing the total to 6. On 20 July, the last patients were discharged, and on 3 September 2015, Liberia was declared Ebola-free again. After two months of being Ebola-free, a new case was confirmed on 20 November 2015, when a 15-year-old boy was diagnosed with the virus and two family members subsequently tested positive as well. Health officials were concerned because the child had not recently travelled or been exposed to someone with Ebola and the WHO stated that “we believe that this is probably again, somehow, someone who has come in contact with a virus that had been persisting in an individual, who had suffered the disease months ago.” Two staff of the CDC were sent to the country to help ascertain the cause of the new cases. The infected boy died on 24 November, and on 3 December 2 remaining cases were released after recovering from the disease. The 42-day countdown toward Liberia being declared Ebola-free, for the third time, started on 4 December 2015. On 16 December, the WHO reaffirmed that the cases in Liberia were the result of reemergence of the virus in a previously infected person, and there was speculation that the boy may have been infected by an individual who became infectious once more due to pregnancy, which may have weakened her immune system. On 18 December, the WHO indicated that it still considered Ebola in West Africa a public health emergency, though progress had been made.

After having completed the 42-day time period, Liberia was declared free from the virus on 14 January 2016, effectively ending the outbreak that had started in neighboring Guinea 2 years earlier. Liberia began a 90-day period of heightened surveillance, scheduled to conclude on 13 April 2016, but on 1 April, it was reported that a new Ebola fatality had occurred, and on 3 April, a second case was reported in Monrovia. On 4 April, it was reported that 84 individuals were under observation due to contact with the 2 confirmed Ebola cases. By 7 April, Liberia had confirmed 3 new cases since the virus resurfaced and a total of 97 contacts, including 15 healthcare workers, were being monitored. The index case of the new flare up was reported to be the wife of a patient who died from Ebola in Guinea; she had traveled to Monrovia after the funeral but succumbed to the disease. The outbreak in Guinea, in turn, had begun when a man, who had survived Ebola, had sexual intercourse with a woman and passed the virus to her, even though he had recovered more than a year earlier.

On 29 April, WHO reported that Liberia had discharged the last patient and had begun the 42-day countdown to be declared Ebola-free once more. According to the WHO, tests indicated that the flare-up was likely due to contact with a prior Ebola

survivor's infected body fluids. On 9 June, the flare up was declared over, and the country Ebola-free, due to the passage of the 42-day period; Liberia then entered a 90-day period of heightened surveillance, which ended on 7 September 2016. In early July 2016, a trial for males with detectable Ebola RNA in semen, started.

Other West African countries including Senegal, Nigeria and Mali that experienced limited cases of Ebola, though not as devastating as Guinea, Liberia and Sierra Leone. In March 2014, the Senegal Ministry of Interior closed its southern border with Guinea, but on 29 August, the Health Minister announced the country's first case — a university student from Guinea who was being treated in a Dakar hospital. The patient was a native of Guinea, 11 years old, arriving on 20 August. On 23 August, he sought medical care for symptoms including fever, diarrhea, and vomiting. He received treatment for malaria, but did not improve and left the facility. Still experiencing the same symptoms, on 26 August he was referred to a specialized facility for infectious diseases, and subsequently hospitalized.

On 28 August 2014, authorities in Guinea issued an alert informing their medical services and neighboring countries that a person who had been in close contact with an Ebola-infected patient had escaped their surveillance system. The alert prompted testing for Ebola at the Dakar laboratory, and the positive result launched an investigation, triggering urgent contact tracing. On 10 September, it was reported that the student had recovered but health officials continued to monitor his contacts for 21 days. No further cases were reported, and on 17 October 2014, the WHO officially declared that the outbreak in Senegal had ended. The WHO officially commended the Senegalese government, and in particular the President Macky Sall and the Minister of Health, Dr. Awa Coll-Seck, for their response in quickly isolating the patient and tracing and following up 74 contacts, as well as for their public awareness campaign. This acknowledgement was also extended to MSF and the CDC for their assistance. The first case in Nigeria was a Liberian-American, who flew from Liberia to Nigeria's most populated city of Lagos on 20 July 2014. On 6 August 2014, the Nigerian health minister told reporters that one of the nurses that attended to the Liberian had died from the disease. 5 newly confirmed cases were being treated at an isolation ward.

On 22 September 2014, the Nigerian health ministry announced, "As of today, there is no case of Ebola in Nigeria." According to the WHO, 20 cases and 8 deaths were confirmed, including the imported case, who also died. 4 of the dead were health workers who had cared for the index case. The WHO's representative in Nigeria officially declared the country Ebola-free on 20 October 2014, after no new active cases were reported in the follow up contacts, stating it was a "spectacular success story" Nigeria was the first African country to be declared Ebola free. On 23 October 2014, the first case of Ebola virus disease in Mali was confirmed in the city of Kayes—a two-year-old girl who had arrived with a family group from Guinea, and died the next day. Her father had worked for the Red Cross in Guinea and also in a private health clinic; he had died earlier in the month, likely from an Ebola infection contracted in the private clinic. It was later established that a number of family members had also died of Ebola. The family had returned to Mali after the father's funeral via public bus and taxi—a journey of more than 1,200

kilometres (750 mi). All contacts were followed for 21 days, with no further spread of the disease reported. On 12 November 2014, Mali reported deaths from Ebola in an outbreak unconnected with the first case in Kayes. The first probable case was an imam who had fallen ill on 17 October in Guinea and was transferred to the Pasteur Clinic in Mali's capital city, Bamako, for treatment. He was treated for kidney failure but was not tested for Ebola; he died on 27 October and his body returned to Guinea for burial. A nurse and a doctor who had treated the imam subsequently fell ill with Ebola and died. The next 3 cases were related to the imam as well: a man who had visited the imam while he was in hospital, his wife and his son. On 22 November, the final case related to the imam was reported—a friend of the Pasteur Clinic nurse who had died from the Ebola virus. On 12 December, the last case in treatment recovered and was discharged, "so there were no more people sick with Ebola in Mali", according to a Ministry of Health source. On 16 December, Mali released the final 13 individuals who were being quarantined and 24 days later (18 January 2015) without new cases, the country was declared Ebola-free. The virus spreads by direct contact with body fluids such as blood, of an infected human or other animal. This may also occur through contact with an item recently contaminated with bodily fluids. Spread of the disease through the air between primates, including humans, has not been documented in either laboratory or natural conditions. Semen or breast milk of a person after recovery from EVD may carry the virus for several weeks to months. Fruit bats are believed to be the normal carrier in nature, able to spread the virus without being affected by it. Other diseases such as malaria, cholera, typhoid fever, meningitis and other viral hemorrhagic fevers may resemble EVD. Blood samples are tested for viral RNA, viral antibodies or for the virus itself to confirm the diagnosis. (Bower et al, 2015).

Rationale for the Study

The significance of this study cannot be overemphasized as it will provide an opportunity to determine the socio-economic status of the Ebola survivors and document the health problems they are faced with as a result of their exposure to the EVD. This study could also serve as a resource document for other researchers who may be interested in conducting research in similar areas. The findings from this study could, especially be used by the Ministry of Health in the determination of healthcare services to the Ebola survivors. Health workers accessing this document will know and understand the practical impact of the EVD on the society as it relates to the socio-economic devastation the disease has caused. Other researchers in this area could utilize this document as a reference source for future research works. Moreover, the individual survivors themselves would appreciate their participation as this could serve as an advocacy for other philanthropic organizations to be attracted to their plight. The Survivor Association could also utilize this organized data for attracting attention for support from government and other donor agencies.

Statement of the Problem

Reports available (2014-2016) at the Ministry of Health, Republic of Liberia, show that the EVD has caused high mortality rate and severe human suffering to the population of the country; the disease has also left with the survivors, socio-economic challenges and various health problems that have drawn the attention of the researcher. In the history of Liberia,

no outbreak has ever devastated the health system as did the EVD. Thousands of lives were lost to the EVD, and the survivors of the disease continue to face socioeconomic challenges, some of which have the potential to cause numerous health problems. Thus, this research was designed to identify the socio-economic status of survivors in relation to their health status. The EVD has become a serious challenge to the health system of Liberia, thereby creating the need to conduct extensive research in the area for the determination of lasting solutions to the problems caused by the outbreak of the disease. Currently, Liberia is at the stage of managing residual risk of new infections, having moved from managing cases and patients. The risk of re-introduction of infection is diminishing as the virus gradually and assumingly clears from the survivor population; but it is still anticipated that there could be more flare-ups and therefore the health system must be strengthened to be prepared for them. History of Ebola shows that is never eradicated from a system once there has been an outbreak. The best way to contain any outbreak of Ebola in Liberia is therefore, to strengthen the health system by training more manpower, upgrading health facilities, developing new partnership relationships, and the like; and above all seek avenues to encourage more research works to uncover more truth about the disease and recommend lasting solutions to the problems associated with the disease

Project Objectives

Overall objective

The overall objective of the study is to determine the socio-economic status of the many survivors who find themselves in hard to bear situations as a result of their exposure to the Ebola virus disease.

Specific Objectives

Specific objectives are

- To determine the basic social problems affecting the Ebola survivors in Montserrado County as they relate to stigmatization in their communities;
- To identify specific health challenges Ebola survivors are faced with; and
- To identify the consequences of the social and health challenges Ebola survivors face as a result of their exposure to the disease.

Research Questions

The researcher has endeavored to seek for answers to the following questions:

1. What socio-economic problems survivors face?
2. How do survivors cope with socio-economic challenges they face?
3. What are the health problems that survivors experience as a result of their exposure to Ebola?

The answers to these questions are provided by the structured questionnaires (Appendix 1).

Limitations

The researcher experienced limitations during the conduct of the research. These limitations included financing of the project

because the researcher had to personally bear the cost. The distances covered each time to follow up survivors in their respective communities had high cost implication. The researcher had to utilize reliability test data information from only two health facilities, even though three health facilities were initially earmarked for same. This was due do complicated bureaucracy to follow at the John F. Kennedy Memorial Hospital.

Transmission

It is thought that fruit bats of the Pteropodidae family are natural Ebola virus hosts. Ebola is usually introduced into the human population through close contact with the blood, secretions, organs or other bodily fluids of infected animals such as chimpanzees, gorillas, fruit bats, monkeys, forest antelope and porcupines found ill or dead or in the rainforest. Ebola then spreads through human-to-human transmission via direct contact (through broken skin or mucous membranes) with the blood, secretions, organs or other bodily fluids of infected people, and with surfaces and materials (e.g. bedding, clothing) contaminated with these fluids. Health-care workers have frequently been infected while treating patients with suspected or confirmed EVD. This has occurred through close contact with patients when infection control precautions are not strictly practiced. Burial ceremonies in which mourners have direct contact with the body of the deceased person can also play a role in the transmission of Ebola. People remain infectious as long as their blood contains the virus.

Sexual transmission

Evidence shows that the virus disappears relatively quickly from survivors, but can remain in the semen of male survivors for as long as 1 year, and in some instances, be transmitted to intimate partners. Evidence has shown in Liberia of the transmission of disease from at least a male survivor who passed the disease on to his partner six months after exposure to the Ebola virus disease. More surveillance data and research are needed on the risks of sexual transmission and particularly on the prevalence of viable and transmissible virus in semen over time. In the interim, and based on present evidence, it is recommended by WHO that: All Ebola survivors and their sexual partners should receive counseling to ensure safe sexual practices until their semen has twice tested negative. Survivors should be provided with Male Ebola survivors should be offered semen testing at 3 months after onset of disease, and for those who test positive, every month thereafter until their semen tests negative for virus r by RT-PCR, with an interval of one week between tests. Ebola survivors and their sexual partners should either: abstain from all types of sex, or observe safe sex through correct and consistent condom use until their semen has twice tested negative. Having tested negative, survivors can safely resume normal sexual practices without fear of Ebola virus transmission. Recent research has shown however, that the semen of male survivors. The virus up to one year. Based on this finding, the WHO Advisory Group on the Ebola Virus Disease Response recommends that male survivors of Ebola virus disease practice safe s hygiene for 12 months from onset of symptoms or until their semen tests negative at least t' for Ebola virus. Until such time as their semen has twice tested negative for Ebola, survivors should practice hand and personal hygiene by immediately and thoroughly washing with soap and water after physical contact with semen, including after masturbation. During this period used condoms

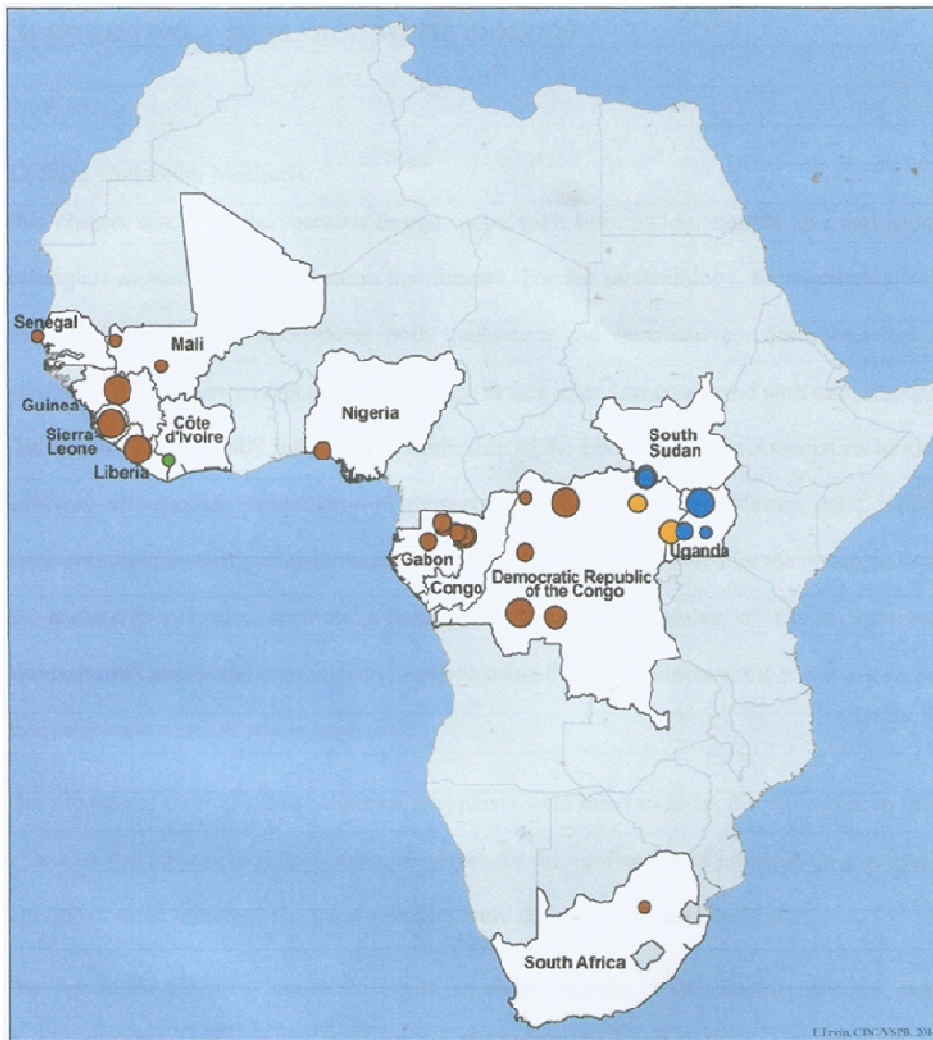
should be handled safely, and safely disposed of, in order to prevent contact with seminal. All survivors, their partners and families should be shown respect, dignity and compassion. J%I forms of stigmatization should be avoided.

Diagnosis, Treatment and Control

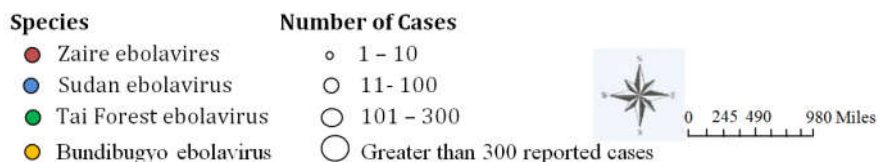
It can be difficult to distinguish EVD from other infectious diseases such as malaria, typhoid fever and meningitis. Confirmation that symptoms are caused by Ebola virus infection are made using the following investigations:

1. Antibody-capture enzyme-linked immunosorbent assay (ELISA)
2. Antigen-capture detection tests
3. Serum neutralization test
4. Reverse transcriptase polymerase chain reaction (RT-PCR) assay
5. Electron microscopy
6. Virus isolation by cell culture.

Samples from patients are an extreme biohazard risk; laboratory testing on non-inactivated samples should be conducted under maximum biological containment conditions. The management of Ebola is basically supportive care-rehydration with oral or intravenous fluids administration and treatment of specific symptoms, to improve the chances of survival. To date, there is as yet, no proven treatment protocol available for EVD. However, a range of potential treatments including blood products, immune therapies and drug therapies are currently being evaluated. No licensed vaccines are available yet, but 2 potential vaccines are undergoing human safety testing. Natural history study is being carried out in the country in support of the clinical trials ongoing for the prevention and management of the EVD. Health-care workers should always take standard precautions when caring for patients, regardless of their presumed diagnosis. These include basic hand hygiene, respiratory hygiene, use of personal protective equipment (to block splashes or other contact with infected materials), safe injection practices and safe burial practices, especially in Ebola suspected areas.



EBOLAVIRUS OUTBREAKS BY SPECIES AND SIZE, 1976 – 2014



Health-care workers caring for patients with suspected or confirmed Ebola virus should apply extra infection control measures to prevent contact with the patient's blood and body fluids and contaminated surfaces or materials such as clothing and bedding. When in close contact (within 1 meter) of patients with EBV, health-care workers should wear face protection (a face shield or a medical mask and goggles), a clean, non-sterile long-sleeved gown, and gloves (sterile gloves for some procedures). (WHO, 2014) Laboratory workers are also at risk. Samples taken from humans and animals for investigation of Ebola infection should be handled by trained staff and processed in suitably equipped laboratories. (WHO, 2014) Ebola outbreaks have been around for over four decades now and have claimed the lives of many. In Africa, at least twelve countries have been affected since the discovery of Ebola in 1976. Definite control parameters have been firmly developed to control and/or prevent the spread of the disease. The figure below (1.1) shows the affected countries and the outbreak by species and sizes from 1976 to 2014.

CHAPTER TWO - RESEARCH METHODOLOGY

Data Collection Methods

This chapter discusses the research design, population information, sample size and sampling techniques as well as data collection instruments. For the methodology, the researcher utilized primary data collection procedures both qualitative and quantitative. Questionnaires were administered to Survivor respondents and a face to face interview conducted with each respondent. The researcher principally relied on the leadership of the Ebola Survivors Association to identify survivors and provide administrative support for the collection of relevant data; individual survivors were physically engaged to provide accurate information suited for the research. As such, the leadership provided accurate information on the total number of Ebola Survivors in Montserrado County and their various locations using the update roster of the survivors, including their telephone contacts where applicable. The services of three (3) data collection specialists were hired to assist the researcher in the data collection process and to follow up the survivors for the verification of information provided over a period of three months. The questionnaires were utilized in the data collection. The review of patient's charts for Ebola survivor patients in two health facilities, namely, Redemption Hospital and the Duport Road Health Center was carried out for the purpose of obtaining reliability test data to verify information gathered from the Ebola survivors through the structured questionnaires.

Study Design

This study is designed such that answers will be provided for research questions. A comprehensive literature review method is deployed to provide an opportunity to compare information from the data with other research works carried out in the area by other researchers. Both quantitative and qualitative descriptive analysis will be carried out based on data collected. The total number of affected persons per category of parameters is captured and discussed quantitatively. This is in terms of disease surveillance and the number of persons suffering from a particular disease condition and qualitative description of the socio-economic status is discussed.

Research Setting

The research was conducted in Montserrado County, the oldest county in Liberia. Created in 1847 at the foundation of the country, the county is located on the coast in the northwestern third of Liberia. Montserrado County is bordered by three counties. The Atlantic Ocean makes up the county's southern border, while Bomi County lies on the western border. Bong County is to the north and Margibi County to the east. Demographics show that Montserrado County is the smallest county by size at 1,909 square kilometers (737 sq mi), but largest by population at 1,144,806 or approximately 33% of Liberia's total population. The population density of Montserrado County is 599.7 inhabitants per square kilometers (1,553/sq mi), the highest in Liberia. The county capital of Bentol (formerly Bensonville) has a population of 4,089 (2014). Montserrado County has four administrative districts, namely, Careysburg, Todee, Greater Monrovia, and St. Paul River Districts. Careysburg District is one of four districts located in Montserrado County, Liberia. Bensonville is the capital, and the Careysburg District has the total district population 28,463 (2014). Todee District's population is 32,695 with farming the primary economic activity. The district is run by chiefdoms and clan systems, as the county contains a large number of native African communities. The most populous district in the county and the nation, Greater Monrovia District, is home to 1,010,970 people. The district is made up of all the communities surrounding the city of Monrovia. The population has members of each of Liberia's 16 main tribes. St. Paul River District is the second most populous district in the county with 63,541 residents. All of Liberia's 16 main tribal groups are represented in the ethnic makeup of the county of Montserrado. Kpelleh speaking groups represent 52% of the population while Bassa speakers comprise 21%, followed by Lorma with 6%, Kru with 4%, and all others with 3% or less each. In the county 10% of the population was considered food insecure, with 35% listed as highly vulnerable, 43% as moderately vulnerable, and 13% were listed as food secure regarding access to sustenance as of October 2006. Residents lived mainly in owner occupied dwellings, which made up 61% of households. Seventeen percent (17%) rented their homes with an average cost of 341 LD, and 22% lived rent free in their home. In terms of education, the county had a total of 947 students enrolled in school in 1910. In 1948, the missionaries from the Pentecostal faith opened a school in Mein Clan in Todee District. Additional primary schools were built in the 1970s, while in 1976 the University of Liberia opened the Fendall branch campus in Louisiana. Bentol City (formerly Bensonville City) added a high school in 1978. The University of Liberia's main campus is located in Monrovia, and includes the country's only law school in the Louis Arthur Grimes School of Law. Enrollment in primary schools in the county totaled 314,409 students, which was 35% of the total number for the nation as a whole. Students attended a total of 1,096 schools in the county. Thirty three percent (33%) of county residents had no formal education, while 27% had attended some elementary school. Seven percent (7%) completed elementary school, 19% had some high school education, and 11% completed high school. One percent each of residents completed college, attended college, or have received a vocational education. Enrollment for school age children is 70%, with 76% for males and 65% for females. According to a UNICEF assessment of the condition of schools in Liberia, conducted in 2010, Montserrado County is home to

one thousand two hundred twenty-nine (1229) of the country's total of three thousand eighty-two (3,082) schools. It is even believed that the number of schools in Montserrado County has increased by now. Most of these schools, however, are located in Monrovia (the Greater Monrovia District). Formal education efforts have been supplemented with informal education in the County especially targeting the over age students. USAID/Liberian Transition Initiative and Mercy Corps have been delivering Life Skills curriculum in some schools and the communities. Goba and Pleemu town youth have especially gained from this rural based youth education for Life Skills. Over age students have also gained from vocational skills training in amongst others embroidery and baking, delivered by various NGOs especially in the Greater Monrovia area. Educational levels of survivors are captured in this research; it is therefore significant to present a picture of the learning institutions in the county. The findings in chapter will show how well people utilize learning opportunities in the county.

In 1974, the county capital was moved by President William Richards Tolbert, Jr. from Monrovia to his hometown of Bensonville.

Hospital Setting

The county of Montserrado has nine (9) functional hospitals, namely; Island Hospital, located in the St. Paul River District; Redemption Hospital, located in the Borough of New Kru Town; S.D. A. Cooper Hospital, located on 12th Street in Sinkor; ELWA Hospital, located along the Roberts' Field highway; St. Joseph Catholic Hospital, located in Congo Town; MSF Pediatric Hospital, located along the Somalia Drive Barnesville Road; the James Davies, Jr.(J.D.J.) Hospital, located along the Somalia Drive; Bensonville Hospital, located in Bentol City; the Benson Hospital, located near the commercial district of Red Light in Paynesville; and the John F. Kennedy Memorial Hospital, located on the Tubman Boulevard adjacent to the maritime office. The county of Montserrado has many health centers, including the Duport Road Health Center (one of the health facilities utilized in this research), and several clinics, both private and public. In addition to the survivors' profiles, and in line with the research design, the research was conducted in two of the health facilities; namely, the Redemption Hospital and the Duport Road Health Center. Brief historical highlights of each of the three health facilities earmarked for the research initially are indicated below and the reasons for the qualification of each entity mentioned.

Redemption Hospital

Redemption Hospital located in the Borough of New Kru Town is built on a land that was once the site of a general market that served the residents of the area for a long time. The Redemption Hospital had a status as a clinic. It was constructed during the administration of the late president William Richards Tolbert, Jr. who was overthrown in a military "take-over" on April 12, 1980. It was initially meant for a clinic to be dedicated (open to the public) on May 13, 1980 as a 'Rally Time' project to provide basic health services to the people of New Km Town and its environs. As a result of the Military "take-over", the then clinic was not open to the public until July 26, 1980. The facility was initially named and styled: Rally Time Clinic; this name was however, changed to the Redemption Day Clinic at the time of dedication (opening).

The facility gradually transformed into a hospital over the years as a result of the need for expansion in order to provide basic healthcare services needed by the people. The non-governmental organizations (NGO.s) and the international community have been very instrumental in the transformation process of the facility. Currently, the hospital has a bed capacity of over _____ beds. It provides basic pharmaceutical care and counseling services to patients diagnosed of HIV/AIDS and communicable diseases. These are units of the hospital that attract support from the international community and other philanthropic organizations. The hospital is being used as site for the clinical trial for the Ebola vaccines. It is used to provide free healthcare services to the Ebola survivors. The vaccine trial is being carried out by the Partnership for Research on Ebola Virus in Liberia (PREVAIL) with strong support from the American people and other donor agencies.

John F. Kennedy Memorial Hospital

The JFK Medical Center was built at the request of Liberian President William V.S. Tubman, whose 1961 visit with U.S. President John F. Kennedy laid the groundwork for USAID funding for a national medical center in Liberia. The project was funded with a \$6.8 million loan and \$9.2 occupied by rebel forces and used as a machine gun outpost overlooking Tubman Boulevard, a major road linking the Sinkor neighborhood with downtown Monrovia. The hospital was also used at one time by the Red Cross and Médecins Sans Frontières (MSF) as a field hospital for the war wounded victims. Since the opening of the John F. Kennedy Memorial Hospital to date, it has been used as the nation's teaching and referral hospital. It has stood the challenges of providing basic healthcare services to the public, even in the time of crisis. Currently, the John F. Kennedy Memorial Hospital is used as a research center for the Ebola natural history investigation. It also caters to Ebola survivors by providing basic health services to them. This is done through the kind courtesy of Partnership for Research on Ebola Virus in Liberia (PREVAIL). The current national president of the Ebola Survivors Association is employed with the Partnership for Research on Ebola Virus in Liberia (PREVAIL). The Partnership for Research on Ebola Virus in Liberia (PREVAIL) has offices currently based on the fourth floor of the John F. Kennedy Memorial Hospital, from where it operates. Both the administrative offices and the clinical trial facilities are located within the hospital facility. In addition, PREVAIL developed and implemented Social Mobilization, Community Engagement and Communication strategies to educate Liberians at the leadership and community levels about the Ebola disease and the clinical trial research. This was in support of the research design and strategies for identifying suitable vaccine(s) for the protection of the population against the deadly Ebola virus disease (EVD). As a result of PREVAIL's work, a discussion has now been initiated among the Liberian Ministry of Health, MSF, and Merck (manufacturer of the vaccine) to use the VSV vaccine as part of the Ministry-led public health response to future Ebola outbreaks in Liberia and as a part of an expanded access research protocol of the Ministry of Health and its partners.

The John F. Kennedy Memorial Hospital is an autonomous agency of government, constructed for the purpose of providing educational and clinical services to the qualified and needy persons. It is worth noting however, that unlike other public health facilities in the country, the services that are provided at the John. F. Kennedy Memorial Hospital are not

free to the public; though this a public facility. Given the long standing history of the hospital and the current services being provided at the facility, it presents a good setting for the collection of relevant data for this research project. Unfortunately for the researcher however, the John F. Kennedy Memorial Hospital could not be used for the desired data collection, specifically, patients' charts review though it was previously earmarked for said purpose; this was simply due to the complication of the bureaucracy involved in obtaining approval from the local authorities at the hospital.

Duport Road Health Center

The Duport Road Health Center is located to the east of Monrovia. The health center was opened to the public to provide healthcare services to the inhabitants of the community and its environs. Currently it provides free healthcare services to the public, especially women and children, including Ebola survivors irrespective of social status and economic background. It receives patients from all walks of life contrary to the initial plan to cater to those of the Duport Road areas. The three health facilities (Redemption Hospital, J.F.K. Memorial Hospital and the Duport Road Health Center) were selected for this research based on the current services they provide to the Ebola Survivors. These three institutions are public health facilities supported 100 % by the Government of Liberia and its partners.

Population

At registration in early 2015, the Ebola survivor population statistics showed 960 survivors in Montserrado County. However, as a result of migration for several reasons ranging from stigmatization to the denial of basic social services the population began to decline. Thus, at the data collection period, the roster of the Ebola survivors in Montserrado County stood at five hundred and eighty (580) and an active membership record of three hundred and twenty active members who regularly attended meetings during the last eight months. The determination of active membership of the association was based on the attendance record maintained by the association's secretariat during eight (8) months. One hundred thirty-eight (138) Ebola survivors were randomly identified as respondents during their regular sector meeting times for the data collection. For reliability test data collection, the charts for eighty-four (84) charts for Ebola survivors' patients from the two health facilities were reviewed to determine the health conditions of the survivors who attended clinic within three months (July — September, 2016).

Data Collection Instruments

The data collection instruments used to collect relevant data were structured questionnaires, produced on A4 size papers, HB pencils and pens. The questionnaires were distributed among respondents age range from 13 years to above 60 years old, and patients charts.

Data Analysis

The data were analyzed using tables and figures in the Excel software for the interpretation of the results. The data were presented in line with the project design; data information was arranged as per categories of the parameters required.

CHAPTER THREE- RESULTS

Data Presentation and Summary of Results

Respondents were categorized into six age groups with their respective numbers in each age group. The selection of the respondents was randomly done.

Table 3. Age Group Distribution in Years

Age Group	Total Number
13—20	26
21—30	44
31—40	33
41—50	21
51—60	13
Above 60 years	1
Total	138

The sex of respondents was also determined to know the total number of males and females respondents in the project. This sex determination was carried out by age group categories. It was important to identify the males and females in each age group because this categorization had direct relationship with disease surveillance. Table 3.a below presents the picture.

Table 3.a Sex Distribution by age Groups of Respondents

Age Group (years)	Male Number	Female Number	Total Number
13-20	13	14	27
21—30	18	26	44
31—40	14	19	33
41—50	10	11	21
51—60	5	7	12
Above60	1	-	1
Total	61	77	138

The educational status of respondent is a factor that has direct relationship with socio-economic status regarding the livelihood of an Ebola survivor. The literacy status commonly referred to as the educational background or status in this research is cardinal in that educational advancement can improve the general status of the individual, be it social or economic. The educational status of the individual is also a cardinal determinant of health. As such, the researcher considered highly, the level of education of each participant/respondent in this research. The respondents were carefully categorized according to their levels of education in order to analyze and determine what impact the level of education has on the socio-economic status of the individual survivors. The educational levels are:

1. None (No formal education)
2. Elementary Education
3. Junior High Education
4. Senior High education
5. College Education

The educational levels of respondents demonstrated in table 3.1 c below play a vital role in the health and socio-economic development of the every individual. Thus, the survival of the Ebola survivor, yea every individual in society, has a stake in the determination of the wellbeing of the of health of Ebola survivor.

Table 3.c Educational Level of Respondents

Level of Education	Number of Respondents
Not Letter (no formal education)	26
Elementary Education	14
Junior High Education	17
High School Education	48
College Education	33
Total	138

Socio-economic Status of Respondents

The socio-economic status of an on many factors including education, professional career, social connections, and the like. This study captured the career background of each individual respondent as one of the factors contributing to the general status of the respondents. The probability of b being able to cope with current day realities is high when one has a career to be able to earn a high income to sustain his family. This study therefore considers the career, otherwise preferred to as professional background. Table 4 bellow demonstrates the professional status of each respondent. A career person does not necessarily have to be a college graduate; one could earn an intermediate level training in such profession as tailoring, tie and dying, mechanic and thus, can earn his living to provide for his family.

Table 4. Professional Status of Respondents

Professional Status	Number of Respondents
Respondents with profession	47
Respondents Without Profession	91
Total	138

Employment Status of Respondents

Employment or working status contributes largely to the economic power of the individual as a whole. Therefore, the researcher chose to investigate the employment status of each individual respondent to be able to determine their income status as it relates to their economic power to sustain their respective families. Table 5 below demonstrates the employment status of each respondent.

Table 5. Employment Status of Respondents

Employment Status	Number of Respondents
Employed	20
Self-employed	39
Unemployed	79
Total	138

The pre-Ebola employment status of each respondent was determined, using the questionnaires. This is determine whether or not their exposure to the Ebola virus disease has any impact on their ability to be gainfully employed. Table 5a presents explanation.

The study investigates the physical ability or fitness of each respondent to make a meaningful contribution to the society based on their physical status. The Table (5b) demonstrates the physical status of respondents. Those who are physically challenged are unable to cope with the current day standard of living.

Table 5a. Employment Status of Ebola Survivors before and After Exposure to Ebola

Employment Status before & Number of respondents After Exposure to Ebola	
Working Prior to Ebola epidemic	46
Not Working Prior to Ebola Epidemic	92
Total	138

Table 5b. Physical Status of Ebola Survivors

Physical Status	Number of Survivors
Physically Challenged	76
Non-physically Challenged	62
Total	138

Disease Conditions of Individual Ebola Survivor

The disease conditions of the survivors were captured to determine the health status of each respondent. Table 6 below provides the statistical data.

Table 6. Disease Surveillance for Ebola Survivors

Disease Condition	# of persons (among the 138 respondents) affected
Skin problems	13
Pressure Problems (hypertension)	13
Eye problems	46
Ear problems	12
Sugar problems (diabetes)	1
Heart problems	11
Impotency	8
Mental problems (loss of memory)	2
Body pains	37
Stomach problems	6
Malaria	15
Typhoid	3
Common cold (flu) & cough	29
Total	196

Patients Charts Review

There ie of the charts was meant to gather a reliability test data to be able to compare and verify health status information provided by the respondents using the structured questionnaires. Table 7 below demonstrates the data gathered from the review of charts.

Table 7. Desk Review of Patients Charts for 84 Patients from two Health facilities

Disease Condition	Number Persons Affected
Typhoid	29
Malaria	27
Eye Conditions	43
Otitis media	17
Dermatitis (skin problems-various: scabies, urticaria fungus infection, etc.)	25
Sore Throat	6
General Body Pain & Fatigue	31
Dental Problems (Toothache)	16
Impotency	9
Miscarriage	4
Irregular Menstruation	8
Hypertension	23
Diabetes Miletus	16
Whooping Cough	9
Bloody Diarrhea	12
Total	275

CHAPTER FOUR- DISCUSSION

Interpretation of Results

Indeed, the EVD survivors face numerous challenges daily after they are discharged from the Ebola treatment units (ETUs). This study revealed that the Ebola survivors are faced with numerous socio-economic challenges that made the majority of them to be liability to the society. They experience stigmatization in the society; even some family members stigmatize them. As a result of stigmatization and discrimination, even those who are not physically challenged cannot get jobs to sustain their families because many employers refuse to offer them jobs. They are being denied basic social services. As such, the majority of the Ebola survivors are not economically potent to cope with the socio-economic challenges confronting them. Data from both structured questionnaires and the review of the charts proved that the Ebola survivors are faced with multiple recurrent health problems for which some visit the clinics even up to four times within a month. The health challenges have made majority physically disabled and thus need psychosocial support to be able to withstand some of the challenges. Among the health problems is eye condition which stands as the leading health problem faced by the survivors. This is confirmed by data collected from the structured questionnaires and the patient's charts review. Further confirmation is the concern expressed by the Government of the Republic of Liberia to develop structures and design policies to protect the interest of the Ebola survivors. The government adopted and approved a policy document called the "Ebola Survivors Care Policy" which endeavors to provide social protection, clinical care, and legal protection. Other areas of concern to government for the Ebola survivors are food and nutrition, education, and the fight against stigmatization and discrimination. They also encounter housing predicaments with landlords threaten to, or actually evicting them. These are just a few among the numerous problems EVD survivors experience after they are discharged from the ETUs.

Comparison

Since 1976, there been efforts to conduct research studies aimed at finding remedy for the Ebola virus disease. The studies in Sierra Leone and Guinea respectively by Haaskj old et al. and Lindblade et al. published 2016 revealed that there are risk factors for Fatal Ebola Virus Disease. Results also showed that secondary infections due to exposure to Ebola virus disease are on the increase, thereby causing untold suffering to survivors. The studies carried out by Tansley, G, Beecher, D et al. in 2014 indicated that the only management protocol available thus far is symptomatic treatment and management of patients with Ebola. Comparison of routes for achieving parenteral access with a focus on the management of patients was the aim of the study. These studies confirmed that indeed there are multiple health problems that Ebola survivors are faced with after they are discharged from the treatment units. Thus the residual sequelae following exposure to the Ebola virus disease (EVD), pose unique challenges to the survivors. Many EVD survivors suffer from persistent medical conditions after recovery from the disease, including joint pain, eye problems, headache, impotency, and other chronic health problems. The Ebola virus disease (EVD) survivors are also subjected to stigmatization, in all forms of human rights

violations, thereby making it very difficult for their full integration into their communities. The even more challenging situation is that some of the issues (notably, stigma and discrimination) are not only limited to those who survive the Ebola virus disease (EVD), but also their immediate households and families. As such addressing these unique challenges of the EVD survivors is of primary concern and needs to be considered very important, a component of the post Ebola recovery programs and be given high priority. This could facilitate their fast recovery and reintegration, and would help to build community trust and confidence. The core matter is to uphold human rights and guarantee access to basic social and medical services.

CHAPTER FIVE: CONCLUSIONS

Conclusion

The study confirmed that Ebola survivors are being continuously stigmatized and are faced with many socio-economic problems coupled with health challenges as a result of their exposure to the Ebola virus disease (EVD). These health challenges have the potential to cause physical disabilities to the Ebola survivors. Probably there are other health problems among the survivors which are yet to be discovered through medical science. Further research in this area could help to discover lasting solutions to the many health problems of the Ebola survivors.

Recommendations

The following recommendations are based on the research findings:

1. The challenges faced by the Ebola survivors need to be handled by multi-disciplinary teams (mental health clinicians, counselors, social workers etc.), and to include community interventions such as discussions with community members and leaders on the facts about Ebola., and on fighting stigma and discrimination;
2. A national steering committee needs to be established to be charged with clearly defined responsibilities, especially to identify appropriate coordination and implementation mechanisms for the healthcare policy developed by Government aimed at quality service delivery;
3. The health care service component of the policy developed by government needs to be further strengthened to provide quality and long term services aimed at preparedness to combat future health problems among the Ebola survivors yet undiscovered; and
4. The Government of the Republic of Liberia — through its essential executive organs and with the strong support of all stakeholders ensure that EVD survivors are accorded the relevant and necessary support to attain the highest possible recovery and subsequent integration into the community

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Appendices

Appendix I: Questionnaires

RESEARCH QUESTIONNAIRES

Informed Consent

Hello, my name is Hasipha C. Tarpeh, a student of the West African Postgraduate College of Pharmacists I am conducting a survey to determine the socio-economic status of Ebola survivors. This survey also seeks to assess the health status of survivors; it targets all survivors in Montserrado County, irrespective of sex and age. I would like to ask you some questions relevant to this survey to help me with the data collection.

Any information given by you will be treated as confidential and will in no way expose you to any risk or danger.

Do you agree to participate in this exercise?

Yes _____

No _____

Signature of Respondent _____

Personal Data

- Age range of respondent
 - 13—20years()
 - 21—30years()
 - 31—40years()
 - 41—50years()
 - 51—60years()
 - Above 60 years ()
- Sex: Male Female ()
- Name of community of Residence in Montserrado

Educational Qualifications

- What is your educational level?
 - College education ()
 - Secondary School education ()

- c. Elementary School education ()
 d. Not letter (no experience of academic achievement) ()

Socio-economic Status:

5. Occupation/Profession _____
 6. Employment status: a. employed(); unemployed Q; self-employed ()
 7. If un-employed, how do you earn living?
 a. ___ Supported by family member(s)
 b. ___ Organizational support
 c. ___ Cut contracts (daily hire)
 8. Were you working prior to the exposure to Ebola? Yes (); No ()
 9. Place of residence: a. living in your own house Q; With family member (); renting ()
 10. Do you have a physical challenge? Yes (); No ().
 11. If yes, what is it?

Health Status

12. How long has this condition been? (a) ___ 2 years, (b) ___ 1 year, (c) ___ 10 months
 (d) ___ 6 months, (e) ___ 3 months
 13. When last did you visit the clinic /hospital? (a) ___ 2 weeks ago, (b) ___ 1 month ago,
 (c) ___ 2 months ago, (d) ___ don't remember
 14. What problem(s) did you experience for which you went to the clinic/hospital?
 a. ___ Ear problem
 b. ___ skin problem
 c. ___ Eye problem
 d. ___ Pressure problem
 e. ___ Diabetes
 f. ___ Impotency
 g. ___ Heart problem
 h. ___ Others, specify _____

15. How long have you been suffering from this /these problem(s)?

a. ___ 2 years, (b) ___ 1 year (c) ___ 6 months, (d) ___ 3 months

16. Do you get free medical services? ___ Yes, ___ No

17. If no, who is responsible for your medical bills? — (a) Spouse, — (b) Child/children,
 ___(c) parents, (d) philanthropic organization

18. If no. who is responsible for your medical bills? (a) Spouse Q, (b) Children/Child (), Parents (c), (d) Philanthropic organization (), (e) Self

Nutritional Status

20. Who provide your daily meals? (a) Self (), (b) Spouse (), (c) Child(ren), Other (Specify) _____

21. How many time do you eat a day? (a) rice only (), (b) rice free diet, (c) rice & other

Social Status

23. Are you member of any social organization? Yes (), No ()
 24. If yes, which organization?

(a)___ Women Organization, (b) Youth Organization (c)___ Football Club
 (d) — Community Organization (e) Other(s) _____

25. How often do you attend your organization meeting?

(a)Once a week , (b) once a month (), (c) twice a month (), (d) others

Specify _____

26. What is your religious affiliation? (a) Christian (), (b) Muslim (), (c) Other(s) Specify _____

27. How often do you go to your place of worship? (a) Daily Q, (b) Once Weekly Q,

(c) At least twice week Q, (d) Other Spec _____

28. Are you always welcome among your peers? Yes (), No ()

29. If no, how do you feel? _____

Appendix 2: Letter of Introduction to Hospital Authorities

TO WHOM IT MAY COME

Dear Sir/Madam:

I write to introduce Pharm. Hasipha C. Tarpeh who is doing data collection for his dissertation on the topic: "The Socio-economic Status of Ebola survivors in Montserrado County, Liberia: A Clinical Survey". Pharm. Tarpeh is a student of the West Postgraduate College of Pharmacists. He will collect relevant data using survivor's patient's charts for a reliability test data. Please accord him the necessary assistance to enable him collect the data required.

Thank you for the kind attention.

Yours truly,

Pharm. Luke Bawo
 Dissertation Supervisor

Appendix 3: Letter of Introduction to the Ebola Survivor Association

The President
 Ebola Survivor Association
 Montserrado County Chapter
 Monrovia, Liberia

Dear Mr. President:

Complements and best wishes.

I write to introduce Pharm. Hasipha C. Tarpeh, a student of the West African Postgraduate College of pharmacists and to request your permission to allow him to interact directly with members of your association for data collection to prepare his dissertation as part of the requirements for the completion of his fellowship degree. Please give him your kind assistance to enable him collect the necessary data for his dissertation.

Sincerely yours,
 Pharm. Luke Bawo
 Dissertation Supervisor
 Appendix 4: Ethical Approval
 Date: July 18, 2016
 Ref: Hasipha C. Tarpeh