UNIVERSITY OF CAPE COAST

EFFECTS OF LYMPHATIC FILARIASIS ON THE SOCIO-ECONOMIC LIFE OF THE PEOPLE OF NARKWA IN THE MFANTSEMAN MUNICIPALITY OF THE CENTRAL REGION OF GHANA

BY

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2010

DECLARATION

Candidate’s Declaration

I hereby declare that this dissertation is the result of my own original work and that no part of it has been presented for another degree in this University or elsewhere.

Candidate’s signature: ………………….. Date:………………………

Name: Seth Frimpong

Supervisors’ Declaration

We hereby declare that the preparation and presentation of the dissertation were supervised in accordance with the guidelines on supervision of dissertation laid down by the University of Cape Coast.

Principal Supervisor’s signature:……………Date:…………………………

Name: Professor Dominic K. Agyeman

ABSTRACT

Lymphatic filariasis, a disease that is rarely fatal but it results in clinical conditions have devastating effects on persons infected by it. It causes long-term and permanent disability as well as social and psychological problems. The disease is transmitted by mosquitoes. The study was carried out to examine people's opinion and beliefs about the causes and socio-economic effects of lymphatic filariasis infection. It was carried out in the Narkwa community of the Mfantseman Municipality in the Central Region of Ghana using structured interview.

Respondents were aware of the common manifestations of lymphatic filariasis and had a local name for the disease. They admitted that the lymphatic filariasis has considerable negative effects on the quality of life. Respondents were of the view that lymphatic filariasis reduced the infected persons' productivity and impaired their sexual function. Infected persons' felt stigmatized. Majority of the infected persons indicated that they visit the hospitals for treatment even though some of them mentioned that they sometimes used herbal medicines provided by traditional medical practitioners.

It is recommended that the government should equip hospitals and health centres in endemic communities with the necessary drugs and personnel for early detection of the disease for necessary attention.

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DEDICATION

This study is dedicated to my wife, Victoria, and my children, Akosua, Kofi and Kwasi for their immeasurable support.

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LIST OF ACRONYMS

ADL	Adenolymphangitis
ADLA	Acute dermatolymphangioadenitis
AFL	Acute Filarial Lymphangitis
AIDS	Acquired Immune Deficiency Syndrome
BF	Bancroftian Filariasis
CSO	Civil Society Organization
DALY	Disability Adjusted Life Years
DBL	Danish Bilharziasis Laboratories
DEC	Diethelcarbamazine
HIV	Human Immunodeficiency Virus
LF	Lymphatic Filariasis
MF	Microfilaria
MOH	Ministry of Health
NGO	Non-Governmental Organization
PLHIV	People Living with Human Immunodeficiency Virus
PILF	Persons Infected with Lymphatic filariasis
SPSS	Statistical Product and Service Solutions
WHA	World Health Assembly
WHO	World Health Organisation

CHAPTER ONE

INTRODUCTION

Background

Lymphatic filariasis (LF) is a disease that has been known to mankind from very early times. Early Indian physicians talked about it as “slipada,” a condition with grotesquely enlarged lower limbs and scrotal sacs. The disease is transmitted by mosquitoes, which transmit to humans a stage of the parasite called the infective larva (Rajan & Gundlapalli, 1997).

Lymphatic filariasis is caused by infection with the nematode worms *Wuchereria bancrofti, Brugia malayi,* and *B. timori,* which are transmitted by mosquitoes (Cox, 2002). Lymphatic filariasis was and is common along the Nile and, although there are no written records, the swollen limbs of a statue of the Egyptian Pharaoh Mentuhotep II from about 2000 BC suggest that he was suffering from elephantiasis, and small statuettes and gold weights from the Nok culture in West Africa from about AD 500 depict enlarged scrota characteristic of elephantiasis (Cox, 2002). Greek and Roman writers were aware of the differential diagnosis of the condition and used the term "elephantiasis graecorum" to describe leprosy and the term "elephantiasis arabum" to describe lymphatic filariasis. Arabic physicians, including Avicenna, were also aware of the differences between leprosy and lymphatic filariasis. The first definitive reports of lymphatic filariasis only began to appear in the 16th century (Cox, 2002). Lymphatic filariasis is also known as "the curse of St. Thomas", and on a visit to Goa between 1588 and 1592, the Dutch explorer Jan Huygen Linschoten recorded that the descendants of those who killed St. Thomas were "all born with one of their legs and one foot from the knee downwards as thick as an elephants leg". Thereafter, there are numerous references to elephantiasis, especially in Africa but also in Asia, including China, where Manson was later to discover the life cycle of the parasite. Another pathological condition associated with lymphatic filariasis is chyluria, which makes the urine appear milky (Cox, 2002).

The larval microfilariae were first seen in hydrocele fluid by the French surgeon Jean-Nicolas Demarquay in 1863 and, independently, in urine by Otto Henry Wucherer in Brazil in 1866. It remained for Timothy Lewis, a Scottish physician working in Calcutta, to confirm the finding of microfilariae in urine and blood and to recognize their significance in elephantiasis (Cox, 2002). The adult worm was described by Joseph Bancroft in 1876 and named it *Filaria bancrofti* in his honour by the British helminthologist Thomas Spencer Cobbold. The elucidation of the life cycle, one of the triumphs of parasitological research, was the work of Patrick Manson in 1877. This is widely regarded as the most significant discovery in tropical medicine, with implications that went far beyond helminthology into such diverse areas as malaria and the arboviruses (Cox, 2002). The story of Manson's discoveries has been told many times, but what is often omitted from the history of

Manson's discoveries is the fact that he was aware of Fedchenko's earlier studies on the life cycle of *D. medinensis* and its transmission using an intermediate cyclopodid host. Fedchenko's observations stimulated Manson to seek an intermediate host but this led him astray when he tried to demonstrate that infection was caused by drinking contaminated water. Manson, then working in Amoy in China, found microfilariae in the blood of dogs and humans and hypothesized that these parasites in the blood might be transmitted by blood-sucking insects (Cox, 2002). He thought that the parasite escaped from the mosquito into water and that humans acquired infection from this contaminated water by drinking the parasi water or via penetration of the skin. The actual mode of transmission was not established until suggestions made by the Australian parasitologist Thomas Bancroft were followed up by Manson's assistant George Carmichael Low, who demonstrated the presence of microfilariae in the mouthparts of mosquitoes in 1900 (Cox, 2002).

The disease is caused by thread-like worms of genus *Wuchereria* and *Brugia*, known as filariae that lodge in the lymphatic system, the network of nodes and vessels that maintain the delicate fluid balance between the tissues and blood and which are an essential component of the body's immune system. Filariae are responsible for a variety of clinical manifestations, including lymphoedema of the limbs, genital disease (hydrocele, chylocele and swelling of the scrotum and penis) and acute, recurrent secondary bacterial infections known as "acute attacks". The vast majority of infected people are asymptomatic but virtually all of them have sub clinical lymphatic damage and as many as 40% have renal involvement with proteinuria and haematuria (WHO, 2007).

The term ‘filaria’ comes from the Latin word ‘filum’, meaning thread, and is used to describe a large group of nematode worms that are slender and thread-like. These parasites infect many terrestrial vertebrates, including mammals such as dogs and humans. These larvae almost immediately migrate to the lymphatic channels, which must, at first glance, seem to be the most inhospitable environment for a parasite to dwell in. Since the immune system is designed to eliminate invading parasites from within us, it would appear to be particularly foolhardy for the parasite to home to the very location that abounds in lymphocytes. The situation is analogous to an invading army blithely positioning itself in the very supply lines of the defense, or boldly in sight of its daily patrol. Nonetheless, this is what these parasites do. It is estimated that about 120 million people worldwide are afflicted with filariasis today (Michael, Bundy & Grenfell, 1996).

Since lymphatic filariasis is not a lethal disease, it does not attract the same intensity of attention as more deadly diseases, such as malaria. The fact that 3 million children may die of malaria in Africa every year alone has mobilized the world and raised the concern of many well-meaning and motivated individuals. Unfortunately, the plight of adult disabled victims of filariasis has not evoked the same level of concern. Nonetheless, this grossly deforming and debilitating disease is a serious public health problem in many tropical countries of the world. A recent survey from Indonesia reveals that families may spend as much as 30% of their total income supporting and taking care of a single individual with lymphatic filariasis (Devaney & Yazdanbakhsh, 2001). Another study from India reveals that nearly 20% of the productivity of an individual is lost if he or she suffers from lymphatic filariasis (Babu, Nayak, Dhal, Acharya, Jangid, & Mallick, 2002).

Lymphatic filariasis puts at risk more than a billion people in more than 80 countries. Over 120 million have already been affected by it; over 40 million of them are seriously incapacitated and disfigured by the disease. One-third of the people infected with the disease live in India, one third are in Africa and most of the remainders are in South Asia, the Pacific and the Americas. In tropical and subtropical areas where lymphatic filariasis is well established, the prevalence of infection is continuing to increase. A primary cause of this increase is the rapid and unplanned growth of cities, which creates numerous breeding sites for the mosquitoes that transmit the disease (WHO, 2000).

The 1993 World Bank Development Report uses Disability Adjusted Life Years (DALYs) as a standard measure for comparing the public health impact of different diseases. In this report, the global burden for lymphatic filariasis was estimated at 850,000 DALYs lost, which represents only 0.23% of the global burden of parasitic and infectious diseases (World Bank, 1993).

In sub Saharan Africa, it is estimated that about 512 million people are at risk of the infection and about 28 million are already infected. Of this number, there are 4.6 million cases of lymphedema and over 10 million cases of hydrocele. These represent about 40% of the global burden of the disease (Michael et al., 1996).

In its most obvious manifestations, lymphatic filariasis causes enlargement of the entire leg or arm, the genitals, vulva and breasts. In endemic communities, 10-50% of men and up to 10% of women can be affected. The psychological and social stigma associated with these aspects of the disease is immense. In addition, even more common than the overt abnormalities is hidden, internal damage to the kidneys and lymphatic system caused by the filariae (WHO, 2000).

Lymphatic filariasis is one of the major vector-borne diseases in tropical Africa. It is estimated that there are more than 50 million cases in this region, all of which are caused by infection with Wuchereria bancrofti (Ahorlu, Dunyo, Koram, Nkrumah, Aagaard- Hansen & Simonsen, 1999).

The common clinical manifestations of lymphatic filariasis are acute attacks of adenolymphangitis (ADL), and disfiguring chronic conditions such as hydrocele and lymphoedema elephantiasis. Because of the debilitating nature of these manifestations and the large numbers of individuals affected, lymphatic filariasis has been identified as one of the leading causes of permanent and long-term disability in the world (WHO, 1995). Filariae are responsible for a variety of clinical manifestations, including lymphoedema of the limbs, genital disease like hydrocele, chylocele and swelling of the scrotum and penis and acute, recurrent secondary bacterial infections known as "acute attacks". The vast majority of infected people are asymptomatic but virtually all of them have sub clinical lymphatic damage and as many as 40% have renal involvement with proteinuria and haematuria (WHO, 2007).

Clinical disease mainly results from the presence of adult worms in the lymphatics, and presents both acute and chronic forms (Ahorlu et al., 1999). The acute manifestations usually referred to as adenolymphangitis (ADL), are characterised by episodic attacks of fever associated with inflammation of the inguinal lymph nodes, testis, spermatic cord, or a combination of these (Ahorlu et al., 1999). The World Health Organization at its fiftieth World Health Assembly in 1997 launched an initiative to eliminate lymphatic filariasis globally as a public health problem. However, successful control of lymphatic filariasis, like that of many other infectious diseases, depends to a great extent on community-wide understanding of and support for the programme. The biomedically established etiology and mode of transmission of lymphatic filariasis does not lend itself to local understandings in many endemic regions, most of which are in developing countries (Ahorlu et al., 1999)

Lymphatic filariasis is primarily a disease of the poor. The disease is prevalent in remote rural areas and in disfavoured periurban and urban areas. In recent years, lymphatic filariasis has steadily increased because of the expansion of slum areas and poverty, especially in Africa and the Indian sub-continent (WHO, 2000). Rural to urban migration and increasing urbanization both of which are occurring increasingly in low income countries, facilitate the spread of lymphatic filariasis. This is mostly due to inadequate waste disposal and sanitation facilities, which increase the number of breeding sites for the mosquito vectors (Evans, Gelband & Vlassof, 1993) As many filariasis patients are physically incapacitated, it is also a disease that prevents patients from having a normal working life. The fight to eliminate lymphatic filariasis is also a fight against poverty (WHO, 2000).

Lymphatic filariasis exerts a heavy social burden that is especially severe because of the specific attributes of the disease, particularly since chronic complications are often hidden and are considered shameful. For men, genital damage is a severe handicap leading to physical limitations and social stigmatization. For women, shame and taboos are also associated with the disease. When affected by lymphoedema, they are considered undesirable and when their lower limbs and genital parts are enlarged they are severely stigmatized, marriage which in many situations is essential source of security, is often impossible (WHO, 2000). The hydrocele operation that costs $30.00 is more than the average monthly Ghanaian income, so most sufferers remain untreated (Gyapong, Gyapong, Evans, Aikins, & Adjei 1996). Ahorlu, et al. (2001) mentioned the high cost as a barrier to receiving treatment.

Statement of the Problem

In Ghana, 61 out of 138 districts have been identified as endemic for Lymphatic filariasis. The at-risk population is 10.2 million (49%) of the national population (WHO, 2006). The economic burden of lymphatic filariasis can be categorized as direct disease-related costs to individuals and households, costs to government-funded health care systems, lost productivity of infected individuals, and reduced productivity from structural changes in the economies of endemic villages. Data on individual's expenses for medical care related to lymphatic filariasis are limited but some exist. In India, where one-third of the cases of lymphatic filariasis can be found, over 10 million people each year seek treatment for the disease. The total annual treatment costs borne by individuals including medicines, doctor's fees and travel, companion costs and accommodation exceed US $30 million (Ramaiah, Das, Michael & Guyatt, 2000). This total does not include the costs borne by the government for medical care. Evidence from Tanzania and Tahiti shows that it is fairly common to seek treatment for acute attacks, although the nature and cost of treatment were not specified (March, Laigret Kessel & Barnbridge, 1960; Gasarasi, Premji, Mujinja & Mpembeni, 2000). Direct expenditures by individuals and households may be low or nonexistent because either medical care is not affordable or there is no safe and effective treatment (Wegesa, McMahon, Abam, Hamilton, Marshall, de & Vaughan, 1979; Lu, Valencia, Llagas, Aballa & Postrado, 1988). It was estimated that in a hospital in northern Ghana as much as 25% of all surgery is for hydrocele (Gyapong, 1996).

The lymphatic filariasis causes several billion US dollars a year in productivity losses. It occurs primarily in poor communities, and this exacerbates poverty by physically incapacitating people and thus preventing them from having a normal working life (Wegesa et al., 1979). The fight against LF is also a fight against poverty. LF exerts a heavy social burden, particularly since chronic complications are considered shameful and are often hidden. For men, the genital damage is a severe handicap leading to physical limitations, poor self-image and social stigmatization. Persons affected by lymphoedema are sometimes considered undesirable, and are severely stigmatized. Marriage, usually an essential source of security, is often impossible for men and women with chronic complications (Burri, Loutan, Kumaraswami & Vijayasekaran, 1996).

It could be realized that the lymphatic filariasis physically incapacitate people thus preventing them from having a normal working life. There is therefore the need to conduct a study to ascertain the effects of the disease on the victims and the preventive measure that could be put in place to control the infections.

The study therefore examines the social and economic effects of the lymphatic filariasis on the people. This was done by examining the knowledge levels of the people on the disease.

Objectives of the Study

The general objective of this study is to examine people's opinion and beliefs about the causes and socio-economic effects of lymphatic filariasis infections.

The specific objectives are to:

- Examine the people's perception on the causes of lymphatic filariasis;
- Describe preventive measures adopted in communities; and

- Discuss views of the affected and unaffected persons on the effects of lymphatic filariasis.
- Make recommendations for appropriate interventions to governmental and non-governmental agencies to provide support and care to persons living with the lymphatic filariasis.

Research Questions

Based upon the above outlined specific objectives, the following research questions will be examined:

- What do the people know about the lymphatic filariasis disease?
- What is the perception of the people about the causes of the lymphatic filariasis disease?
- How do the people prevent and manage the lymphatic filariasis disease?
- How does the lymphatic filariasis disease affect the social and economic life of the victims of Narkwa community in the Mfantseman Municipality?

Significance of the Study

The study will bring to the limelight the effects of the lymphatic filariasis disease on the people at Narkwa community in the Mfantseman Municipality. The study will bring out some of the problems faced by the infected persons in their social and economic activities.

Scope of Study

The study was limited to the Mfantseman Municipality of the Central Region. The study included the infected persons as well as uninfected persons in the community. The opinions of people were sought because of their knowledge levels on the social and economic burden of the disease on the infected and uninfected persons.

Organisation of the study

The study has five chapters. The first chapter, which is the introductory chapter, provides the background to the study, statement of the problem, objectives of the study, research questions, significance of the study, scope of work and organization of the work.

Chapter two is the literature review and it covers the background of the lymphatic filariasis, the life cycle of lymphatic filariasis, clinical features of lymphatic filariasis, diagnosis of lymphatic filariasis, treatment, the Global, Africa and Ghana situations of the lymphatic filariasis, social and economic burden of lymphatic filariasis and the theoretical framework. Chapter three gives a description of the methodology used in the study. The sub-topics in the chapter include the introduction, study area, study population, sample and sampling technique, data collection and data analysis. Chapter four looks at people's perception on the causes and socio-economic effects of lymphatic filariasis disease. The final chapter presents the summary and conclusions of the study as well as the recommendations.

CHAPTER TWO

LITERATURE REVIEW

Background of lymphatic filariasis

Lymphatic filariasis is a mosquito-borne parasitic disease that is caused by three species of tissue dwelling filaroids. *Wuchereria bancrofti* is responsible for 90% of cases and is found throughout the tropics and in some sub-tropical areas world-wide (Melrose, & Goldsmid 2005). It is so disfiguring and the accompanying infections so distasteful that people are ashamed to go public. Consequently they isolate themselves from society. People infected by the disease find it difficult to get a job. Those of them who are employed are often sacked because of their disfigurement or disability. Many infected persons are not able to marry because they are stigmatized. There is a high rate of separation or divorce among discordant couples (WHO, 2001). Elephantiasis has been known and written about since the dawn of civilization. It was depicted on the pharaonic murals of Egypt and in the ancient medical texts of China, India, Japan, and Persia. Elephantiasis and hydrocele were first associated with parasitic filarial worms and their mosquito vectors in the late 19th century by French, English and Australian physicians working with patients from Cuba, Brazil, China and India (WHO, 2001).

The life cycle of lymphatic filariasis

Lymphatic filariasis is caused by thread-like parasitic worms, called filariae. These filarial parasites, in their adult stage, live in the vessels of the lymphatic system, the network of nodes and vessels that maintain the fluid balance between the tissues and the blood, and which is an essential component for the body's immune defence system. The worms live for 4-6 years, producing millions of very small larvae-immature microfilariae that circulate in the peripheral blood with a marked nocturnal or diurnal periodicity (WHO, 2001). *Brugia malayi* is confined to Southeast and Eastern Asia and *Brugia timori* is found only in Timor and its adjacent islands. All three species cause similar disease. *B. malayi* is also found in monkeys, cats and other small animals but it is not known how important this is in the epidemiology of human disease. Unlike malaria whose only vectors are Anopheline mosquitoes, lymphatic filariasis can be transmitted by various species, namely *Genera Anopheles*, *Culex*, *Aedes and Mansonia*. The biting-time of the mosquito correlates with the periodicity of the microfilariae (Melrose & Goldsmid, 2005).

The disease is transmitted by mosquitoes that bite infected humans and pick up the microfilariae from the blood. The larvae then migrate to the mosquitoes' biting mouth-parts, ready to enter the punctured skin following the mosquito bite, thus completing the cycle. The microfilariae ingested by the mosquito pass to the stomach, then penetrate the gut wall, enter the body cavity and then the thoracic muscle. After a period of approximately two weeks the parasites migrate to the head of the mosquito and position themselves in the mouth parts ready to enter the punctured skin of the next individual when the mosquito bites, thus completing the cycle (WHO, 2001). These larvae then migrate to the lymphatic vessels and develop into adult worms, over a period of 6 to 12 months, causing damage and dilatation of the lymphatic vessels. The filariae live for several years in the human host (WHO, 2007).

Local symptoms of acute attack are swelling, warmth, redness, and extreme pain of the affected area; general symptoms are fever, chills, headache and weakness. Larvae develop into adult worms in lymphatic vessels. Mosquito takes a blood meal infecting a person. Adult female worms produce microfilariae which migrate to peripheral blood (WHO, 2001).

Clinical features of lymphatic filariasis

There are acute and chronic manifestations of lymphatic filariasis. Inflammatory attacks are the most important type of acute manifestations of the disease. They are characterized by local symptoms such as swelling, warmth, redness, and extreme pain of the affected area, and general symptoms such as fever, chills, headache and weakness. Such symptoms occur in the limbs or in the scrotum, and are related to bacterial or fungal superinfection (WHO, 2001). Inflammation during the acute attack damages the tiny lymph vessels in the skin and reduces their ability to drain fluid from the skin.

Inflammation also damages the skin. As the damage is repaired, the skin becomes hard in a process known as fibrosis. With each acute attack, the skin grows harder. A vicious cycle begins as the chronic swelling predisposes the skin to bacterial infection (WHO, 2001).

The development of the disease itself in humans is still something of an enigma to scientists. Though the infection is generally acquired early in childhood, the disease may take years to manifest itself. Indeed, many people never acquire outward clinical manifestations of their infections. Even though there may be no clinical symptoms, studies have now disclosed that such victims, outwardly healthy, actually have hidden lymphatic pathology and kidney damage as well. The asymptomatic form of infection is most often characterized by the presence in the blood of thousands or millions of larval parasites (microfilariae) and adult worms located in the lymphatic system (WHO, 2001). The worst symptoms of the chronic disease generally appear in adults. Comparatively, it also appears more often in men than in women. In endemic communities, some 10-50% of men suffer from genital damage, especially hydrocele (fluid-filled balloon-like enlargement of the sacs around the testes) and elephantiasis of the penis and scrotum. Elephantiasis of the entire leg, the entire arm, the vulva, or the breast - swelling up to several times normal size - can affect up to 10% of men and women in these communities. Acute episodes of local inflammation involving skin, lymph nodes and lymphatic vessels often accompany the chronic lymphoedema or elephantiasis. Some of these are caused by the body's immune response to the parasite, but most are the result of bacterial infection of skin where normal defenses have been partially lost due to underlying lymphatic damage. Careful cleansing can be extremely helpful in healing the infected surface areas and in both slowing and, even more remarkably, reversing much of the overt damage that has occurred already (WHO, 2001).

In endemic areas, chronic and acute manifestations of filariasis tend to develop more often and sooner in refugees or newcomers than in local populations continually exposed to infection. Lymphoedema may develop within six months and elephantiasis as quickly as a year after arrival (WHO, 2001). Acute filarial attacks can occur in both amicrofilaraemics and microfilaraemics, and are common in people with chronic filarial pathology. They can be extremely painful and debilitating. Many people are confined to their houses and are unable to take part in productive activity. In some cases filarial infection markers such as filarial antigen and antifilarial antibody are absent. Two distinct syndromes cause acute attacks. The first is called acute dermatolymphangioadenitis (ADLA), which involves the development of a plaque-like lesion of cutaneous or sub-cutaneous inflammation. This may be accompanied by ascending lymphangitis and regional adenitis and typical systemic manifestation of bacteraemic such as chills and fevers are usually present. There is often oedema of the affected limb (Melrose & Goldsmid, 2005). This may completely or partially regress after the acute attack subsides but as noted above, recurrent ADLA is an important cause of chronic lymphoedema. The other syndrome is called acute filarial lymphangitis (AFL) and is believed to be the result of an immunological reaction to dead or dying adult worms that have either been killed by the immune system or chemotherapy. In contrast to ADLA, AFL presents as a distinct well-circumscribed nodule or cord and there may be local lymphadenitis with lymphangitis spreading in a centrifugal pattern that is away from the inflamed lymph node. Fever is not usually present. These lesions can be extremely painful, and if they are the result of chemotherapy, can seriously compromise future compliance. Fortunately such occurrences are rare. Both ADLA and AFL can occur in the same patient (Melrose & Goldsmid, 2005).

Chyluria, the passing of milky-coloured urine, is caused by leakage of lymph into the urinary tract. This is seen from time to time and is exacerbated by a high-fat diet and exercise. Lymphatic filariasis can present with rheumatic features and mono-arthritis of a knee or ankle joint that resolves after antifilarial treatment and is common in filarial-endemic areas, especially in children. Lymphatic filariasis has also been associated with wide spectrum of other clinical signs and symptoms by various investigators (Melrose & Goldsmid. 2005).

Lymphatic filariasis is seldom seen in casual travellers or other people with short-term exposure to the parasite because of its relatively ineffective transmission. Those who remain for longer periods in areas where transmission is intense are certainly at risk. A large number of cases occurred among American servicemen serving in the Central Pacific during World War II and other cases have occurred among other military personnel, expatriate workers, Peace Corps volunteers, missionaries, and travellers. The clinical picture is that of acute filarial disease. Microfilaraemia is extremely rare. The patient can appear with a range of signs and symptoms such as malaise, transient fevers, lymphangitis, lymphadenopathy, skin rashes, and interestingly, episodic “black moods” or even clinical depression. Chronic pathology does not develop unless the person remains in the endemic area for many years.

Lymphoedema and urogenital manifestation are chronic manifestations of the disease. Lymphoedema is due to lymphatic dysfunction caused by the presence of the adult worm. It occurs more frequently in the lower extremities, but can also affect the breast, scrotum, penis, arms and less frequently, the vulva. The chronic manifestations of lymphatic filariasis comprise haematuria (presence of blood in the urine), hydrocoele (collection of fluid inside the scrotal sac), chylocoele (presence of lymph in the cavity of the tunica vaginalis), chyluria (presence of lymphatic fluid in the urine, which gives the urine a characteristic milky aspect), and lymphoedema of the scrotum or the penis (WHO, 2001). Overall, hydrocele is the most common form of chronic Hydrocele can reduce work capacity, impair sexual activity and enjoyment, and cause severe psycho-social problems in infected males (Melrose & Goldsmid, 2005).

The most feared complications of lymphatic filariasis are chronic lymphodema and elephantiasis. In some populations, despite a high prevalence of microfilaraemia and filarial antigenaemia, filariasis is mostly cryptic disease and the number of people with elephantiasis is relatively low. For instance, the prevalence of filarial antigenaemia in many parts of Papua New Guinea is around 80% yet elephantiasis occurs only in scattered foci and is nowhere common (Melrose & Goldsmid, 2005).

The first manifestation of impending elephantiasis is transient lymphoedema which resolves with limb elevation. This is followed by persisting lymphoedema, then fibrous infiltration and thickening of the skin with fissure and ulcer formation. The changes grow steadily worse until the limb becomes grossly swollen and hideously deformed, and normal function is impossible. The evolution of filarial infection and progression to chronic lymphoedema and elephantiasis is not completely understood and is a complex interaction between transmission intensity, host and parasite immune-biology, in-uteroexposure to parasite antigens, secondary infections, and most probably host and parasite genetics. There is also an “awakening” of the previously suppressed cellular immune reactions to filarial and other antigens, but it is not clear whether the changes in the antibody profile and cellular immunity contribute to the pathology, or are the result of the pathology (Melrose & Goldsmid, 2005).What is not in dispute is the role that acute attacks caused by secondary bacterial and fungal infections play in promoting the progression to elephantiasis. Active steps to improve hygiene treat skin lesions with topical antibacterial and antifungal agents, aggressive antibiotic therapy of systemic infections, together with exercise and limb elevation can reduce the acute attacks, slow or prevent progression (Melrose & Goldsmid, 2005).

Diagnosis of lymphatic filariasis

Four methods for diagnosis are currently in use: detection of microfilariae, detection of filarial antigen (only available for *W. bancrofti*), detection of specific antibodies and ultrasonic detection of adult worms (Melrose & Goldsmid, 2005).

Until very recently, diagnosing lymphatic filariasis had been extremely difficult, since parasites had to be detected microscopically in the blood, and in most parts of the world, the parasites have a "nocturnal periodicity" that restricts their appearance in the blood to only the hours around midnight. The new development of a very sensitive, very specific simple "card test" to detect circulating parasite antigens without the need for laboratory facilities and using only finger-prick blood droplets taken anytime of the day has completely transformed the approach to diagnosis. With this and other new diagnostic tools, it will now be possible both to improve our understanding of where the infection actually occurs and to monitor more easily the effectiveness of treatment and control programmes (WHO, 2001).

Treatment of lymphatic filariasis

In communities where filariasis is endemic, the primary goal of treating the affected community is to eliminate microfilariae from the blood of infected individuals so that transmission of the infection by the mosquito can be interrupted. Recent studies have shown that single doses of diethylcarbamazine (DEC) have the same long-term (1-year) effect in decreasing microfilaraemia as the formerly-recommended 12-day regimens of DEC and even more importantly, that the use of single doses of 2 drugs administered concurrently (optimally albendazole with DEC or ivermectin) is 99% effective in removing microfilariae from the blood for a full year after treatment. It is this level of treatment effectiveness that has made feasible the new efforts to eliminate lymphatic filariasis (WHO, 2001).

In treating the individual, both albendazole and DEC have been shown to be effective in killing the adult-stage filarial parasites (necessary for complete cure of infection), but ideal treatment regimens still need to be defined. It is clear that this anti-parasite treatment can result in improvement of patients' elephantiasis and hydrocele (especially in the early stages of disease), but the most significant treatment advance to alleviate the suffering of those with elephantiasis has come from recognizing that much of the progression in pathology results from bacterial and fungal "superinfection" of tissues with compromised lymphatic function caused by earlier filarial infection. Thus, rigorous hygiene to the affected limbs, with accompanying adjunctive measures to minimize infection and promote lymph flow, results both in a dramatic reduction in frequency of acute episodes of inflammation ("filarial fevers") and in an astonishing degree of improvement of the elephantiasis itself (WHO, 2001).

Lymphatic Filariasis: Global situation

Lymphatic filariasis puts at risk more than a billion people in more than 80 countries. Over 120 million people have already been affected by it and over 40 billion are seriously incapacitated and disfigured by the disease. One-third of the people infected with the disease live in India, one third are in Africa and most of the remainders are in South Asia, the Pacific and the Americas. In the tropical and subtropical areas where lymphatic filariasis is well-established, the prevalence of infection continues to increase. A primary cause of this increase is the rapid and unplanned growth of cities, which creates numerous breeding sites for the mosquitoes that transmit the disease (WHO, 2001). In most parts of the world, the vectors are nocturnal feeders and the microfilariae exhibit nocturnal periodicity, where they are present in the blood in the greatest number around midnight. In areas such as the Central Pacific where the mosquito feeds during the day, there is a diurnal periodicity where the highest number of microfilariae occurs at midday. In some areas of Southeast Asia, a sub-periodic pattern is found, where some microfilariae are found in the blood at all times but there is a nocturnal peak (Melrose & Goldsmid, 2005).

Even though lymphatic filariasis has a long history which reaches back into antiquity, it has been a disease, which up to recent times, has been poorly understood and largely ignored by health authorities who are struggling to control what were perceived to be more important vector-borne diseases such as malaria and dengue fever. In the last two decades or so there has been a flurry of filariasis research, which has provided new insights into the global burden of filariasis, the pathogenesis and extent of filarial disease, diagnosis and control (Melrose & Goldsmid, 2005).

Lymphatic Filariasis: The African situation

Elephantiasis is relatively uncommon in Africa and is mostly found in the areas with the most intense transmission (Wijers, 1977; Evans et al., 1993). Hydrocele is the most common form of chronic Bancroftian filariasis and in parts of Africa it predominates. During the 1970s, hydrocele was said to have infected up to 70% of males along the Tanzanian coast (Wegesa et al., 1979) and 60% of males in coastal Kenya by the time they had reached age 70 years (Wijers, 1977; Estambale, Simonsen, Vennervald, Knight & Bwayo, 1994). In sub Saharan Africa, it is estimated that about 512 million people are at risk of the infection and about 28 million are already infected. Of this number, there are 4.6 million cases of lymphoedema and over 10 million cases of hydrocele. These represent about 40% of the global burden of the disease (Michael et al., 1996). The accumulation of lymph fluids leads to the chronic manifestation of LF in the extremities of the body namely elephantiasis of the upper and lower limbs. Women have been known to have infections of the breast and female genitalia but these are rare. In terms of sex differences, it has been noted that the intensity of infection and clinical disease are higher in men than in women (Brabin, 1990). Manifestation of LF begins with acute attacks (ADL) characterised by fever, general malaise, pain, tenderness and swelling. In Tanzania and Ghana, the incidence has been found to be closely associated to rainfall patterns (Gyapong et al., 1996; Gasarasi et al., 2000).

Lymphatic Filariasis: The Ghana situation

Lymphatic filariasis has become of much concern to care managers in Ghana and to the population at large, because of the grave health and socioeconomic impact of the various forms of the disease. In Ghana, the extent and distribution of the problem has not been systematically documented (Gyapong, 1996).

Lymphatic filariasis has been shown to be endemic in the rural areas of Ghana with regional variations in prevalence and disease manifestations (Dunyo, Appawu, Nkrumah, Baffoe-Wilmot, Perdeson & Simonsen, 1996). Anecdotal clinical reports also suggest that the disease is common in the northern sector of the country, as well as in some coastal communities in the Western and Central Regions. Lymphatic filariasis was known to be moderately common and widespread in the Northern territories of the then Gold Coast (Gyapong, 1996). Lymphatic filariasis was very common, especially in the Northern regions and the western part of the coastal belt since the early 1990s. The management of hydroceles in the hospitals was by hydrocelectomies, while elephantiasis was managed with antibiotics and analgesics when there is a super-infection (Gyapong, Gyapong, Weiss & Tanner, 2000). The first population-based survey of elephantiasis of the leg in

Northern Ghana in 1990 showed that out of 5846 compounds visited by trained field workers, 735 (12.6%) had at least one resident compound member with visible or reported elephantiasis of the leg (Gyapong et al., 2000). This study was initiated at the request of the Northern Regional Health Administration because of a simple observation of cases of leg elephantiasis in the market places, and also because hydrocelectomies accounted for more than 20% of all surgery done in the hospital. After this survey, two other community-based surveys were also conducted. The first one by Ministry of Health in Ghana examined all people above ten years. The second one conducted in collaboration with Danish Bilharziasis Laboratories, examined the total population. Both surveys showed an average microfilaria prevalence of 41% (Gyapong, Magnussen, & Binka, 1994). Similar studies by Dunyo et al. (1996) along the coast of Ghana, showed similar vectors and microfilaria prevalence of between 9.2 and 25.4%. Results from detailed ethnographic studies in the northern section of the country coupled with findings from the surveys mentioned above, prompted the Ministry of Health to conduct a national survey as a basis for designing a national control programme (Gyapong et al., 2000).

The national prevalence of microfilaraemia was 3.0% (95% CI 2.5-3.5%) with a regional variation of between 0.0% in Brong Ahafo and Greater Accra Regions to 20.0% in the Upper West Region. Even within the regions there was variation in the prevalence of parasitaemia. There was a trend of increasing prevalence from the 10-19 years age group (3.8%) (Gyapong et al., 2000).

Social and economic burden of lymphatic filariasis

The chronic manifestations of filariasis can have significant, and often very negative social impacts (WHO, 2002). The chronic disabling manifestations of this disease, including lymphoedema of the limbs, breasts and external genitalia, have a profoundly detrimental effect on the quality of life of affected individuals. The degree of social disability varies between cultural settings, but the degree of stigmatization appears to be directly correlated with the severity of visible disease (Evans et al., 1993). In conservative contexts, affected individuals avoid seeking treatment for fear of drawing attention to their condition (Mujinja, Gasarasi, Premji & Nguma, 1997). Failure to treat the disease results in recurrent acute febrile attacks and progressive damage to the lymphatic system. Without access to simple hygiene advice, sufferers are unable to prevent further progression of the outwardly visible complications of LF (Dreyer, Medeiros, Netto, Leal, Gonzaga de Castro & Piessens, 1999).

The World Health Organisation has estimated the burden of the disease as 4918 000 disability-adjusted life years (DALYs), the highest of all tropical diseases after malaria. Furthermore, a recent study suggests that in India alone economic losses due to lost man-days of work and decreased productivity approach US $1 billion annually (WHO, 2001) . More than 1.1 billion people, approximately 18% of the world's population, live in areas at risk of infection with lymphatic filarial parasites. Approximately 120 million people in tropical and subtropical areas of the world are infected. Of these infections, 90% are caused by *W. bancrofti* and 10% by *Brugia malayi* (limited to Asia and parts of the Pacific). Almost 25 million men suffer from genital disease (most commonly hydrocele); an estimated 15 million people, the majority of them women, have lymphoedema or elephantiasis of the leg. The magnitude of infection in children has become much better understood in recent years; indeed, most infections appear to be acquired in childhood, with a long period of subclinical disease that progresses to the characteristic overt clinical manifestations of adults. The re-evaluation of the previous underestimations of lymphatic filariasis in children will certainly play a role in redefining the global burden of the disease.

A study carried out in Northern Ghana in a rural community where filarial disease is highly endemic (41% of the population aged over ten years is microfilaraemic with *W. bancrofti* and 3% has chronic disease) showed that lymphatic filariasis can be a major social and economic burden on poor communities and that the disability and indirect economic loss (through inactivity) associated with adenolymphangitis (ADL) has previously been underestimated. The subjects of the study were members of a subsistence farming community. Treatment seeking, the costs of treatment, the burden of the disease on the community and its public health implications were investigated (Gyapong, 1996).

The direct cost of the disease on affected individuals and on productivity is grave (Ramaiah et al., 2000). The productivity of male weavers with chronic LF was found to have reduced by as much as 27.4% in the cloth weaving industry and thus reduce wage earning (Ramu, Ramaiah, Guyatt & Evans, 1996). A hydrocele operation costs US $30 representing over a month of income for the average worker in Ghana and in India, a hydrocele operation represents up to three months in wages. It has been conservatively estimated that filariasis in India, where one-third of cases occur, costs over one billion dollars each year in lost productivity. In some communities in India, 7-8% of male labour is lost because of chronic LF, primarily hydrocele (Gyapong, 2000). Young females with LF are considered poor marriage prospects because the disease's recurrent debilitating acute episodes limit their ability to perform paid and unpaid work. The costs associated with long-term health care as the disease progresses result in perceptions of these women as financial burdens (Gyapong et al., 1996). Shame and anxiety related to difficulties in conceiving children are common for LF patients around the world (Muhondwa, 1983)

Although women may have concerns about marrying men with the physical stigmata of LF, their gender roles and prevailing power structures often leave them in a relatively powerless position. In Haiti, it was found that the risk of dysfunction and unhappiness was greater in marriages where the wife had physical manifestations of filariasis (Coreil, Mayard, Louis-Charles & Addiss, 1998). This is supported by data from coastal Ghana. It was suggested that the physical and psychological burden borne by men has a negative impact on their marriage and employment prospects (Gyapong et al., 1996). The extent of male sexual disability as a result of LF has not been extensively studied, but investigators believe that there is a significant "silent burden"(Dreyer et al., 1997). It was found that hydrocele had a significant impact on young men, particularly at a time when they were struggling to establish their sexual identity and their capacity to be reliable economic providers. Unwillingness to admit to sexual dysfunction may shroud the real extent of this issue (Gyapong et al., 2000). South American researchers found a wide range of disease-related problems, including marriages without sexual activity, reports of painful intercourse in women whose partners had penile lymphoedema and suicidal thoughts of both male and female partners being attributed to the disease (Dreyer et al., 1997).

During the 1970s, it was reported that 90% of men along the Tanzanian coast and 60% in the Coastal Province of Kenya were infected by lymphatic filariasis by the age of 70 years (Wijers, 1977; Wegesa et al., 1979). Because of its prevalence often in remote rural areas, on the one hand, and in disfavoured periurban and urban areas, on the other, lymphatic filariasis is primarily a disease of the poor. In recent years, the disease has steadily increased because of the expansion of slum areas and poverty, especially in Africa and the Indian sub-continent. As many filariasis patients are physically incapacitated, it is also a disease that prevents patients from having a normal working life. The fight to eliminate lymphatic filariasis is also a fight against poverty (WHO, 2001).

Lymphatic filariasis exerts a heavy social burden that is especially severe because of the specific attributes of the disease, particularly since chronic complications are often hidden and are considered shameful. For men, genital damage is a severe handicap leading to physical limitations and social stigmatization. For women, shame and taboos are also associated with the disease. When affected by lymphoedema, they are considered undesirable and when their lower limbs and genital parts are enlarged they are severely stigmatized; marriage, in many situations an essential source of security, is often impossible (WHO, 2001).

Lymphatic filariasis is classified by the World Health Organisation as the second leading cause of permanent and long-term disability after mental illness. In addition to the physical problems, there are severe social and psychological consequences, especially in those who suffer from disfiguring complications such as elephantiasis or hydrocele. Lymphatic filariasis also has a huge economic impact upon endemic communities. In addition to the direct costs incurred in medical or surgical treatment, there are enormous indirect costs resulting from reduced work capacity and labour loss due to the frequency and severity of acute attacks and the disability due to chronic manifestations of the disease (Melrose & Goldsmid, 2005).

Lymphatic filariasis reduces the economic productivity of individuals. Economic losses result from the disability associated with acute attacks and chronic manifestations of the disease. An acute attack can result in several lost workdays and sufferers often experience multiple attacks each year. Persons with the two most common chronic disease manifestations that are hydrocele and lymphoedema generally experience lifelong decreases in productivity. Because of its prevalence, hydrocele appears to have the greater impact. In Africa, lymphatic filariasis may cause almost US $1 billion in losses each year (Haddix, Carter, Michael & Benton, 1999); 83% of this loss is due to disability in men with hydrocele.

Gyapong et al. speculate that the current estimate of 850 000 disability-adjusted life years (DALYs) lost as a result of LF was a gross underestimate (Gyapong et al, 2000). The estimates are based on an assessment of gross clinical manifestations and do not take account of the "incidence, duration and severity of acute adenolymphangitis". In particular, the estimate fails to capture the impact of disease on young people who, while not displaying clinical manifestations or physical abnormalities, may be suffering the effects of acute fever attacks. Acute episodes of adenolymphadenitis may result in school absenteeism and poor educational attainment. Chronic disease can also present in childhood and affect children’s quality of life (Witt et al., 2001).

As the disease progresses, the individual’s capacity to labour, both productively and reproductively, is increasingly hampered. It was noted that in the Haitian context, while impairment of mobility impacts upon the ability to garden or sell produce in the market, acute attacks are equally detrimental to individuals ability to support themselves and their family (Coreil et al., 1998).

The affected individual becomes too severely disabled to contribute to household labour and further burdens the household economy (Gyapong et al., 2000, Suma, Shenoy, & Kumaraswami, 2003).

Theoretical Framework: Sick-role theory

Lymphatic filariasis is one of the leading causes of disability globally, while the economic cost of working days lost through the LF illness is estimated to run into billions of dollars (WHO, 2000). Illness as a social phenomenon is of much concern to the individual as well as to the collectivity. LF has a social and economic impact on endemic communities. This is because the disease prevents patients from having a normal working life.

The functionalist perspective was used by Talcott Parsons to explain the social role of sickness by examining the use of the sick role mechanism. The concept ‘sick role’ presents a valuable contribution to understanding illness behaviours and social perceptions of sickness. Sociologists conceptualize social roles as the expected behaviours (including rights and obligations) of someone with a given position (status) in society. Generally, people hold a status (position) and perform a role (behaviours). Parsons (1951) utilized these concepts to construct a theoretical view of individuals who are sick, hence the “sick role.” This theory outlines two rights and two obligations of individuals who become sick in our society (Cockerham, 2001). The sick person has rights that allow him/her to be exempted from the performance of normal social role obligations (and is expected to reduce activities and allowed exemption from responsibility for his/her state.

The sick person is exempted from “normal” social roles. An individual’s illness is grounds for his or her exemption from normal role performance and social responsibilities. Exemption requires legitimation by the physician as the authority on what constitutes sickness. The sick person is not responsible for his or her condition. An individual’s illness is usually thought to be beyond his or her own control (Cockerham, 2001).

The sick person should try to get well. The first two aspects of the sick role are conditional upon the third aspect, which is recognition by the sick person that being sick is undesirable. Exemption from normal responsibilities is temporary and conditional upon the desire to regain normal health. Thus, the sick person has an obligation to get well (Cockerham, 2001). Illness is defined as a state of disturbances in the normal functioning of the total human individual; including both his state as a biological entity and his personal and social self. According to Parsons, participation in the social system is in fact almost always potentially relevant to the state of well-being. The normal functioning of the society is needed so health care devices are mobilized to deal with illness behaviour. The problem then of illness behaviour is intimately involved in the functional pre-requisites of society. Health as a positive entity (opposed to ill-health as a negative state) is included in the functional needs of the society; in this context a premium is placed on good health. Healthy individuals play their roles in order that society may continue to function. From the point of view of normal functioning of a society, a too low general level of health, or too high incidence of illness, is dysfunctional. This is so because illness incapacitates individuals for the effective performance of societal roles (Twumasi, 1976).

The sick person should seek technically competent help and cooperate with the physician. The obligation to get well involves a further obligation on the part of the sick person to seek technically competent help, usually from a physician. The sick person is also expected to cooperate with the physician in the process of trying to get well. The sick person must be motivated to get well as soon as possible (Cockerham, 2001).

Theoretical framework: Social Stigmatization

In sociological theory, a stigma is an attribute, behaviour, or reputation which is socially discrediting in a particular way; it causes an individual to be mentally classified by others in an undesirable, rejected stereotype rather than in an accepted, normal one (Wikipedia, 2007). Goffman described stigma as "an attribute that is deeply discrediting within a particular social interaction" His explanation of stigma focuses on the public's attitude toward a person who possesses an attribute that falls short of societal expectations. The person with the attribute is "reduced in our minds from a whole and usual person to a tainted, discounted one" (Goffman, 1963).

Goffman further explained that stigma falls into three categories namely abominations of the body (various physical deformities); blemishes of individual character; and tribal stigma of race, nation, and religion-beliefs that are transmitted through lineages and equally contaminate all members of a family (Goffman, 1963). This is supported by data from coastal Ghana. It was suggested that the physical and psychological burden borne by persons infected with the lymphatic filariasis have negative impact on their marriage and employment prospects (Gyapong et al., 1996).

According to Goffman, diseases associated with the highest degree of stigma share common attributes in that the person with the disease is seen as responsible for having the illness, the disease is progressive and incurable, the disease is not well understood among the public and the symptoms cannot be concealed (Goffman, 1963). Lymphatic filariasis exerts a heavy social burden that is especially severe because of the specific attributes of the disease, particularly since chronic complications are often hidden and are considered shameful. For men, genital damage is a severe handicap leading to physical limitations and social stigmatization. For women, shame and taboos are also associated with the disease. When affected by lymphoedema, they are considered undesirable and when their lower limbs and genital parts are enlarged they are severely stigmatized (WHO, 2001).

Stigma may also be described as a label that associates a person to a set of unwanted characteristics that form a stereotype. It is also affixed (Wikipedia, 2007). Once people identify and label your differences others will assume that is just how things are and the person will remain stigmatized until the stigmatizing attribute is undetected. A considerable amount of generalization is required to create groups. Meaning you put someone in a general group regardless of how well they actually fit into that group (Wikipedia, 2007). Women bear a double burden in societies where much of their role and identity is dependent upon marriage and the ability to give birth to children. Young unmarried women with LF may be forced to lead a reclusive existence in an attempt to hide their illness or because their limited marriage prospects make them a burden to their families (Bandyopadhyay, 1993). In West Africa, there is a general perception that children born to a woman affected by LF will be similarly affected (Amazigo, 1992). The burden is especially heavy for young women who believe that their marriage prospects are nil and they become reclusive and seldom leave their house (Rauyajin, Kamthornwachara & Yablo, 1995). In Tanzania, having filariasis is considered shameful (Muhondwa, 1983; Evans et al., 1993; Mujinja et al., 1997) and in Polynesia during the 1950s men with elephantiasis of the scrotum were considered to have a social and procreative handicap and women with elephantiasis were not considered desirable as wives (Kessel, 1957; Evans et al., 1993).

In Ghana people with mild or moderate elephantiasis are well accepted by the community but those with more advanced disease often stay at home because they feel embarrassed about their disease. Men with hydrocele are often teased behind their backs and those with chronic filariasis cannot be chosen as chiefs. Young women with filariasis usually have problem getting married because prospective husbands consider that the disease will make them unable to work and he will have the cost of paying for her treatment (Hunter, 1992; Gyapong et al., 1996). In Nigeria, filarial disease seriously hinders a girl's prospect of marriage, or if she is married the stability of the marriage and her prospect for future happiness. The unwillingness of men to marry girls with the disease is compounded by the belief that what happens to the mother will also happen to the child (Amazigo & Obikeze, 1992).

Women had similar sentiments about marrying men with filariasis but had less of a choice in the matter than men because relatives arranged many of the marriages. Mujinja et al. (1997) in a study in Tanzania, found that stigma, ostracism and discrimination of the filaria-affected, though subtle, have a significant psychological impact. Hunter (1992) records that the marriage situation differs between communities that are filarial-hyperendemic and those where the prevalence of disease is low. Men from the communities where prevalence is low avoid taking girls from the hyperendemic areas as wives. By contrast, there seems to be much less stigma attached to the disease in hyperendemic communities and men will even marry girls who are already showing signs of filariasis. Coreil et al. (1998) however, showed that although young men will take filaria-affected girls as wives, her chances of finding a good husband and marital happiness are diminished. In coastal Ghana, sufferers are subjected to teasing and considered to be unsuitable marriage partners. Those who do marry have a higher than normal divorce rate (Ahorlu et al., 1999). Coreil et al. (1998) showed that Haitian women's lives are heavily burdened both socially and economically by filariasis. Dreyer et al.

(1997) found that there is a silent burden of sexual disability associated with lymphatic filariasis among men but it is seldom acknowledged because shame and fear caused “a conspiracy of silence” surrounding the man and his partner. They found that a wide range of disease-related problems including marriages devoid of sexual activity, complaints of painful intercourse in women whose partners had lympodema of the penis, recourse to homosexuality by both male and female partners and suicidal thoughts in both sexes.

Children do not escape the social effects of filariasis either due to attacks of ADL interrupting their education or the medical/social effects of chronic pathology. Ramaiah et al. (2000) report the tragic case of a 15-year-old boy with enlarged genitals having to give up his education because of shame, embarrassment and ridicule. Other boys with hydrocele were unable to cycle or walk to school, play, or take part in sport because of scrotal pain. This actually affects productive hours in which one will have to work.

Relevance of theories to the research

In this study, the ‘sick role’ and the ‘social stigma’ concepts used to help understand the effects of lymphatic filariasis on its victims. The ‘sick role’ concept was used by Talcott Parsons, a functionalist, to explain health issues. The functionalist theory says that every individual has a specific social role to play and associated tasks must be carried out effectively, in order to assist the smooth functioning of the total system. The stability of the social system is maintained only if all the interdependent social roles are carried out, because each specific role depends on others. Parsons saw sickness as potentially disturbing influence upon the smooth operation and reproduction (Cockerham, 2001).

Labour is socially divided equally in the community. Hence when one is affected by the LF disease, one is not able to perform the normal duties or is prevented from working, bringing disequilibrium in the entire society. The society will be at a standstill because there will not be people available to perform other duties. Some duties in the society cannot be performed since the infected persons are excluded from normal duties

Erving Goffman, a social interactionalist, used the ‘social stigma’ concept to refer to any attribute that is deeply socially discrediting. He saw every society to embody models or paradigms of how a healthy, normal, whole person appears acts, feels and thinks. An attribute that causes the person to deviate from normal is a stigma. Because the attribute violates the expectations of normal behaviour or appearance, it is discrediting and negative. Deviant people are viewed as somehow responsible for their abnormality; thus their moral character is also challenged (Goffman, 1963).

Persons infected by LF are seen as deviants because their situation is seen as a violation of the norms and social expectations. The theory will help to identify whether the affected persons are discriminated against in terms of work, marriage, education and use of social amenities in the community. Some of the affected persons hide their disease because their self–esteem will be lowered if others get to know of it. This poses a problem to the society. Looking at it from the point of view of my study, the affected person might go through such stigmatization.

The ‘sick role’ and the ‘social stigmatization’ concepts as discussed have much relevance to discrimination and exemption from “normal” social roles by Persons Living with lymphatic filariasis and prevent social interaction because the infected persons are expected to manage their uncomfortable and difficult emotions that may arise.

CHAPTER THREE

METHODOLOGY

Introduction

This chapter gives a description of the study area. It also presents the data collection methods used, study population, data analysis and sampling techniques. The need for the methodology is to explain how and why the fieldwork was organized. Various data collection methods were adopted in order to obtain reliable data and achieve the stated objectives of this study. This entailed primary and secondary sources of data collection.

Study area

The study was conducted at Ekumfi Narkwa in the Mfantseman Municipality of the Central Region of Ghana. Mfantseman Municipality is located along the Atlantic coastline of the Central Region of Ghana and extends from latitudes 5^{o} 7’ to 5^{o} 20’ North of the Equator and longitudes 0^{o} 44’ to 1^{o} 11’ West of the Greenwich Meridian, stretching for about 21 kilometres along the coastline and for about 13 kilometres inland and constitutes an area of 612 square kilometres. The District capital is Saltpond. The District is bounded to the West and Northwest by Abura-Asebu-Kwamankese District, to the North by Ajumako Enyan Essiam District and Assin South District, to the East by Gomoa District and to the South by the Atlantic Ocean.

The Mfantseman Municipality with its proximity to the Atlantic Ocean has mild temperatures, which range between 24^{o} C and 28^{o}C. It has a relative humidity of about 70 per cent. The district experiences double maxima rainfall with peaks in May-June and October. Annual totals of rainfall range between

90 cm and 110 cm in the Coastal Savanna areas and between 110 cm and 160 cm in the interior close to the margin of the forest zone. The periods December-February and July to early September are much drier than the rest of the year.

The vegetation of the municipality consists of dense scrub tangle and grass, which grow to an average height of 4.5 m. It is believed that the Municipality was once forested, but has been systematically destroyed through centuries of bad environmental practices such as bush fires and deforestation, among others. However, pockets of relatively dense forest can be found around fetish groves and isolated areas.

These physical characteristics have combined effectively to offer opportunities in agriculture (farming and fishing) to the people. The proximity to the sea has made fishing a major activity for the coastal towns and villages which are Biriwa, Saltpond, Otuam, Abandze and Kormantse.

Furthermore, the effective interactions among climate, soils and rivers/streams have made farming possible, especially in the inland areas. Among the crops cultivated are cocoa, oil palm, pineapple, orange, plantain, cocoyam and coconut. Also significant are the exploitation of kaolin for building, ceramic material, talc, granite and silica. These led to the establishment of the now defunct Saltpond Ceramics Factory. The municipality also has oil deposits, which are being explored off the coast of Saltpond.

According to the 2000 Population and Housing Census Report, the district has a total population of 152,264 comprising 69,670 males and 82,594 females and these are to be found in 168 settlements. The district population constitutes almost 7% of the Central Region population and relating it to the 1984 Census and the various intermediate extrapolations of the annual rate of population growth is estimated as 2.8%. About 2.4% of the population lives in areas classified as urban. Saltpond, the municipal capital, has a population of 16,212, approximately 10.6% of the total population. Mankessim, the largest town by population, is also an important commercial centre.

Rivers like Ochi and Narkwa as well as lagoons dotted along the coast of the municipality are polluted mainly from human activities like washing, bathing, burning, farming and dumping of solid and liquid waste.

Farming and fishing constitute the main economic activities of the municipality, employing about three-quarters of the total workforce. Farming is done in almost all parts of the district.

The Municipal Health Directorate has divided the entire Municipal Assembly into seven sub-districts (zones) for easy health administration. The study was conducted in the Narkwa community of the district because of the high prevalence of the disease in the community, and that according to the 2000 population and housing census, the community has a total population of five thousand, eight hundred and fifty-nine people (5,859). It is made up of two thousand, seven hundred and twenty-one males (2,721) and three thousand, one hundred and thirty-eight (3,138) females.

According to the records from the Municipal Health Directorate, the disease is prevalent in the entire Municipality especially communities along the Atlantic Ocean. Narkwa was selected because of its closeness to the Atlantic Ocean. According to Dunyo et al., frequent reporting of elephantiasis from the Western part of the coastal zone of Ghana prompted them to carry out a detailed survey of lymphatic filariasis along the coast of Ghana.

Research Design

The study was basically a descriptive research. A descriptive study was chosen because it is designed to gain more information about characteristics within a particular field of study with the purpose of providing a picture of situations as they naturally occur (Burn & Grove, 1995).

The research problem as stated in this work does not lend itself to an experimental or quasi-experimental design. This is because human characteristics and behaviours are inherently not subjected to experimental manipulation; it will also not be ethical to manipulate the respondents' knowledge (Pilot & Hungler, 1995). Data on the social and economic effects of the lymphatic filariasis on infected persons was collected. The quantitative aspect was used to design a questionnaire, which was administered to both infected and uninfected persons in the community. A questionnaire was used to get information on how people living with lymphatic filariasis are stigmatised and discriminated against. Specific issues discussed included terms used to describe filariasis, demographic characteristics of respondents, perceptions of the causes, signs and symptoms, mode of transmission, treatment, prevention and management, impact of lymphatic filariasis on social and economic life.

The study made use of primary data from the field and secondary data from books, journals, published and unpublished literature and internet sources.

Study population

The population for the study included persons infected by the disease and uninfected persons in the Narkwa community. The target population comprised both males and females aged 18 and above in the Narkwa community who were three thousand and four (3,004). A statistical table recommended for the selection of sample sizes for a population was used in selecting the sample size for this study (Orcher, 2003). Based on the statistical table adapted from Krejcie et al (1970) by Orcher (2003), three hundred and forty-one (341) respondents were interviewed.

Sample and sampling technique

The study used two sampling techniques. These are the purposive sampling and the simple random sampling techniques. Purposive sampling technique was used in the selection of seventy (70) infected persons including forty-one (41) males and twenty-nine (29) females. Purposive sampling means selecting units of analysis that have vital information with the population (Kumekpor, 2002). The infected individuals in the study area were located and interviewed with structured questionnaire through their house numbers collected from a clinic in the community.

A simple random sampling was used in the selection of the uninfected persons interviewed. The two hundred and seventy-one (271) uninfected respondents were randomly selected from the community. The respondents were selected by assigning numbers to all households of uninfected persons on pieces of papers and have them placed in a bowl. The numbered papers were mixed up in the bowl. After mixing them up, the two hundred and seventy-one (271) households were selected out of nine hundred and seventy-six (976) households obtained after the numbering. The corresponding households were visited and respondents interviewed.

Methods of Data Collection

Interview schedules were used in collecting the data. The interview schedules essentially constituted the use of both closed and semi-structured questions. Closed-ended questions were framed in such a way that they provided a number of possible answers for the respondent to select from. They were easy to handle, quick to analyse and less cumbersome. They were suitable for the type of issues clear-cut categories and could be identified by the respondent to make his/her own choice.

Both primary and secondary data were collected. Primary data collected involved quantitative data. Interview schedules were administered to the infected and uninfected persons in the community. The respondents were interviewed by the researcher and the answers were then ticked. The interview questions were expected to deal with the research questions. The administration of the questionnaires was carried out by the researcher himself. The researcher briefed the respondents on how to answer the questionnaire. The interviews were conducted in the local language for both literate and the non-literates respondents. Before the interviews began, a meeting was held with the community members to explain the purpose for the study.

Secondary data constituted books, journals, published and unpublished literature and internet sources. The essence was to review literature about the disease and its effect on the socio-economic activities of the affected persons. The literature reviewed served both as theoretical and empirical base for the analysis of the data collected. It also supplemented the information gathered during the fieldwork.

Pre-test

Biriwa community, which has similar characteristics like Narkwa community, was used as the place for pre-testing the interview schedules. The pre-testing was conducted before the actual data collection exercise. This enabled the researcher to make the necessary corrections in order to obtain a more reliable result before the actual collection and also to ascertain the reactions of respondents to the questions.

Data analysis

All interview schedules were manually checked in the field and all discrepancies sorted out before data entry to ensure good quality data. To make computer analysis of the data easy to carry out, the data collected were coded. After the coding, the data were entered into the computer using the Statistical Product and Service Solutions (SPSS) software version 16. The data entered were printed out and cross-checked with the data on the questionnaires and errors that occurred during data entry were corrected. The data were analysed from the standpoint of frequencies and percentages to describe respondents’ contribution.

CHAPTER FOUR

RESULTS AND DISCUSSION

Introduction

This chapter is devoted to the analysis of the responses from the respondents under study and discussion of the findings. Tables are provided to illustrate and support the findings. The results are divided into two parts. The first section looks at the demographic characteristics of the respondents and the second section is on the causes and effects of lymphatic filariasis. The understanding of the background characteristics of the respondents is necessary for the analysis.

Background Characteristics of Respondents

Sex and Age distribution of respondents

From the data gathered, it shows clearly that more men than women were infected by the Lymphatic filariasis disease. Out of the 70 infected persons interviewed, 41 persons were males and 29 females.

The age of a person has a great influence on a person’s ability to partake in economic activities in a community. Age is very important in the disease development. The lymphatic filariasis disease manifests itself when one advances in age. The data in Table 1 shows that 30% of the infected persons were within the age bracket of 20-29years, 22.8% in the age bracket of 30-39 years and 18.6% fell within the age bracket of 40-49 which falls within the active group in the community.

The Table 1 indicates that 271 uninfected respondents were interviewed including 95 males and 176 females. Majority (35.1%) of the respondents interviewed were within the age brackets of 20-29 years, 25.8% in the age brackets of 30-39 years, 10.0% in the age brackets of 40-49 years and 11.4% fell within the age bracket of 50-59 years.

Table 1: Sex and age distribution of respondents

Characteristics	Infected persons			Uninfected persons		
	Male (N=41)	Female (N=29)	Total (N=70)	Male (N=95)	Female (N=176)	Total (N=271)
Age Group						
< 20	9.7	-	5.7	8.4	8.5	8.5
20- 29	29.3	31.0	30.0	34.7	35.2	35.1
30-39	12.2	37.9	22.8	26.3	25.6	25.8
40-49	17.1	20.7	18.6	14.8	7.4	10.0
50-59	14.6	10.4	12.9	7.4	13.6	11.4
60 +	17.1	-	10.0	8.4	9.7	9.2

Source: Fieldwork, 2008

Marital Status, Ethnicity and Religion of respondents

Marriage is a social institution. It re-organises society, leading to the formation of kinship ties and membership in descent groups. Marriage leads to the creation of new and entrenchment of old social relationships. When a man and a woman are joined in marriage, their respective families become affinal relatives automatically. It is, therefore, an institution through which kinship ties are both established and extended (Nukunya, 1992). Horn (1994) cited Robertson who posits for Ghana that, ‘Marriage is not a choice but a social necessity”. Children who are the product of such marriage are very useful in times of need, especially when one is old. For they usually take over responsibilities of the household chores when the parents are sick or old.

From Table 2, it can be seen that 74.3% of the infected persons were married and still with their spouses, 20.0% of the respondents were single, 4.3% have been divorced and 1.4% widowed.

The Table 2 indicates that 67.1% of the respondents were Akans and 32.9% were Ewes. Of the infected persons, 57.1% were Christians, 8.6% were Moslems and 34.3% belonged to the African traditional religion.

Majority (70.5%) of the uninfected respondents mentioned that they were married, 24.7% mentioned that they were single, 4.4% were divorced and 0.4% widowed. Seventy-one percent of the uninfected respondents were Akans and 29.5% were Ewes.

Uninfected respondents representing 69.7% were Christians, 25.1% were Moslems and 5.2% of the respondents belonged to the African traditional religion.

Table 2: Marital Status, Ethnicity and Religion of respondents

Characteristics	Infected persons	Uninfected persons

	Male (N=41)	Female (N=29)	Total (N=70)	Male (N=95)	Female (N=176)	Total (N=271)
Marital status:						
Single	26.8	10.4	20.0	9.5	33.0	24.7
Married	65.9	86.2	74.3	90.5	59.7	70.5
Divorced	7.3	-	4.3	-	6.8	4.4
Widowed	-	3.4	1.4	-	0.5	0.4
Ethnicity:						
Ewe	39.0	24.1	32.9	20.0	34.7	29.5
Akan	61.0	75.9	67.1	80.0	65.3	70.5
Religion:						
Christianity	61.0	51.7	57.1	66.3	71.6	69.7
Islam	9.7	6.9	8.6	4.2	5.7	5.2
African traditional religion	29.3	41.4	34.3	29.5	22.7	25.1

Source: Fieldwork, 2008

Educational levels and Occupation of respondents

Education gives the individual the opportunity to have access to formal, government and white collar jobs.

Table 3: Educational levels and Occupation of respondents

Characteristics	infected persons			Uninfected persons		
	Male (N=41)	Female (N=29)	Total (N=70)	Male (N=95)	Female (N=176)	Total (N=271)
Educational status						
No education	34.1	20.7	28.6	22.1	39.2	33.2
Primary	39.0	34.5	37.1	35.8	32.4	33.6
JHS	22.0	34.5	27.1	28.4	25.6	26.6
Secondary/post-secondary	4.9	10.3	7.1	13.7	2.8	6.6
Occupation						
Farming	51.2	58.6	54.2	37.9	58.0	50.9
Teaching	7.3	-	4.3	7.4	4.0	5.2
Fishing industry	31.7	10.4	22.8	32.6	15.9	19.1
Trading	-	31.0	12.9	-	21.0	13.7
Students	4.9	-	2.9	5.3	1.1	2.6
Masonry	4.9	-	2.9	16.8	-	5.9

Source: Fieldwork, 2008

The individual is able to acquire all the necessary skills to read, write, record and seek vital information from different sources. It can be seen from Table 3 that 37.1% of the infected persons had education up to primary level while 7.1% had completed secondary school.

Majority (54.2%) of the infected persons were into farming while 2.9% each represented students and masons.

Respondents’ knowledge and misconceptions about the causes of the lymphatic filariasis

The knowledge of the life cycle and epidemiology of lymphatic filariasis provide the theoretical basis for the options for control of infection and the disease (McMahon & Simonsen, 1996). This analysis focuses on the knowledge levels of the infected persons about lymphatic filariasis. People thought that elephantiasis was caused by sorcery, juju and stepping on spells cast during war dances, stepping on herbs or standing for a long time in rivers and streams. In extreme cases, men give it to their wives so that other men will not be attracted to them.

In the case of hydrocele, the belief was that it could be hereditary or caused by eating too many sweet things and drinking sweet drinks like palm wine or even too much cycling. Apart from that, fever that was not treated properly could settle in the scrotum leading to a hydrocele (Evans et al, 1993, Gyapong et al., 1996, Ramaiah et al., 1996, Amuyunzu, 1997, Ahorlu et al., 1999). Fifty-seven percent of the infected persons assigned the cause of lymphatic filariasis disease to mosquito bites.

Similarly, 46.9% of the uninfected persons mentioned mosquito bites as the cause of the lymphatic filariasis disease while 12.2% females of the uninfected persons mentioned a curse as the cause of the disease as illustrated in Table 4.

Table 4: Respondents' knowledge and misconceptions about the causes of lymphatic filariasis

Causes	Infected persons			Uninfected persons		
	Male (N=41)	Female (N=29)	Total (N=70)	Male (N=95)	Female (N=176)	Total (N=271)
Mosquito bites	56.1	58.6	57.1	45.3	47.7	46.9
Stepping on juju	14.6	13.8	14.3	23.2	19.9	21.0
Through curse	12.2	-	7.1	-	12.2	8.1
Poor sanitation	9.8	6.9	8.6	7.4	10.2	9.2
Do not know	7.3	20.7	12.9	24.2	9.7	14.8
Total	100.0	100.0	100.0	100.0	100.0	100.0

Source: Field work, 2008

Majority of the infected persons were not aware of the mode of transmission of the disease. Ninety-six percent of the infected persons did not think that the disease would be transmitted from one person to another; 1.4% thought the disease would be transmitted from one person to another and the remaining 2.9% were uncertain.

Respondents' knowledge and misconception about the signs and symptoms of lymphatic filariasis

The respondents' knowledge of the symptoms of the disease confirms the claims by World Health Organisation (2001) which reported that local symptoms of acute attack are swelling, warmth, redness, and extreme pain of the affected area; general symptoms are fever, chills, headache and weakness (WHO, 2001). Ninety-seven percent of the infected persons were mostly concerned about the pains associated with the disease. Ninety-six percent mentioned chills, 97.1% mentioned swellings, 94.3% said the symptom was functional impairment, 58.6% mentioned physical appearance of the lymphatic filariasis disease, 94.3% mentioned physical discomfort and 5.7% did not mention any of the symptoms of the disease as shown in Table 5. This could be that they were shy to mention the problems that they were experiencing or did not know anything about it.

The uninfected respondents also had a lot of knowledge about the signs and symptoms of the disease as illustrated in Table 5. Ninety-two percent of them mentioned fever attacks on infected persons as the condition that was of concern to them, 79.3% mentioned chills associated with the disease, 96.3% mentioned pains, 96.3% mentioned swellings, 92.6% mentioned functional impairments, 52% mentioned appearance, 92.6% mentioned physical discomfort and 9.2% of the respondents did not know of any symptoms of concern.

Table 5: Respondents' knowledge and misconception about the signs and symptoms of lymphatic filariasis

Signs and symptoms	Infected persons			Uninfected persons		
	Male (N=41)	Female (N=29)	Total (N=70)	Male (N=95)	Female (N=176)	Total (N=271)
Fever	95.1	93.1	94.3	93.7	90.9	91.8
Chills	80.5	93.1	85.7	93.7	71.6	79.3
Pain	95.1	100.0	97.1	100.0	94.3	96.3
Swellings	95.1	100.0	97.1	100.0	94.3	96.3
Functional Impairment	90.2	100.0	94.3	100.0	88.6	92.6
Appearance	39.0	69.0	58.6	49.5	53.4	52.0
Physical discomfort	90.2	100.0	94.3	100.0	88.6	92.6
Do not know	-	13.8	5.7	-	14.2	9.2

Source: Field work, 2008 (Multiple choice)

Living with lymphatic filariasis

The infected persons would live with the lymphatic filariasis throughout their entire life. There are acute and chronic manifestations of lymphatic filariasis (WHO, 2001). The lymphatic filariasis has been identified as one of the leading causes of permanent and long-term disability in the world (WHO, 1995). This assertion was confirmed by the respondents. For instance, 50% of the infected respondents mentioned that they had lived with the disease for 5-10 years, 37.1% of the infected respondents had lived with the disease for 11-15 years while 12.9% infected respondents had lived with it for 16 -20 years as illustrated in Table 6.

Table 6: Living with the disease

Number of years	Male (N=41)	Female (N=29)	Total (N=70)
5-10 yrs	51.2	48.3	50.0
11-15 yrs	36.6	37.9	37.1
16-20 yrs	12.2	13.8	12.9
Total	100.0	100.0	100.0

Source: Fieldwork, 2008

Respondents' understanding of prevention and management of lymphatic filariasis

The transmission of lymphatic filariasis can be controlled by reducing the vector population with insecticides and/or through environmental management (McMahon & Simonsen, 1996). Majority of the affected persons representing 82.9% mentioned that the disease could be prevented but 17.1% did not believe that it could be prevented.

Some of the ways to prevent the disease in the community include sleeping under mosquito nets; taking medication; keeping the environment clean, and spraying the surroundings with insecticides. Table 7 gives details of the responses regarding prevention of LF. Top on the list of prevention strategies identified by the infected persons is sleeping under mosquito nets.

Table 7: Respondents' understanding of prevention and management of lymphatic filariasis

Prevention of disease	Infected persons			Uninfected persons		
	Male (N=41)	Female (N=29)	Total (N=70)	Male (N=95)	Female (N=176)	Total (N=271)
Sleeping under mosquito nets	90.2	75.9	84.3	63.2	89.8	80.4
Taking the drugs	51.2	24.1	40.0	42.1	69.3	59.8
Keeping the environment clean	56.1	24.1	42.9	32.6	73.3	59.0
Spraying with insecticides	51.2	10.3	34.3	13.7	69.3	49.8

Source: Fieldwork, 2008 (Multiple Choice)

Eighty-four percent of the infected persons thought that sleeping under mosquito nets could help to prevent the disease. Similarly 40.0% thought that 'taking medication' could prevent the disease, 42.9% thought the disease could be prevented by keeping the environment clean and 34.3% thought the disease could be prevented in the community through spraying with insecticides.

The uninfected persons had knowledge on how the disease could be prevented in the community, 80.4% supported the claimed by majority of infected persons that the disease can be prevented by sleeping under the mosquito nets, 59.8% mentioned taking of medication, 59% mentioned environmental cleanliness as a means by which the disease could be prevented and 49.8% mentioned insecticides spraying as a means by which the disease could be prevented as illustrated in Table 7.

Sources of help for Persons Infected by lymphatic filariasis

According to all the infected respondents, they had been seeking help for their illness. The relief came from various sources including relatives (24.3%); friends (24.3%); health workers (88.6%); and traditional healers (91.4%), from the drug stores or chemical shops (87.1%), health centres (88.6%), hospitals (88.6%) in the region and from the private medical practitioners (24.3%). Female respondents (93.1%) mentioned traditional healers and the hospitals as the sources where they obtain support.

The uninfected respondents agreed to the various sources from which help could be obtained. These included relatives (37.3%), friends (37.3%), health workers (85.6%), traditional healers (90%), drug stores or chemical shops (83.4%), health centres (86%), hospitals (84.5%) and private medical practitioners (36.5%).The sources of support for Persons Infected by LF have been illustrated in Table 8.

Table 8: Sources of help for Persons Infected by lymphatic filariasis

Sources of help	Infected persons			Uninfected persons		
	Male (N=41)	Female (N=29)	Total (N=70)	Male (N=95)	Female (N=176)	Total (N=271)
Relatives	39.0	3.4	24.3	7.4	53.4	37.3
Friends	39.0	3.4	24.3	7.4	53.4	37.3
Health Workers	90.2	86.2	88.6	86.3	85.2	85.6
Traditional Healers	90.2	93.1	91.4	92.6	88.6	90.0
Drug Stores/Chemists	90.2	82.8	87.1	78.9	85.8	83.4
Health centre	90.2	86.2	88.6	86.3	85.8	86.0
Hospitals	85.4	93.1	88.6	93.7	79.5	84.5
Private medical practitioners	34.1	10.3	24.3	18.9	46.0	36.5

Source: Fieldwork, 2008 (Multiple Choice)

Majority of the respondents who have been infected by the disease representing (60%) gave hospitals as the first point of call by the infected persons. This is followed by health centres (12.9%), traditional healers (8.6%), drug stores/chemists (7.1%), relatives (4.3%), health workers (4.3%), private practitioners (2.8%) and friends (2.8%). The uninfected persons representing 46.6% mentioned the hospitals as the first point of call, 17.7% mentioned the health centres, traditional healers (12.9%), relatives (9.2%), Health workers (5.9%), friends (5.2%) and drug store//chemist (4.4%). The infected respondents (100%) cited convenience, affordability, family's choice and healer's reputation as some of the reasons for choosing these sources of support.

Respondents' knowledge and misconception about the cure for lymphatic filariasis

Majority of the infected respondents were confident that their condition can be helped. This is borne out by the fact that 84.3% of them thought that complete cure was possible, 10% thought complete cure was impossible and 5.7% could not give any concrete response.

Table 9: Respondents' knowledge and misconception about the cure for lymphatic filariasis

Cure for condition	Infected persons			Uninfected persons		
	Male (N=41)	Female (N=29)	Total (N=70)	Male (N=95)	Female (N=176)	Total (N=271)
Yes	85.4	82.8	84.3	74.7	78.4	77.1
No	9.7	10.3	10.0	19.0	12.5	14.8
Uncertain	4.9	6.9	5.7	6.3	9.1	8.1
Total	100.0	100.0	100.0	100.0	100.0	100.0

Source: Fieldwork, 2008

The perception that cure could be sought for the lymphatic filariasis disease was confirmed by the majority of the uninfected persons as 77.1% of the respondents stated that complete cure could be found for the disease, 14.8% did not think that complete cure could be found for the disease and 8.1% were uncertain whether the disease could be cured or not as illustrated in Table 9.

Payment for treatment of Persons Infected with lymphatic filariasis

Surgical operation was known by the community members in the Ahanta West District of the Western Region of Ghana to be the definitive treatment for hydrocele, but factors such as fear of impotence and/or sterility, death and financial cost prevented the majority of patients from taking advantage of the facility (Ahorlu et al., 2001). The cost has prevented a lot of people from going for the surgery. In India, where one-third of the cases of lymphatic filariasis can be found, over 10 million people each year seek treatment for the disease. The total annual treatment costs borne by individuals including medicines, doctors's fees and travel, companion and accommodation, exceed US $30 million (Ramaiah et al., 2000). Gyapong estimated that in a hospital in Northern Ghana as much as 25% of all surgery is for hydrocele (Gyapong, 1996). Majority of infected respondents representing 68.6% made personal payment for the treatment of lymphatic filariasis, 18.6% had their treatments paid for by their family/ relatives and the remaining 12.8% had their treatments paid for by their friends as illustrated in Table 10.

Table 10: Payment for treatment of Persons Infected with lymphatic filariasis

Payment for treatment	Male (N=41)	Female (N=29)	Total (N=70)
Self	75.6	58.6	68.6
Family/relative	19.5	17.3	18.6
Friends	4.9	24.1	12.8
Total	100.0	100.0	100.0

Source: Fieldwork, 2008

Impact on Social and Economic Life of Infected Persons

Patients infected by elephantiasis or hydrocele are often victims of societal discrimination, and the disease impairs their educational and employment opportunities, marriage prospects, and sexual life. Case-control studies in India revealed that affected individuals are 27 percent less productive than their uninfected counterparts (Ramu et al., 1996). The patients work less and often switch to lighter jobs, leading to a loss of more than 1 billion person-days per year in India alone (Ramaiah et al., 2000). The study carried out in Northern Ghana in a rural community where filarial disease is highly endemic showed that lymphatic filariasis can be a major social and economic burden on poor communities and that the disability and the indirect economic loss (through inactivity) associated with adenolymphangitis (ADL) has previously been underestimated (Gyapong, 1996).

As stated earlier, Goffman saw every society to embody models or paradigms of how a healthy, normal, whole person appears, acts, feels and thinks. An attribute that causes the person to deviate from normal is a stigma.

Because the attribute violates the expectations of normal behaviour or appearance, it is discrediting and negative. Deviant people are viewed as somehow responsible for their abnormality; thus their moral character is also challenged (Goffman, 1963).

Majority of the infected respondents representing 67.1% stated that lymphatic filariasis kept them away from going out from their homes when they had acute attacks. The rest of infected respondents representing 32.9% stated that the disease did not keep them away from going out from their homes and to their work places when they had acute attacks. Lymphatic filariasis is rarely fatal, but the clinical manifestations have a devastating effect on infected persons because of the concomitant physical disability and reduced work capacity. Many patients furthermore face social and psychological problems (Ahorlu et al., 1999).

Effects of lymphatic filariasis on daily work of Persons Infected by lymphatic filariasis

There are two farming seasons in the year and during these periods and it is important that the infected persons work hard to maximize effort and productivity. People who have lymphatic filariasis are at a great disadvantage because they easily get tired. As shown in Table 11, 92.9% of the infected persons had stopped working as a result of contracting the disease. All the infected respondents had changed jobs, 95.7% had their work activity altered and 97.1% were working for fewer hours a day. This supports the arguments of the sick role theory which states that the individuals may refuse their normally allotted role either because they are sick, or because they choose not to perform it (Cockerham, 2001). The sick person has rights that allow him/her to be exempted from the performance of normal social role obligations.

Majority of the uninfected persons representing 90.8% observed stoppage of work by the infected persons because of the disease, 98.2% mentioned that they had changed jobs, 97% confirmed that the disease had altered the activities of the infected persons and 96.3% claimed that the infected persons worked for fewer hours.

As a result of the disease, psychologically 95.7% of the infected persons felt bad about their condition. All of infected persons mentioned that since they were infected by the disease they had lost their dignity and it had also brought fear, worry and sadness to them. The infected respondents claimed that since they were infected by the lymphatic filariasis disease, they had not been able to work as hard as they used to. This, they said, had reduced their family income. The increase in the number of times that they attended the health centres for care had affected the family budget. With the disease, they were not able to do domestic chores as expected. They were at the mercies of others in the family or in the community.

Table 11: Effects of lymphatic filariasis on daily work of Persons Infected by lymphatic filariasis

Effect on daily life	Infected persons	Uninfected persons

	Male (N=41)	Female (N=29)	Total (N=70)	Male (N=95)	Female (N=176)	Total (N=271)
Stopped work	95.1	89.7	92.9	86.3	93.2	90.8
Changed jobs	100.0	100.0	100.0	98.9	97.7	98.2
Altered activity	87.8	100.0	95.7	98.9	96.0	97.0
Work few hours	95.1	100.0	97.1	100.0	94.3	96.3

Source: Fieldwork, 2008 (Multiple choice)

Effect of lymphatic filariasis on schooling/ educational opportunities

Persons with disability as well as able-bodied persons have the right to education without discrimination. It is the will of the Government to educate all persons in the country. The Government of Ghana is offering free compulsory basic education to the people of school going age. The disease prevents people from taking advantage of this opportunity.

A study of the effect of lymphatic filariasis on school children in India found that ADLA led to frequent absenteeism and impaired performance (Ramaiah et al., 2000). As reported earlier the 15-year-old boy with enlarged genitals in India had to give up his education because of shame, embarrassment and ridicule (Ramaiah et al., 2000). Acute episodes of adenolymphadenitis may result in school absenteeism and poor educational attainment (Witt et al., 2001). The responses given by the infected persons in the study support the assertions in the literature. All the infected respondents stated that they were frequently absenting themselves from school because of teasing. This impaired their performance resulting in failure in school and as a result of this they stopped schooling. Majority of the infected respondents representing 94.3% claimed that the lymphatic filariasis disease forced them to leave school, 14.3% stated that they were refused admission in other schools and 31.4% mentioned that they had changed schools. This supports the assertion of Goffman (1963) that stigmatized individuals may withdraw from social interaction or may forge a group identity to fight against a stigma and an alternative ideology to ‘abnormality’.

The uninfected persons supported the infected persons and 98.5% of them mentioned that the infected persons had stopped school because of the disease. All the infected persons frequently absented themselves from school, 97.4% of them fail their examinations at school, performance of all infected persons were impaired, 19.9% of them were refused admission and 91.9% of them were forced to leave school because of the disease. Forty-seven percent of the respondents mentioned that the infected persons changed schools. They also absented themselves frequently from schools as illustrated in Table 12.

Table 12: Effects of lymphatic filariasis on schooling/ educational opportunities

Effect on schooling	Infected persons			Uninfected persons		
	Male	Female	Total	Male	Female	Total

	(N=41)	(N=29)	(N=70)	(N=95)	(N=176)	(N=271)
Stopped school	100.0	100.0	100.0	96.8	99.4	98.5
Frequent absence from school	100.0	100.0	100.0	100.0	100.0	100.0
Failure in school	100.0	100.0	100.0	98.9	96.6	97.4
Impaired performance	100.0	100.0	100.0	100.0	100.0	100.0
Admission refused	14.6	13.8	14.3	24.2	17.6	19.9
Forced to leave school	95.1	93.2	94.3	93.7	90.9	91.9
Changed schools	48.8	6.9	31.4	16.8	63.6	47.2

Source: Fieldwork, 2008 (Multiple choice)

Reasons of Persons Living with lymphatic filariasis for staying away from social functions

As mentioned in the earlier, in Ghana people with mild or moderate elephantiasis are well accepted by the community but those with more advanced disease often stay at home because they feel embarrassed about their disease. Men with hydrocele are often teased behind their backs and those with chronic filariasis cannot be chosen as chiefs (Gyapong et al., 1996).

Majority of the infected persons (97.1%) said they conceal their disease by the way they dressed for fear of being stigmatized. Only 2.9% of them said they did not conceal their disease.

As illustrated in Table 13, all the infected persons said that they felt personally uncomfortable anytime they attended social functions such as funerals, durbars and rallies of political parties; 91.4% mentioned that they made others uncomfortable anytime they attended social functions due to stigmatization and discrimination and 25.7% said that it was their family decision to stay away from social functions. However, 15.7% of the respondents mentioned that the decision to stay away from social function was unrelated to lymphatic filariasis.

All the uninfected persons claimed that the infected persons stayed out of social functions because they thought the infected persons felt uncomfortable among people and 86.0% thought they made others uncomfortable. The rest of them (23.2%) thought their staying away was unrelated to lymphatic filariasis. As a result of the disease, people made fun of the infected persons as stated by 97.1% of them while 2.9% of them stated that they were not mocked. All the infected persons stated that people make fun of them behind their back but were later informed by loved ones or other people in the community. The behaviour of the people in the community made them feel very uncomfortable. In addition, 85.7% of infected persons claimed that some people make fun of them in their presence.

Table 13: Reasons of Persons Living with lymphatic filariasis for staying away from social functions

Reasons for staying away	infected persons			Uninfected persons		
	Male (N=41)	Female (N=29)	Total (N=70)	Male (N=95)	Female (N=176)	Total (N=271)
Personally uncomfortable	100.0	100.0	100.0	100.0	100.0	100.0
Others uncomfortable	95.1	86.2	91.4	76.8	90.9	86.0
Family decision	39.0	6.9	25.7	11.6	53.4	38.7
Unrelated to filariasis	26.8	-	15.7	-	35.8	23.2

Source: Field work, 2008 (Multiple choice)

Lymphatic filariasis disease and its impact on marriage

The burden of the lymphatic filariasis disease is especially heavy for young women who believe that their marriage prospects are nil and they become reclusive and seldom leave their house (Rauyajin et al., 1995). In Tanzania, having filariasis is considered shameful (Muhondwa, 1983; Evans et al., 1993; Mujinja et al., 1997) and in Polynesia during the 1950s men with elephantiasis of the scrotum were considered to have a social and procreative handicap and women with elephantiasis were not considered desirable as wives (Kessel, 1957; Evans et al., 1993). In coastal Ghana infected persons are subjected to teasing and considered to be unsuitable marriage partners. Those who do marry have a higher than normal divorce rate (Ahorlu et al., 1999). All the infected persons mentioned that the disease had infected their marriages. The reasons they gave were that they had lost the respect of their partners and were usually threatened with divorce.

As shown in Table 14, 98.6% of the infected persons mentioned that their spouses had moved away from their matrimonial homes and were now staying with their parents or in the family houses due to their disability. Forty-four percent of them stated that they were accused of infidelity when they were not able to meet the sexual demand of their spouses.

The uninfected respondents (94.8%) mentioned that the infected persons had been quarrelling with their spouses and had been experiencing spousal desertion. Sixty-five percent of them mentioned that the spouses of infected persons especially those with hydrocele accused them of infidelity because they refused them sex.

Table 14: Lymphatic filariasis disease and its impact on marriage

Impact on marriage	Infected persons			Uninfected persons		
	Male (N=41)	Female (N=29)	Total (N=70)	Male (N=95)	Female (N=176)	Total (N=271)

Quarrels	95.1	100.0	97.1	100.0	92.0	94.8
Infidelity	53.7	31.0	44.3	49.5	72.7	64.6
Spouse desertion	97.6	100.0	98.6	100.0	94.8	94.8
Divorce	100.0	93.1	97.1	100.0	100.0	100.0

Source: Field work, 2008 (Multiple choice)

The infected persons who were singles (97.1%) expressed the difficulty of finding a spouse because of their condition. Three percent of them, however, did not express any difficulty in finding partners.

According to 88.6% of the infected persons, the disease had made it difficult for other family members to find spouses since they do not want such diseases in their family. The reason is that some of the people in the community had misconceptions about the mode of transmission and therefore they could contract the disease by marrying infected persons. Eleven percent of the respondents did not think that being infected would make it difficult for other family members to find a spouse.

Effects of the disease on sexual relations with the spouse

Dreyer et al., (1997) found that there is a silent burden of sexual disability associated with lymphatic filariasis among men but it is seldom acknowledged because shame and fear caused “a conspiracy of silence” surrounding the man and his partner.

All the infected persons mentioned that the disease had affected their sexual desires. As a result, 87.1% of the infected persons stated that the disease has affected their sexual relations with their spouses but 12.9%

mentioned that contracting the disease had not affected their sexual relations. Their spouses only felt uncomfortable when having sex.

Means adopted by persons infected by lymphatic filariasis to forget about problems

Majority of the affected persons (72.9%) were so overwhelmed by the disease that they did not know what to do to forget about their problem.

Thirteen percent said that they resorted to alcohol in order to forget about their problem and 11.4% mentioned they prayed to God for the strength and ability to forget their problem. Only 2.9% listened to music or talk shows on the radio to forget about their problems.

The lymphatic filariasis leads to isolation and stigmatization of its infected persons by the members of the community. The affected persons find it difficult in getting spouses and those with spouses usually experiences marital problems.

Table 15: Means adopted by persons infected by lymphatic filariasis to forget about problems

Means to forget about problems	Male (N=41)	Female (N=29)	Total (N=70)
Drinking of alcohol	17.1	6.9	12.8
Pray to God	4.9	20.7	11.4
Listen to music or talk shows	4.9	-	2.9

Do not know what to do	73.1	72.4	72.9
Total	100.0	100.0	100.0

Source: Field work, 2008

The lymphatic filariasis affects the education of infected persons as some of them are made to stop schooling, frequently absent themselves from school, fail at school, their performances impaired as result of the effect of the disease, refused admission, forced to leave school or change schools. Majority of the infected persons for fear of being stigmatized, sometimes stayed away from social functions bringing a gap in the society. The stability of the social system is disturbed because infected persons' inability to perform social functions affected the smooth operation of the society. From the study, it was realized that the affected persons in order to forget about their problems resorted to drinking, prayers to God, listening to the music and talk shows or at times relaxed in the house. It could be deduced from the study that infected persons were affected by the LF disease socially, psychologically and economically.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Introduction

This chapter presents a summary of the principal findings of the study, the conclusions drawn from them, the researcher's recommendations as well as the suggestions for further studies.

Summary

The objectives of the study were to examine people's opinion about the disease, determine people's perception on the causes of the disease, describe the local knowledge about how the disease could be prevented or managed and examine the effects of the disease on the society from the viewpoint of both the infected and the uninfected persons.

The data used in the study were gathered through field interviews with three hundred and forty-one (341) respondents made up of seventy (70) infected persons and two hundred and seventy-one (271) uninfected persons. Purposive sampling technique was used in selecting the respondents who had been infected by the disease while the simple random sampling technique was used in the selection of the respondents who were uninfected. From Table1 in Chapter four (4) above, 92.9% of the respondents affected by the disease were not likely to live an independent life because it would be difficult for them to have access to white-collar jobs or government paid employment which might be lighter than farming or fishing. The infected persons were stigmatized as a result of the disfigurement of their legs as lymphoedema progresses affecting their occupation and this leads to loss of income and loss of social identity.

Another significant aspect of the disease is that it manifests itself when the affected persons are 18 years and above. It affects people who are in their productive years affecting their ability to work hard and to produce enough farm produce to feed themselves and their households.

The respondents mentioned that the elephantiasis was locally called ‘Gyaprim’ while the hydrocele was called ‘too’. The respondents thought that the disease was caused through a curse, when one was bitten by mosquitoes, when one stepped on juju and through personal and environmental hygiene. The infected persons have been stigmatized in the community and were referred to by uninfected persons as sick persons which they mentioned in Fante as ‘Yarefo’. This means that they could not do any hard work because they were incapacitated and unclean as pertains in most Ghanaian societies. In most Ghanaian societies sick persons are believed to be unclean. Due to their condition they are sometimes not allowed to participate in communal works. The infected persons who do not have acute attacks or who are not going through the acute phase of the disease were able to move freely about with or without any difficulty. The acute phase of the disease is usually characterized by fever, chills, pain and swellings of the affected limbs or swellings of the scrotum (Gyapong, 1996).

The infected persons need to depend on the members of the families for support both physically and financially when they experience acute attacks. This supports the assertion by Murphy (1988) who claims that there are universal aspects of all social relations and that dependency is a problem that all the disabled people must often confront. This assertion has been supported by Gyapong at al (1996), Ramaiah et al (1996) and Amuyunzu et al (1997). Those with hydrocele could not bend down and work for longer hours and others with large scrotums find it difficult to bend at all and often rely on hired labour for their farming activities adding extra cost to the family's expenditure.

For fear of being stigmatized some of the men with hydrocele hide the disease and do not even discuss it with their colleagues until such a time that the disease manifests itself or the scrotums become big before the cases are reported to the health institutions. Some of the infected persons, because they do not want others to see what has happened to them, usually bathe early in the morning or late in the evening. They sometimes refuse to let their wives see their conditions and, therefore refuse to sleep with them and even have sex. This is because people with such diseases are teased by the local dwellers as having 'case 5 of a football'. This supports the arguments in social stigmatization which states that the stigmatized are ostracized, devalued, rejected, scorned and shunned. They experience discrimination, attacks, insults and are even murdered. Those who perceive themselves to be members of a stigmatized group, whether it is obvious to those around them or not, often experience psychological distress and many view themselves contemptuously. (Wikipedia, 2007)

The infected persons in the study mentioned that the disease has infected their sexual functions, especially the men with hydrocele, thus making sex very difficult. This has infected their marriage life. There are usual quarrels among spouses; the men are either accused of infidelity by their wives or the men accuse their wives of infidelity. There are sometimes spousal desertions or outright divorce. Marriages to infected persons are not permitted by some families. Individuals with a family history of these conditions were considered undesirable for marriage.

The infected and uninfected persons had knowledge on how the disease could be prevented and they were able to mention them. These included sleeping under mosquito nets; taking of the recommended drugs; keeping the environment clean and spraying rooms and the environment with insecticides to avoid mosquitoes.

Conclusions

It could be concluded, after studying various aspects of lymphatic filariasis, that the burden of the disease on men is much more than previously thought and therefore needs more attention in terms of the psychosocial burden and surgical intervention for hydrocele and other factors related to it. Civil society should be educated on the psychosocial and economic effects of lymphatic filariasis to reduce stigmatization of the infected persons and their relatives.

The infected persons once they disclose their status to their friends and relatives are stigmatized and discriminated against. Stigma focuses on the public’s attitude toward a person who possesses an attribute that falls short of societal expectations. The person with the attribute is reduced in our minds from a whole and usual person to a tainted, discounted one. According to Goffman, the signs and symptoms of the disease can be concealed because of high level of stigmatization (Goffman, 1963). The respondents mentioned that they were stigmatized because LF disease once it progresses is incurable especially the elephantiasis of the leg. The infected persons were considered repulsive, ugly and disruptive to social interaction. There is discrimination, rejection and devaluation of the identity of the infected persons. These discrimination and devaluations are created by individuals within the community.

The infected persons are therefore exempted and excluded from their normal duties bringing disequilibrium in the society. According to the functionalist, the part of the society are believed to be integrated to ensure overall social functioning and reproduction. In contracting the lymphatic filariasis disease, the infected persons are not able to perform their normal roles in the society as expected. The infected persons are therefore exempted and excluded from their normal duties bringing about a dysfunctional society (Parsons, 1978).

An important aspect of the study is that infected persons are considered sick persons and are not expected to partake in any communal labour and other duties in the community. This supports Parsons’ argument that the sick person take on a sick role which provides them with a set of responsibilities and privileges. As he wrote, "illness is not merely a state of the organism and/or personality, but comes to be an institutionalized role" (Parsons, 1978). Illness represented a legitimate withdrawal into a dependent relationship.

A community approach to the elimination of lymphatic filariasis is very crucial especially in the mass distribution of drugs and management of lymphoedema for the reduction of morbidity in people with the lymphatic filariasis disease.

Recommendations

Based on the findings the following recommendations are made:

1. Governmental and Non-governmental Organisations must support infected persons in terms of training and skills development as it is being done for People Living with HIV (PLHIV).
2. Governmental organizations such as the Ministry of Health, the Municipal Assembly and Civil Society Organizations (CSOs) must educate people to stop stigmatizing the infected persons in the communities to build up their confidence levels to enable them declare their status and get help.
3. The government and donor partners must continue with the free supply of drugs like Albendazole and ivermectin in the communities to prevent infection with LF and mitigate the impact of the disease on infected persons. People who have the fear that they could develop some side effects to the drugs must be educated to know the importance of taking the drugs.
4. Health centres in endemic communities should be equipped with the necessary drugs and treated bed nets so that people can have access to them.

5. The Municipal Health Directorate must continuously carry out educational sessions in the Narkwa community and other communities in the municipality to encourage people to report cases to the health centres and the hospitals. As was found out in the community, infected persons conceal the disease and do a lot of self-medication. By so doing they suffer from some complications.
6. The residents of Narkwa community must be trained by governmental and non-governmental organisations on how to construct septic tanks and proper gutters to drain away all waste water to prevent breeding of mosquitoes. Both solid and liquid waste must be disposed off properly.

Suggestion for further Studies

1. There should be studies that would be looking into the relationship between the effects of the lymphatic filariasis and urbanization. Urbanization brings in its wake the problem of waste disposal and drainage of waste water in most of the Ghanaian societies. This, it is hoped, will increase the prevalence of mosquitoes and the incidence of the LF disease.
2. There should be studies looking at the effects of stigmatization on persons infected by the lymphatic filariasis disease.

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APPENDICES

APPENDIX A

INTERVIEW SCHEDULE FOR INFECTED PERSONS BY LYMPHATIC FILARIASIS

Greetings. My name is Seth Frimpong. I am doing my project work at the University of Cape Coast and want to seek your opinion on various aspects of the lymphatic filariasis disease. I will ask you some questions in order to understand how the disease affects you.

Date of Interview: __________

Time Interview Begins: ________________________

Socio-demographic background

1. Sex: a) Male [ ] b) Female [ ]

2. How old are you?

a) 18 – 25 [ ] b) 26 – 35 [ ] c) 36 – 45 [ ]

d) 46 – 55 [ ] e) Above 56 [ ]

3. Marital Status a) Single b) Married c) Divorced d) Widowed

4. Ethnic background

a) Ga/Adangbe [ ] b) Ewe [ ] c) Mole/Dagbon [ ]

d) Guan [ ] e) Akan [ ] f) others,

(specify)……………………

5. What religion do you practice?

a) Christianity b) Islam [ ] c) African Traditional Religion [ ]

d) Others, specify)………………………

6. What is your occupation? ………………………………….………………

7. What is your educational status a) No education b) Primary c) JHS d) SHS d) Tertiary

GENERAL INFORMATION

8. I would like to talk to you today about the lymphatic filariasis (elephantiasis or hydrocele). "how is it called (....local term....)".

9. How is one affected by the disease?

1. Mosquito bite 2. Stepping on juju 3. Through a curse 4.Poor sanitation

5. Do not know 6. Other specify……………..

10. What is it about your condition that concerns you most?

Concern	
10.1 Fever	1. Yes 2. No 3. NA
10.2 Chills	1. Yes 2. No 3. NA
10.3 Pain	1. Yes 2. No 3. NA
10.4 Swelling	1. Yes 2. No 3. NA
10.5 Functional Impairment	1. Yes 2. No 3. NA
10.6 Appearance	1. Yes 2. No 3. NA
10.7 Physical discomfort	1. Yes 2. No 3. NA
10.8 No problem	1. Yes 2. No 3. NA
10.9 Other specify	

11. Where do you think infected persons go for treatment?

Place	
13.1 Relative	1. Yes 2. No 3. NA
13.2 Friends	1. Yes 2. No 3. NA
13.3 Health worker	1. Yes 2. No 3. NA
13.4 Traditional Healer	1. Yes 2. No 3. NA
13.5 Drug store/chemist	1. Yes 2. No 3. NA
13.6 Health center	1. Yes 2. No 3. NA
13.7 Hospital	1. Yes 2. No 3. NA
13.8 Private medical practitioner	1. Yes 2. No 3. NA
13.9 Cannot say	1. Yes 2. No 3. NA

13.10 Other specify	

12. Which of these sources do you think infected persons go to first?

Sources	
14.1 Relative	1. Yes 2. No 3. NA
14. 2 Friends	1. Yes 2. No 3. NA
14.3 Health worker	1. Yes 2. No 3. NA
14.4 Traditional Healer	1. Yes 2. No 3. NA
14.5 Drug store/chemist	1. Yes 2. No 3. NA
14.6 Health centre	1. Yes 2. No 3. NA
14.7 Hospital	1. Yes 2. No 3. NA
14.8 Private practitioner	1. Yes 2. No 3. NA
14.9 Cannot say	1. Yes 2. No 3. NA

13. What were your reasons for getting help from these sources?

Reasons	
15.1 Convenience	1. Yes 2. No 3. NA
15.2 Affordability	1. Yes 2. No 3. NA
15.3 Family’s choice	1. Yes 2. No 3. NA
15.4 Healer’s reputation	1. Yes 2. No 3. NA
15.5 Other specify	

14. What kind of treatment did you receive?

Treatment Received	

16.1 Home based treatment	1. Yes 2. No 3. NA
16.2 Traditional	1. Yes 2. No 3. NA
16.3 Modern	1. Yes 2. No 3. NA
16.4 Other specify	

15. Who paid for this treatment? 1. Self 2. Family/relative 3. Friends 4. Other specify…….

16. Now let's talk about the last time you sought help for this kind of condition. What kind of help have you sought recently for your condition?

Place	
18.1 Relative	1. Yes 2. No 3. NA
18.2 Friends	1. Yes 2. No 3. NA
18.3 Health worker	1. Yes 2. No 3. NA
18.4 Traditional Healer	1. Yes 2. No 3. NA
18.5 Drug store/chemist	1. Yes 2. No 3. NA
18.6 Health centre	1. Yes 2. No 3. NA
18.7 Hospital	1. Yes 2. No 3. NA
18.8 Private practitioner	1. Yes 2. No 3. NA
18.9 Cannot say	1. Yes 2. No 3. NA
18.10 Other specify	

19. What were your reasons for choosing this kind of help?

Reason	
19.1 Convenience	1. Yes 2. No 3. NA

19.2 Affordability	1. Yes 2. No 3. NA
19.3 Family’s choice	1. Yes 2. No 3. NA
19.4 Healers reputation	1. Yes 2. No 3. NA
19.5 Other specify	

20. Did you also make use of any home remedies while you were seeking help from these sources? 1. Yes 2. No 3. Other specify………………………..

21. Among the different kinds of help that you received, which did you like best [ ]

22. Why did you like it best?

Reason	
24.1 Convenience	1. Yes 2. No 3. NA
24.2 Affordability	1. Yes 2. No 3. NA
24.3 Family’s choice	1. Yes 2. No 3. NA
24.4 Healers reputation	1. Yes 2. No 3. NA
24.5 Other specify	

23. If there was anything you could do, what would you do for your condition?

____

____

24. Do you think this condition can be treated? 1. Possibly 2. Yes 3. No 4. Uncertain 5. NA

25. Do you think this condition can be cured completely? 1. Possibly 2. Yes 3. No 4. Uncertain 5. NA

26. Do you think this condition can be passed from you to another person?

1. Possibly 2. Yes 3. No 4. Uncertain 5. NA

27. How can this condition be passed from you to another person?

____

28. Do you know of any other people in this community with this condition?

1. Yes 2. No

29. If yes, how do they ever help or give you pieces of advice you? 1. Yes 2. No

30. Does this condition keep you from going out? 1. Yes 2. No 3.Sometimes

31. How has this condition affected your daily life?

Effect on daily life	
31.1 Stopped work	1. Yes 2. No 3. NA
31.2 Changed jobs	1. Yes 2. No 3. NA
31.3 Altered activity	1. Yes 2. No 3. NA
31.4 Work fewer hours	1. Yes 2. No 3. NA
31.5 No change	1. Yes 2. No 3. NA
31.6 Other specify	

32. How has this condition affected your schooling or educational opportunities?

Place	
32.1 Stopped school	1. Yes 2. No 3. NA

32.2 Frequent absence from school	1. Yes 2. No 3. NA
32.3 Failure in school	1. Yes 2. No 3. NA
32.4 Impaired performance	1. Yes 2. No 3. NA
32.5 Admission refused	1. Yes 2. No 3. NA
32.6 Forced to leave school	1. Yes 2. No 3. NA
32.7 Changed schools	1. Yes 2. No 3. NA
32.8 Cannot say	1. Yes 2. No 3. NA

33. Does this condition keep you from taking proper care of yourself; eating, bathing, toilet, etc.?

Effect on daily care	
33.1 Eating	1. Yes 2. No 3. NA
33.2 Bathing	1. Yes 2. No 3. NA
33.3 Toilet	1. Yes 2. No 3. NA
33.4 Other specify	1. Yes 2. No 3. NA

34. Some infected persons feel okay about their condition and others are concerned. How do you feel about your condition?

Feelings about condition	
34.1 Feel good	1. Yes 2. No 3. Indifferent
34.2 Feel bad	1. Yes 2. No 3. Indifferent
34.3 Mixed feelings	1. Yes 2. No 3. Indifferent
34.4 Cannot say	

35. Are there any particular feelings that describe your reaction to this condition?

Description about feelings	
35.1 Pride	1. Yes 2. No 3. NA
35.2 Worry	1. Yes 2. No 3. NA
35.3 Sadness	1. Yes 2. No 3. NA
35.4 Fear	1. Yes 2. No 3. NA
35.5 Diminished self worth	1. Yes 2. No 3. NA
35.6 Other specify	

36. Some people might they are a burden to others because of this condition.

Do you feel you are a burden?

Type of burden	
36.1 Lowers family income	1. Yes 2. No 3. NA
36.2 Cost of health care	1. Yes 2. No 3. NA
36.3 Domestic chores	1. Yes 2. No 3. NA
36.4 Other specify	

37. Do you stay away from social functions, such as weddings, festivals, and so forth? 1. Yes 2. No

If yes why do you stay away from social function?

Reason for staying away	
37.1 Personally uncomfortable	1. Yes 2. No 3. NA
37.2 Others Uncomfortable	1. Yes 2. No 3. NA
37.3 Family decision	1. Yes 2. No 3. NA
37.4 Unrelated to filariasis	1. Yes 2. No 3. NA
37.5 Other specify	

38. Do you try to conceal your condition by the way you dress or in some other way?

1. Yes 2. No 3. Uncertain 4.Possibly 5. NA

39. Do people make fun of you because of this condition?

1. Yes 2. No 3. Uncertain 4.Possibly 5. NA

40. Do they make fun of you in front of you or behind your back?

40.1 In your presence: 1. Yes 2. No 3. Uncertain 4.Possibly 5. NA

40.2 Behind your back: 1. Yes 2. No 3. Uncertain 4.Possibly 5. NA

41. Is there anything in particular that you do for yourself that helps you forget about your problem? 1. Yes 2. No 3. Uncertain 4.Possibly 5. NA

If yes, what do you do?

____

If "married", go to 45. If "unmarried", skip to 49.

42. Do you think this condition has affected you?

1. Yes 2. No 3. Uncertain 4.Possibly 5. NA

If yes, how has it affected your marriage?

Effect on marriage	
42.1 Quarrels	1. Yes 2. No 3. NA
42.2 Infidelity	1. Yes 2. No 3. NA
42.3 Spouse desertion	1. Yes 2. No 3. NA
42.4 Divorce	1. Yes 2. No 3. NA
42.5 Other specify	

43. Has this condition affected sexual relations with your spouse, or any other aspects of your sexual life?

1. Yes 2. No 3. Uncertain 4.Possibly 5. NA

44. If yes, how has it affected your relations with your spouse?

____

45. Do you think this condition would make it hard for you to find a spouse?

1. Yes 2. No 3. Uncertain 4.Possibly 5. NA

46. Do you think that this condition could make it difficult for others in your family to find a spouse?

1. Yes 2. No 3. Uncertain 4.Possibly 5. NA

47. In your opinion how best do you think the disease could be prevented in the community?

Prevention	
47.1 Sleeping under mosquito nets	1. Yes 2. No 3. NA
47.2 Taking drugs	1. Yes 2. No 3. NA
47.3 Keeping clean environment	1. Yes 2. No 3. NA
47.4 Spraying with insecticides	1. Yes 2. No 3. NA
47.5 Other specify	

APPENDIX B

INTERVIEW SCHEDULE FOR UNINFECTED PERSONS

Greetings. My name is Seth Frimpong. I am doing my project work at the University of Cape Coast and want to seek your opinion on various aspects of the lymphatic filariasis disease. I will ask you some questions in order to know your views on the effects of the lymphatic filariasis on infected persons.

Date of Interview: ____________________

Time Interview begins: ________________________

Socio-demographic background

1. Sex: a) Male [ ] b) Female [ ]
2. How old are you?

b) 18 – 25 [ ] b) 26 – 35 [ ] c) 36 – 45 [ ]

d) 46 – 55 [ ] e) Above 56 [ ]

3. Marital Status a) Single b) Married c) Divorced d) Widowed
4. Ethnic background

b) Ga/Adangbe [ ] b) Ewe [ ] c) Mole/Dagbon[]

d) Guan [ ] e) Akan [ ] f) others,

(specify)……………………

5. What religion do you practice?

a) Christianity b) Islam [ ] c) African Traditional Religion [ ]

d) Others, specify)………………………

6. What is your educational status a) No education b) Primary c) JHS

d) SHS d) Tertiary

7. What is your occupation? …………………………………….………………

GENERAL INFORMATION

8. Is there any local name for lymphatic filariasis in your community?

   If yes, what is the name?

9. How is one infected by the disease?

1. Mosquito bites   2. Stepping on juju   3. Through a curse   4. Poor sanitation

5. Do not know   6. Other specify……………..

10. What do you think concerns him/her most about this condition?

Concern	
10.1 Fever	1. Yes 2. No 3. NA
10.2 Chills	1. Yes 2. No 3. NA
10.3 Pain	1. Yes 2. No 3. NA
10.4 Swelling	1. Yes 2. No 3. NA
10.5 Functional Impairment	1. Yes 2. No 3. NA
10.6 Appearance	1. Yes 2. No 3. NA
10.7 Physical discomfort	1. Yes 2. No 3. NA
10.8 No problem	1. Yes 2. No 3. NA
10.9 Other specify	

11. Where would do think infected person you go for treatment?

Place	
11.1 Relative	1. Yes 2. No 3. NA

11.2 Friends	1. Yes 2. No 3. NA
11.3 Health worker	1. Yes 2. No 3. NA
11.4 Traditional Healer	1. Yes 2. No 3. NA
11.5 Drug store/chemist	1. Yes 2. No 3. NA
11.6 Health center	1. Yes 2. No 3. NA
11.7 Hospital	1. Yes 2. No 3. NA
11.8 Private practitioner	1. Yes 2. No 3. NA
11.9 Cannot say	1. Yes 2. No 3. NA
11.10 Other specify	

12. Which of these sources do you think is most effective?

sources	
12.1 Relative	1. Yes 2. No 3. NA
12. 2 Friends	1. Yes 2. No 3. NA
12.3 Health worker	1. Yes 2. No 3. NA
12.4 Traditional Healer	1. Yes 2. No 3. NA
12.5 Drug store/chemist	1. Yes 2. No 3. NA
12.6 Health centre	1. Yes 2. No 3. NA
12.7 Hospital	1. Yes 2. No 3. NA
12.8 Private medical practitioner	1. Yes 2. No 3. NA
12.9 Cannot say	1. Yes 2. No 3. NA

13. Do you think the condition of infected person can be treated?

1.Yes 2. No 3. Uncertain 4.Possibly 5. NA

14. Do you think this condition can be cured completely?

1. Yes 2. No 3. Uncertain 4. Possibly 5. NA

If yes, how? If no, why not?

15. People have many different ideas about what causes a condition like this.

What do you think has caused the condition of infected persons?

Perceived cause	
15.1 Working in the sun	1. Yes 2. No 3. NA
15.2 Walking long hours	1. Yes 2. No 3. NA
15.3 Sexual activity	1. Yes 2. No 3. NA
15.4 Spiritual	1. Yes 2. No 3. NA
15.5 Food related	1. Yes 2. No 3. NA
15.6 Poor personal hygiene	1. Yes 2. No 3. NA
15.7 Fever	1. Yes 2. No 3. NA
15.8 Mosquitoes	1. Yes 2. No 3. NA
15.9 Other specify	

16. Do you think this condition can be passed from him/her to another person?

1. Yes 2. No 3. Uncertain 4. Possibly 5. NA

If yes, how? If no, why not?

17. How can this condition be passed from one person to another?

____

18. Do you know of any ways to prevent this condition?

1. Yes 2. No 3. Uncertain 4. Possibly 5. NA

19. How can you prevent this condition?

If yes, how can it be prevented how? If no, why not?

____

19. Do you think this condition has affected his/her daily work?

Effect on daily life	
20.1 Stopped work	1. Yes 2. No 3. NA
20.2 Changed jobs	1. Yes 2. No 3. NA
20.3 Altered activity	1. Yes 2. No 3. NA
20.4 Work fewer hours	1. Yes 2. No 3. NA
20.5 No change	1. Yes 2. No 3. NA
20.6 Other specify	

21. Do you think this condition has affected his/her schooling or educational opportunities? 1. Yes 2. No 3. Uncertain 4. Possibly 5. NA

If yes, how has it affected their school/educational opportunities?

Schooling opportunities	
21.1 Stopped school	1. Yes 2. No 3. NA
21.2 Frequent absence from school	1. Yes 2. No 3. NA
21.3 Failure in school	1. Yes 2. No 3. NA
21.4 Impaired performance	1. Yes 2. No 3. NA
21.5 Admission refused	1. Yes 2. No 3. NA
21.6 Forced to leave school	1. Yes 2. No 3. NA
21.7 Changed schools	1. Yes 2. No 3. NA
21.8 Cannot say	1. Yes 2. No 3. NA
21.9 Other specify	

22. Do you think this condition has kept him/her from taking proper care of his/her eating, washing, toilet, etc.?

1. Yes 2. No 3. Uncertain 4. Possibly 5. NA

23. How had this kept him/her from taking proper care of him/herself?

Effect on daily care	
23.1 Eating	1. Yes 2. No 3. NA
23.2 Washing	1. Yes 2. No 3. NA
23.3 Toilet	1. Yes 2. No 3. NA
23.4 Cannot say	1. Yes 2. No 3. NA

24. Do you think this condition has ever kept him/her from going out and about? 1. Yes 2. No 3. Uncertain 4. Possibly 5. NA

If yes, how?

25. Do you think he/she thinks less of himself/herself because of his/her condition? 1. Yes 2. No 3. Uncertain 4. Possibly 5. NA

If yes, how?

26. Do you think he/she feels thathe/she is a burden to others because of this condition. 1. Yes 2. No 3. Uncertain 4. Possibly 5. NA

If yes, what type of burden

27. What kind of burden do you mean?

Type of burden	
27.1 Lowers family income	1. Yes 2. No 3. NA

27.2 Cost of health care	1. Yes 2. No 3. NA
27.3 Domestic chores	1. Yes 2. No 3. NA
27.4 Other specify	

28. Do you think he/she would stay away from social functions, such as weddings, festivals, and so forth?

1. Yes 2. No 3. Uncertain 4. Sometimes 5. NA

29. Why would he/she stay away from social functions?

Reason for staying away	
29.1 Personally uncomfortable	1. Yes 2. No 3. NA
29.2 Others Uncomfortable	1. Yes 2. No 3. NA
29.3 Family decision	1. Yes 2. No 3. NA
29.4 Unrelated to filariasis	1. Yes 2. No 3. NA
29.5 Other specify	

30. Do you think he/she will try to conceal his/her condition by the way he/she dresses or in some other way?

1. Yes 2. No 3. Uncertain 4. Possibly 5. NA

31. Do you think people make fun of him/her because of this condition?

1. Yes 2. No 3. Uncertain 4. Possibly 5. NA

32. Do uninfected persons make fun of infected ones in/their presence or behind their back?

32.1 In their presence: 1. Yes 2. No 3. Uncertain 4. Possibly 5. NA

32.2 Behind their back: 1. Yes 2. No 3. Uncertain 4. Possibly 5. NA

33. What do you think he/she does to overcome this condition?

If "married", go to 34. If "unmarried", skip to 39

34. Do you think this condition will affect his/her marriage?

1. Yes 2. No 3. Uncertain 4. Possibly 5. NA

35. If yes, how will it affect his/her marriage?

Effect on marriage	
35.1 Quarrels	1. Yes 2. No 3. NA
35.2 Infidelity	1. Yes 2. No 3. NA
35.3 Spouse desertion	1. Yes 2. No 3. NA
35.4 Divorce	1. Yes 2. No 3. NA
35.5 Other specify	

36. Do you think his/her condition has made it difficult for others in his/her family to get married?

1. Yes 2. No 3. Uncertain 4.Possibly 5. NA

37. OPTIONAL: Do you think this condition has affected sexual relations with his/her spouse, or any other aspects of sexual life?

1. Yes 2. No 3. Uncertain 4. Possibly 5. NA

38. How has it affected his/her relations with his/her spouse?

---

39. If this person is not married, do you think this condition would make it hard for him/her to find a spouse?

1. Yes 2. No 3. Uncertain 4.Possibly 5. NA

40. Do you think that this condition could make it difficult for others in his/her family to find a spouse?

1. Yes 2. No 3. Uncertain 4. Possibly 5. No