

**UNIVERSITY OF EDUCATION, WINNEBA**

**SCHOOL OF RESEARCH AND GRADUATE STUDIES**

**FACULTY OF EDUCATIONAL STUDIES**

**DEPARTMENT OF SPECIAL EDUCATION**

**IMPLICATIONS OF ONCHOCERCIASIS ON THE EDUCATION OF  
CHILDREN OF SCHOOL GOING AGE IN APESOKUBI IN JASIKAN  
DISTRICT OF GHANA**

**BY**

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**AUGUST, 2009**

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**(406015001)**

**A DISSERTATION SUBMITTED TO THE DEPARTMENT OF SPECIAL  
EDUCATION, OF THE FACULTY OF EDUCATIONAL STUDIES IN PARTIAL  
FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD OF MASTER  
OF EDUCATION DEGREE IN SPECIAL EDUCATION**

**CANDIDATE'S DECLARATION**

**AUGUST, 2009**

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

CANDIDATE'S NAME: ALPHONSE KWAKU AKOTO

SIGNATURE:..... DATE:.....

**SUPERVISOR'S DECLARATION**

I here declared that the preparation and presentation of this dissertation were supervised in accordance with guidelines and supervision of dissertation laid down by the University of Education, Winneba.

PRINCIPAL SUPERVISOR'S SIGNATURE:.....

NAME:..... DATE:.....

## **DEDICATION**

This research work is dedicated to my dear wife Rogate, my children Leticia, Samson, Philomena, Raynolds and Peace; my friends James and Addo and Solomon Donkor.



## ACKNOWLEDGEMENT

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## **APPENDICES**

This research is about implications of onchocerciasis on the education of children of school going age in Apesokubi in Jasikan District in Ghana. The methodology which was principally qualitative involved the use of interviews and observations as the methods for data collection. Data analysis revealed that there were no total blindness among children of school going age in the township. However, in the light of the findings, it is recommended that it becomes a policy by the District Directorate of education that all children of school-going age wear trousers and long-sleeves as their prescribed school uniform in the township. Other recommendations were however made as a result of the findings.



## **CHAPTER ONE**

### **1.0 Introduction**

#### **1.1 Background to the study**

Over the past three decades, pragmatic attempts were made by past Governments of Ghana in collaboration with the West African Onchocerciasis Control Programme (O.C.P.) to eradicate Onchocerciasis in endemic areas. The programme which took off in 1974, was very successful in eradicating black flies as the vector for onchocerciasis in the country until 1994 when the programme officially ended. Many inhabitants who hitherto had abandoned the fertile lands along river banks where the prevalent rate was high had returned as a result of the success of the O.C.P. This means that the black flies had also been liquidated from these areas.

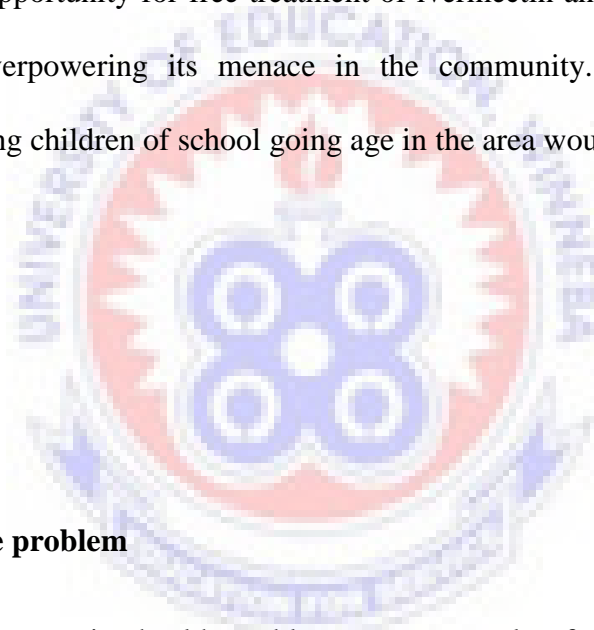
However, in recent times, in the Volta River Basin at Apesokubi in the Jasikan District, there are numerous complaints by the people, farmers, traders and children of school going age that onchocerciasis is still a threat to their general well-being.

According to the Daily Graphic (Tuesday, February 6, 2006 pp.31), it is estimated that about 230,000 Ghanaians are infected with onchocerciasis, a disease which causes

blindness, low vision and skin infections as a result of the bites of the black flies. Although most of the victims live in the Northern part of the country where the debilitating effect is tremendous on the socio economic well-being of the people, there is reason to worry that Apesokubi in the Jasikan District which is close to the North has the negative impact of onchocerciasis on its children of school going age. To Samba, (1994) in communities with high intensity of disease transmission, as many as ten (10) percent of the population were likely to be affected by onchocerciasis of river blindness. As said earlier, attempts have been made by Government, Non-Governmental Organizations (N.G.O.) and other International Organizations such as The European Union (E.U.), The World Bank, United Nations Development Programme (U.N.D.P.) and the World Health Organization (W.H.O.) to combat onchocerciasis. The Health Organization Onchocerciasis Control Programme initiated in 1974 in eleven West African Countries South of the Sahara was one of the attempts made to ward off the disease in these West African Countries of which Ghana was a member (Annual Report, 1997). According to the report, the project tentatively ended in 1994 but its activities continued to 2002.

Geographically, Apesokubi is within Jasikan District located in the Northern part of Volta Region. The district lies between latitude  $7^{\circ} 20'$  and  $7^{\circ} 30'$ , north and longitude  $0^{\circ} 15'$  and  $0^{\circ} 33'$  east. Apesokubi lies in the Northern tip of the district and shares boundary with the Kadjabi District, North-West by Krachi East district with River Asukawkaw as the boundary.

As a citizen of Jasikan District, and at the same time a Resource Teacher (Special Educator), the presence of the disease onchocerciasis in the affected community is worrisome particularly when the health, socio-economic and education of every individual is crucial. It is imperative that if these people are denied access to quality education, good health and high socio-economic activities as a result of onchocerciasis, the district and for that matter the nation stand to lose heavily. Eradicating onchocerciasis in the area would be a daunting task but when the people there avail themselves the opportunity for free treatment of ivermectin and other drugs, they would be gradually overpowering its menace in the community. The problem of visual impairment among children of school going age in the area would be drastically reduced.



## **1.2 Statement of the problem**

Onchocerciasis is a major health problem among people of which children of school-going age are no exception. The consequences of this disease in children who are supposed to constitute the future human resource development of the nation cannot be over-emphasized. Indeed the potentialities of the children can be nibbled in the bud if onchocerciasis is allowed to take centre stage of their lives.

Apesokubi, a village near Worawora in the Jasikan District is overwhelmed by the disease onchocerciasis. There are numerous complaints that children of school-going age are suffering most from the debilitating effects of the black fly which is the vector for onchocerciasis. In some instances, these children are becoming disinterested in formal education and for that matter are dropping out of school. The socio-economic implications in the future would be that they would become uneducated, illiterates and unemployed. The village is experiencing mass exodus of inhabitants to neighbouring areas and beyond. Arguably, children of school-going age are among these migrants which is not good enough. If care is not taken, the rate at which people including children of school-going age are leaving the village, one day, it would become a ghost village soon. The fertile lands and good environment would be completely abandoned.

For now, parents are using their meager earnings from subsistence farming to find cure for their wards in school, afflicted by onchocerciasis. There is also the temptation of parents removing their wards from the village school to neighbouring schools where the incidence of onchocerciasis is quite low. However, the upkeep of these children and payment of their school fees in neighbouring schools has been a source of worry to the parents.

### **1.3 Purpose of the study**

The purpose of the study is to find out the implications of onchocerciasis on the education of children of school-going age in Apesokubi. Basically, the study is concerned with the following.

- ❖ Finding out how onchocerciasis has affected the education of children of school-going age in the area.
- ❖ How onchocerciasis has affected school enrolment in the basic school in Apesokubi.
- ❖ Finding out the number of school-going children having eye problems
- ❖ Identify the modes of eradicating onchocerciasis in the village.
- ❖ Identify other areas that onchocerciasis is adversely affecting children of school-going age in Apesokubi.
- ❖ Examine the attitudes of teachers towards children of school-going age affected by onchocerciasis.

#### **1.4 Research questions**

For this work, the following research question will be raised.

- ❖ In what ways has onchocerciasis affected the education of children of school-going age in the village?
- ❖ What categories of visual problems do the children suffer in Appesokubi?
- ❖ What is the impact of onchocerciasis on the health and socio-economic activities of school age children?



- ❖ What is the attitude of teachers towards school children affected by onchocerciasis in the village?
- ❖ How is onchocerciasis disease being managed in the village?

## **1.5 Significance of the study**

The education and health status of children of school going age must not be left to chance as a result of onchocerciasis in Apesokubi in the Jasikan District of Ghana.

The results of the study will in several ways address the following:

- Inform stakeholders in the educational vector to take precautionary measures aimed at warding of black flies among children of school going age in the township.
- Identify what categories or visual problems children suffer in Apesokubi.
- The negative attitude of teachers towards school children affected by onchocerciasis in the area.

## **1.6 Delimitation**

The study is restricted of the Jasikan Distirct in order to carry out a comprehensive research into the implication of onchocerciasis in the Apesokubi township in Jasikan District of Ghana.

It is limited to Apesokubi excluding areas labeled as “Overseas” particularly Kongokrom. These areas are highly inaccessible and the researcher is constrained by transportation arrangements on the Volta Lake to those areas.

### **1.7 Limitation**

The frequent boat disasters on the Volta Lake serves as a disincentive for the researcher to gather courage and voyage to those areas for the research work. On the whole, the limitation of the research to Apesokubi did not affect the results of the study.

### **1.8 Definition of terms**

As far as this research work is concerned, the following terms are operationally used.

**Education of children:** All the experiences that children of school going age go through in formal schooling under the guidance of teachers.

**Black fly:** A small fly that breeds in fast flowing rivers, that is where there are rocks, rapids and waterfalls. The bite of an infected black fly gives onchocerciasis to man.

**Onchocerciasis:** It is a disease caused by small worms called microfilaria that are passed on from one infected person to another through the bites of the black fly.

**Hyper Endemic:** Heavily infected area of onchocerciasis with about fifty percent or more of the population experiencing visual problems.

**Skin Snip:** A skin is a small piece of skin taken off a person's back or hips for examination under a microscope in the laboratory. This is to determine whether the person has the young worms (microfilaria) which causes the disease onchocerciasis.

**Suspected Case:** In an endemic area, any person with fibrous nodules in subcutaneous tissues.

**Microfilaricide:** A drug which is used to control black flies that gives onchocerciasis.

## **CHAPTER TWO**

### **REVIEW OF RELATED LITERATURE**

#### **2.0 Introduction**

Literature will be review on empirical and theoretical issues relating to the implications of onchocerciasis on the education of children of school-going age. In this study, literature will be reviewed under the following sub-headings.

Ways onchocerciasis affects the education of children of school going age.

Onchocerciasis and visual problems among school children.

Impact of onchocerciasis on the health and socio-economic activities of school age children.

Onchocerciasis and teachers attitudes to affected children.

Prevention and management of onchocerciasis in Ghana.

a) Ivecmectin treatment

- b) Symptoms of black fly infections
- c) Possible side effects after taking ivermectin or mectizan
- d) Vector control
- e) Other control measures

## 2.1 Ways onchocerciasis affects the education of children of school-going

### age

Onchocerciasis is caused by the parasite *onchocerca volvulus*, which infect humans via the bite of the intermediate host, the black fly (<http://www.worldbank.org/afr/findings/english/find174htm> on 20 28/07/08/). As a check on the spread of this disease the Onchocerciasis Control Programme (OCP) was instituted in 1974 in West Africa. Ghana was a beneficiary. Among other things the results of the programme included sparing sixteen (16) million children born since the programme's inception from any risk of contracting onchocerciasis.

Onchocerciasis affects the education of children of school going age in various ways. The major way it affects children's education is through blindness. Although research by Samba (1994) indicated high visual problems among the adult population, it can be said the few children also experience visual loss impacting negatively on their formal education. This calls for school authorities to identify these children as special needs persons. Where they are not quickly identified as special needs children due to the unavailability of special educators or resource teachers, they are unlikely to benefit maximally from mainstream education.

Given this scale of serious ocular manifestation of blindness among school children, onchocerciasis is certainly an important health problem. Children with visual problems will obviously seek medical treatment through their parents. Considering the low incomes of these rural parents, it would be extremely difficult to access medical attention for their wards in rural school.

As already indicated, these children with visual problems are therefore marginalized and have to grapple with their ocular problems as they attend school. This indeed is a health problem for children of school-going age afflicted by onchocerciasis.

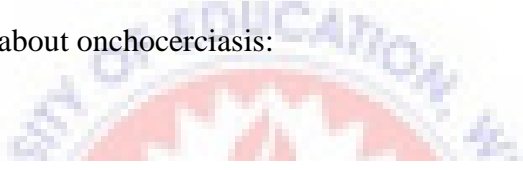
But the effect of the disease extends beyond visual problems into that of serious skin manifestations on victims. These skin diseases or manifestations are also called onchocerciasis skin diseases (OSD) (TDR, 1998). According to (TDR 1998) with regard to direct costs, it was found that people without onchocerciasis skin disease spend US\$20 more each year on health-related expenditures than do people without onchocercal skin disease. This represents some 15% of their annual income. Although this research was conducted from the United States of America perspective, it can be said that people in rural communities in Ghana also spend this amount of more of their annual income seeking medical treatment for onchocercal skin disease. The education of children is hampered if this chunk of parents annual incomes are channeled into the medical bills of onchocercal skin disease.

Closely related to treating onchocerciasis skin disease is the much time spent outside the home. The research by (TDR, 1998) further revealed substantial 'time costs' too. Those with severe onchocerciasis skin disease were found to make significantly more visits to health care facilities like the hospitals and clinics and spend much more time seeking health care than those without severe onchocercal skin disease. In effect, people with severe onchocercal skin disease therefore spend significantly less time on productive activities than do people without onchocercal skin disease. In brief, onchocercal skin disease exacts a heavy financial as well as social cost on children's education.


One of the most remarkable findings of a study concerned the relationship between school attendance of a child and skin disease status of the head-of-household (TDR, 1998). According to the study, where the head-of-household had onchocercal skin disease (OSD), children were twice as likely to drop out of school compared to other children of the same age from the same community. This can be true in rural communities in Ghana with onchocercal skin disease among head of families, parents and guardians. The research further established that the relationship was especially strong among girls, who were 2.6 times as likely to drop out of school if head-of-household did have onchocercal skin disease. Again among rural communities particularly in Ghana, this drop out rate among girls may even be worse. Generally, in Ghana, school drop out rate is higher among girls than in boys. Given that onchocercal skin disease is very prevalent in

endemic areas, it can be concluded that onchocerciasis is also an important obstacle to educational development especially of school aged girls.

According to Samba (1994), mortality among the blind may be four times as high as among non-blind persons of the same age in the same community. Parents and even school children affected by onchocerciasis are therefore at high risk of death. On the contrary, according to Wigg (1993), Mr. McNamara then president of the World Bank in 1971 had this to say about onchocerciasis:



*“the worst of all kinds of disease: it maims but its doesn’t kill. You have people going blind, yet not dyeing. And in that kind of society where people are living on the margins to start with, it’s a horrifying thing for both the individuals and their associates’.*



Clearly these are two conflicting statements. The bottom-line however, is that blindness is likely to trigger ones death in school age children than in adults.

School children also experience the itching of the black fly the maim vector of onchocerciasis. The itching from the bites of the black fly are very irritating and indeed a



nuisance to children's concentration and attention in school classrooms. The Annual report, (1997) on Onchocerciasis Control Programme alluded to the fact that nuisance due to the black fly was defined as psychosocial disturbances caused by its bites to the extent that normal activities carried out by the individual and that of the community, were hampered.

For twenty (20) years, the fly population had successfully been put under control through the activities of onchocerciasis control programme and as such several young people have never experienced the bites of the fly until lately. The disturbing itching of the skin by the bites of the black fly has a direct bearing on school performance of the children.

At first the microfilaria cause a very severe itch although the skin can look quite normal (Schull, 1987). According to the author, later, they cause dermatitis with severe itching and form macules and papules. Then the skin loses its elasticity and looks like an old person's skin. This can become thickened and wrinkled called 'lizard' or 'elephant' skin. This manifestation on the human body can be very embarrassing to school children. Indications are that children with such 'lizard' skins can be teased by others who do not have the patches on their bodies. Such children with the 'lizard skin' may feel uncomfortable within and outside school and may become truants.

It is usual to consider onchocerciasis a disease of the eye and skin. However, heavily infected people have lower than average body weight (Sanford-Smith, 1990). This endangers the health of children of school going age. According to Nnochiri (1975) the wide prevalence of severe onchocerciasis among the pygmies of Western Uganda had given rise to the speculation that the disease might in some way be associated with stunted growth. However, according to the author, this observation has not yet been made in other onchocerciasis-endemic areas. In the same vein, one cannot substantiate this claim in Ghana since there are no empirical evidence to buttress it. The social impact as a result of weight loss culminating perhaps in stunted growth among children of school going age is low self esteem. Confidence among children plays a lead role in their educational advancement.

The Report of a World Bank Health Organization Expert Committee (1976) on epidemiology of onchocerciasis made another interesting feature of onchocerciasis which has so far received little attention. It is the relatively high frequency of epilepsy reported from hyperendemic areas of onchocerciasis in Central African Republic, Guatemala, Mexico, Sudan and the United Republic of Cameroon. Despite the fact that Ghana is not mentioned in this particular encounter, there is the belief that since Ghana experiences hyperendemicity in some areas high frequency of epilepsy cases cannot be ruled out. If children of school going age are experiencing high frequency of epilepsy, then there is every indication that they are underachieving in the schools since in such attacks, they stay out

of the school for several days. The report also makes a case that onchocerciasis often leads to loss of sleep emanating from severe itching and depigmentation. The depigmentation that is particularly common in African main-forest are a serious solids stigmata (Report of a World Health Organization Expert Committee, 1976).

## **2.2 Onchocerciasis and visual problems in school age children**

Onchocerciasis brings in its wake visual problems. Its consequences on the human eye are indeed very devastating. Visual problems come about as a result of the invasion of different parts of the eye by the microfilaria. According to Tarrizo cited in Ocloo (1990) ‘in an onchocerciasis endemic area, a third of the population may be visually impaired and may be totally blind’. Also in some hyper endemic villages in West Africa a third of all adults may be blinded by onchocerciasis (Peters and Gilles 1989). Perhaps this may be the situation in Apesokubi in the Jasikan District of Ghana. Again, citing the Ghana Eye Care Programme, (1995), Avoke; Hayford; Ihenacho; Ocloo (1998) put the figure of children with low vision in the country at 30,000 although they assert that the figure is very consecutive. Though, not all this figure will go for children suffering from onchocerciasis, the fact still remains that some might have experienced low vision due to the prevalence of onchocerciasis in their rural communities.

To Wigg, (1993) onchocerciasis or river blindness is a devastating disease that is the third leading cause of blindness in Africa. According to him 350,000 are blinded by this parasitic disease that has historically attacked the poorest people in the most rural areas of

twenty-seven countries in Africa and six in Latin America. In some savanna regions of Africa and in Guatemala over 10% of the population may be completely blind and another 20% have impaired vision on account of onchocerciasis (Muller, 1975). Though the activities of the Onchocerciasis Control Programmes which started in 1994 in eleven West African countries, it is known that Ghana is affected by onchocerciasis disease.

To Avoke et al (1998) the human eye like any other organ in the body can be affected by disease, malformation, accidents and hereditary factors and these conditions can impair vision. Lowenfeld, (1974) identified the following as ways by which vision may be impaired.

1. Visual acuity may be reduced.
2. Colour vision of the affected person may be defective
3. The individual field of vision may be restricted

The Ministry of Health (2000) onchocerciasis secretariat with Nippon Foundations Hellen Keller International, argues that one can be suspected of having onchocerciasis when the following symptoms appear:

- Intense body itching
- Leopard skin (dark and light patches especially on the front of the legs).
- Painless nodules (painless swelling under the skin).
- Cannot see properly.

It must be borne in mind that to authenticate the fact that one has onchocerciasis, skin snip must be carried out by a specialist in a recognized hospital or health centre. In Ghana one of the hospitals where skin snipping is carried out is the Hohoe Government Hospital in the Volta Region. According to Ocloo, (2000), research is on going in the skin snip test, blood test and other laboratory techniques to establish the efficacy of the ivermectin drug on samples of infested victims.

Eye lesions are the most devastating aftermath of onchocerciasis. They come as a result of the invasion of different parts of the eye by the microfilaria. Although they tend to be bilateral, they are not necessarily symmetrical.

The manifestation of onchocerciasis take different forms. In its kind and gentle form, ocular onchocerciasis may assume the state of sporadic opacities in the cornea. After some time, dead or living microfilaria may be found in the cornea and live microfilaria may be found in the anterior chamber of the eye (WHO, 2000). There are four characteristics of eye lesion; in the anterior segment of the sclerosing keratitis (which makes the cornea opaque) and iridocyclitis (an inflammation of the iris and the ciliary body) and in the posterior segment and optic atrophy. Any of these lesions, which generally co-exist at different levels of severity, may cause blindness.

As earlier stated, blindness is by far the most important feature of onchocerciasis. Patients with sclerosing keratitis usually have a very strongly positive skin snip, but in old patients the microfilaria may have died (Sanford-Smith, 1990). According to the

author, if the whole cornea is scarred, the inner eye is also likely to be damaged. The author is also of the view that cornea grafting cannot help such an eye. In my view the cornea is damaged permanently. He further argues that the iris and ciliary body are often inflamed in heavily infested patients. However, there is nothing specific about this inflammation but is usually chronic and non-glaucomatous.

The usual features of onchocercal iridocyclitis are;

- Fine pigmented deposits on the back of the cornea, or the front of the lens.
- Atrophy of the iris
- Irregularity of the pupil, which may be visible to the naked eye.

Glaucoma is not a common complication but it may cause blindness (Sanford-Smith, 1990). According to the author, it can develop as a complication of the iridocyclitis, because anterior and posterior synechiae block the pathway for aqueous circulation. Subsequently, aqueous production may fall causing low intraocular pressure. The author further opines that glaucoma sometimes occurs in young patients with quiet eyes, but large numbers of microfilaria in the aqueous fluid. This may account for high incidence of glaucoma among children of school-going age in the area.

Occasionally there may be inflammation of the optic nerve called optic neuritis leading to optic atrophy. The inflammation causes swelling and oedema of the optic disc. However,

it is more common to see the changes of optic atrophy. The optic disc is pale, indicating atrophy of the optic nerve and there is also evidence of previous inflammation such as gliosis of the disc, sheathing of the retinal vessels and pigmentation around the disc (Sanford-Smith, 1990). Again, according to Sanford-Smith (1990), any kind of visual loss from onchocerciasis is nearly always irreversible.

Sanford-Smith is of the view that visual loss may result from pathological changes either in the anterior or the posterior segment of the eye and often there are changes in both. The changes in the anterior segment of the eye are often sclerosing keratitis and iridocyclitis and its complications. He further states that according to numerous surveys, very nearly 100% of the population in hyper endemic areas suffer from onchocerciasis which they acquire at an early age. Significant visual loss from the disease is rare below the age of fifteen (15) but the incidence rises gradually with age. Moreover, he contends that males are more likely to develop visual loss than female.

Knight & Livingstone (1982) stated that the prevalence of posterior segment lesions is difficult to determine because they are often obscured in a heavily infected person by opacification of the cornea and lens. This leads to blurred vision. By definition blindness is visual acuity worse than counting figure at three (3) metres. By that definition, in a typical hyper endemic area, 5% of the whole community will be blind, and 30% females and over 40% males (Sanford-Smith 1990). However, according to the author, blindness rates vary very much from community to community and from savanna zones to forest

zones. The savanna zones have high incidence of blindness as found in most savanna zones of West Africa. In many parts of West and Equatorial Africa more than 50% of the inhabitants are affected, 30% have impaired vision and 4-10% are blind, owing chiefly to onchocerciasis (Manson, 1982). According to the author in some villages of Upper Volta and in Ghana the percentage of blindness reaches 13-35%. The author further argues that the greatest incidence is usually found in adult males as previously stated and they form the backbone of the labour force and as their life is not shortened, they remain a burden to themselves and to the community.

In the human host, infection begins in the childhood as early as the first year of life. In the Red Volta District the fly infection rate is 13% and the microfilaria rate in the population is 38% under 10 years, 9% under 20 and 100% over 20 years (Manson, 1982).

### **2.3 Impact of onchocerciasis on the health and socio-economic activities of school age children**

Generally, not only school children are affected by onchocerciasis. The people as well suffer from the disease in terms of health and socio-economic activities. Naturally,



onchocerciasis negatively affects the health and socio-economic dimensions of the people which in turn affects the children.

Apart from children, people most hard hit in onchocerciasis prone areas include farmers and traders. The socio-economic importance of the disease was the main reason for the creation of the Onchocerciasis Control Programmes (OCP) in West Africa in 1975 (TDR Strategic Direction for Onchocerciasis, 2002).

According to TDR Strategic Direction for Onchocerciasis (2002), the fear of blindness resulted in depopulation of the fertile river valleys, and this made onchocerciasis a major obstacle to socio-economic development in West African savannah regions. Farmers would normally avoid fertile river valleys due to the menace of onchocerciasis. The effect is that productivity among farmers dwindle. Despite the negative effects of onchocerciasis, the onchocerciasis control programmes launched from 1974-1999 had positive results in the health field. WHO (2000) generally states that onchocerciasis has virtually been eliminated from the onchocerciasis controlled and eliminated from the onchocerciasis control programme areas as a disease of public health importance. More specifically, perhaps the most gratifying achievement is that 11 million children born within the original onchocerciasis control programme area have been spared the risk of onchocercal blindness.

Further, 35 million people are protected from infection by the disease. Close to 500,000 people are prevented from going blind or becoming severely handicapped and 1.5 million have lost their onchocercal infection. These are indeed revealing. According to the programme, the Onchocerciasis Control Programmes (OCP) is seen to be a good illustration of how to promote 'health for all through justice and equity', not least because Onchocerciasis Control Programmes orients its efforts to helping those 'at the end of the road'.

Accordingly by eliminating the threat of blindness and other onchocercal manifestations. Onchocerciasis Control Programme has opened up the way for resettlement in fertile areas along the rivers, previously deserted through fear of the disease.

It is thus estimated that a total of 250,000km<sup>2</sup> of riverine land will be available for resettlement and cultivation essentially as a result of OCP operations. Using traditional technologies and agricultural practices this 'new land' will provide food to feed 17 million people (WHO, 2000).

Socially, persons with onchocerciasis are most often isolated from their peers due to blindness or skin manifestations. The psycho-social and economic impacts are very great. For example according to the Strategic Direction for Research Onchocerciasis (2002) onchocerciasis skin disease (OSD) diminishes income generating capacity. There are a lot

of itching and pain in persons with onchocerciasis leading to reduction in productive income activities. The report indicates that severe itching alone now accounts for sixty percent (60%) of lost work or income generating activities.

Wilson (1980) opines that reduced agricultural productivity and in many cases, depopulation of the most fertile land near rivers have contributed to already serious food shortages and economic hardship. Food shortages generally can set in motion other unpleasant variables like weight-loss and malnutrition. Escalation of economic hardship have a direct bearing on people who have their children in schools. Children's school attendance are likely to drop or children withdrawn to engaged in menial jobs.

#### **2.4 Onchocerciasis and teachers attitudes to affected children.**

Teachers play unique roles towards the development of children in general. They are pivot around which children of school going age in particular progress along the developmental ladder. Their attitudes (teachers) towards these children is therefore of grave concern to parents and society. According to Avoke et al (2005) our attitudes shape our beliefs and influence our behaviours, characteristics and or dispositions. To these authors, if a blind person is overprotected, he/she will grow up to become lazy or withdrawn since this characteristic would have been rooted in him or her.

Generally, teachers attitude towards children of school going age in the regular schools and mostly negative. It is however time now that it changes for the positive. In Ghana and

in most other developing countries, some people still wonder how visual impaired persons are able to make it to the university, marry and make families. In regular schools, teachers are not very comfortable with children affected by onchocerciasis. For all we know, onchocerciasis is not contagious. Attitudes are habitual and part and parcel of us so that they influence our dispositions greatly.

It is very necessary that teachers be very responsive to children of school going age afflicted by onchocerciasis. This can be done when teachers in an attempt to prevent visual impairment as a result of onchocerciasis ask for referrals to be made to eye specialists diagnose and advice appropriately (Avoke, et al 2005).

According to the authors these eye specialists are called ophthalmologists formerly known as occultists - who are medical doctors who perform surgery on the eye. Others are the ophthalmic nurse, the optometrist the optician and the orthoptist. Onchocerciasis is a preventable visual problem. Teachers therefore should aim at reducing or eliminating the preventable visual impairment of onchocerciasis by the use of protective school uniforms among themselves and school going age children. They can do this through government legislation.

School children affected by onchocerciasis can also be helped by teachers if they identify and position themselves strategically in the classroom. In effect they will benefit maximally from academic work. Such identification would also alert teachers to include or exclude the visually impaired afflicted by onchocerciasis in the performance of some tasks. Teachers will also know what type of equipment to provide for these school children to study. Some of these materials may include magnifiers, reading stands, lenses, slates and styluses, and overhead lumps.

## **2.5 Prevention and management of onchocerciasis in Ghana**

The vector for onchocerciasis is the black fly. Black fly control is based on several interventions. These are large-scale ivermectin treatment, vector control and others.

### **a) Symptoms of black fly**

The Ministry of Health (2000) with Nippon Foundation Helen Keller International on onchocerciasis control emphasized that you should suspect that you have onchocerciasis when you stay or have stayed in an area where there are these black flies and you have one or more of the following:

- Intense body itching
- Leopard skin (dark and light patches on front part of the legs) after many years of itching and scratching of the body.

- Painless firm nodules (painless swelling under the skin) especially on the joints and bony prominences particularly the chest wall, hips, around the waist, elbows, knees and legs.
- Cannot see well. Wigg (1993) noted that sometimes there is genital swellings.

Sandford-Smith (1990) opines that, heavily infected people have lower than average body weight. He contends that dead microfilaria in the dermis produce an inflammatory reaction, which then causes a popular rash. After some years of severe itching and scratching, the skin can become thin and loose (called 'tissue paper' skin) and patches of the skin become pale (called 'leopard' skin). (Schull 1987).

In Ghana, many patients do not like the ivermectin treatment. (Ocloo 2000). According to him, they claim it causes severe itching and discomfort. Also, most patients experience dizziness and blackouts when using the drug.

To confirm that one had the infection of the worms (microfilaria), it is advisable to check from the nearest health facility by the skin snip. This is to determine whether the person has the young worms (microfilaria) which causes the disease.

#### **b) Ivermectin treatment**

According to the Annual Report (1997) ivermectin, a microfilaricide has been used as a major tool in the control of onchocerciasis since 1986. The drug was initially given

through the mobile mass treatment strategy in the endemic countries. In Ghana this approach has been used with onchocerciasis control programme supported by health workers from the Ministry of Health doing the distribution, until 1995. The community directed treatment with ivermectin (CDTI) was then adopted and tried in some selected areas as pilot studies.

The Onchocerciasis Control Programmes (OCP) is not in existence now, but its activities have been integrated into the health delivery system in line with the new reforms. Schull (1987) maintains that ivermectin kills all the microfilaria and makes the adult worm of the black fly not able to produce more microfilaria for 6-12 months. The author is of the opinion that it does not kill the adult worms so treatment may need to be continued until they die (5-20 years). Making ivermectin available for the treatment of onchocerciasis in humans was the result of the joint effort by World Health Organization and Onchocerciasis Control Programme and Merck & Co. Inc (WHO, 2000). Furthermore, ivermectin is provided free of cost by Merck and Company for treatment of onchocerciasis for as long as necessary. According to the (WHO, 2000) in 1997/1998, close to six million people were treated with ivermectin within the programme area through the community Directed Treatment with Ivermectin (CDTI) approach.

Ocloo, (2000) citing Sandford-Smith, (1990) postulates that ivermectin can be relatively non-toxic and it is taken once every year.

The dose is 150mg/kg and it is available as 6mg tablets. The dose is as follows;

Body weight of patient (kg)	Dose
15 – 25	½ table = 3mg
26 – 44	1 table = 6mg
45 – 64	1½ tablet = 9mg
65 – and above	2 tablets = 12mg

The Ministry of Health, (2000) with Nippon Foundation Helen Keller International on black fly or onchocerciasis control also states that Ivermectin or Mectizan can be given to suspected victims of onchocerciasis according to height.

Height of suspected victim (cm)	Dose
Above 150	4 tablets
141 – 158	3 tablets
120 – 140	2 tablets



90 – 119 1 tablet

Below 90 no tablet

Ivermectin is not taken by everyone. There are some categories of people who are exempted.

Schull, (1987) states that, ivermectin is not given during pregnancy. Citing Sandford-Smith (1990), Ocloo (2000) emphasized that ivermectin should not be given to the following categories of victims of onchocerciasis because of possible reactions leading to complications.

- Children under 5 years
- Individuals weighing less than 15kg
- Breast feeding or lactating mothers
- People with serious, acute illness especially when meningitis is suspected.

The Ministry of Health, (2002) with Nippon Foundation Hellen Keller International on onchocerciasis control again advocates for a single dose. A single dose is taken orally with water (1 to 4 tablets) depending on the height of the person, once a year for 10-12 years after which time the adult worm which lives in the body and produces the small worms (microfilaria) would be dead. It kills the young worms (microfilaria) which causes onchocerciasis (1 tab = 3mg).

According to Schull, (1987) treatment which may at times be done by a medical officer may include:

- Surgical removal of the nodules which contain worms especially those that are on the head near the eyes and whose microfilaria may damage the eyes.
- Treatment with diethylcarbamazine and an antihistamine but with careful small doses of diethylcarbamazine first. Suramin which is another drug can also be used but it is very toxic.

**c) Possible side effects after taking ivermectin or mectizan**

There are many side effects after taking ivermectin. The Ministry of Health, (2001) in Ghana on onchocerciasis control has listed some of the side effects to include the following:

- The presence of minor side effects (itching, headaches, swelling of limbs, etc) after taking mectizan is expected and it is, normal. It is a sign that the drug is working.
- The intensity of side effects usually goes away by themselves two to three days after taking mectizan or ivermectin.
- In the case of serious side effects such as fainting and difficulty in breathing, the patient must be taken to the nearest health facility for treatment.

WHO (1996) on onchocerciasis control identified fevers and general body pains as some of the minor side effects after taking mectizan. The few severe adverse effects reported were difficulty in breathing, dizziness and fainting.

According WHO (1996) on onchocerciasis Control in Ghana, two cases were referred in two villages, one in a programme design and one in a community design village. The procedure or referral was not clearly indicated, all that was said was that they reported to health facilities and got treated. Below are quotes from these two villages. ‘Some people experienced swollen body, skin rashes and irritation. The people went to the health centre on account of body’ (FEMALES, GHANA).

‘Some of the problems people experienced were swelling of the face and limbs. For sometimes some could not walk around. I know of somebody who reported at the Foso Hospital for treatment’ (Ghana). These assertions indicate that sometimes the side effects of taking ivermectin can be very devastating.

In case of overdose the Ministry of Health recommends that the patient consults a doctor. It further states that the use of the drug be discontinued after the expiry date stated on the carton. Again the drug should not be stored above 30<sup>0</sup>c since its efficacy may be compromised when the drugs are exposed to high temperatures. In Ghana, the Ministry of health indicates that mectizan or ivermectin cannot restore sight to the blind but should still take the medicine because it kills the young worms that are harmful to them and the others.

**d) Vector control**

This strategy was aimed at bringing the black fly population at a level where transmission of microfilaria is excluded and maintaining that level until the microfilaria in humans die out (WHO, 1996). It further states that this is achieved by aerial application of insecticides to breeding sites of black fly larvae in the rivers, regularly and over a period of 14 years.

About 50,000 kilometres of rivers were under control by the programme and in 1998 up to 7 helicopters carried out weekly spraying of insecticide during the raining season when black fly breeding is at its highest. A network of 137 flood gauges including 78 equipped with hydrological tele-beacons which is monitored by technicians from national teams and the programme, makes it possible for the programme to ensure accurate dosage of larvicides in order to reduce the risk of the development of insecticide resistances as well as minimize the impact of larvicides on the aquatic environment (WHO, 1996).

The Daily Graphic, Tuesday February 6, 2007 quoted a Deputy Ministry of Health, Dr. Mrs. Gladys Norley Ashietey that in Ghana, owing to the fear of blindness, many people had left the fertile river valleys of some places in the northern part of the country where the disease was common. She said the government had, over the years, tried to fight the disease with support from both local, international and Non-Governmental Organization (NGOs), adding that one of the measures taken was the establishment of the Onchocerciasis Control Programmes (OCP) which embarked on spraying along the river basin of the Volta Region to control the vector of the black flies causing the disease. Air-

spraying is best repeated on alternate days for a period of about 3 weeks since the residual effect on vegetation lasts only a few days. However, according to the author, the disadvantage of aircraft spraying is that it is much more expensive and it generally employed in areas where onchocerciasis is hyperendemic.

**e) Other control measures**

One of the other measures to control onchocerciasis is reducing the fly-man contact. This may be achieved by citing new villages away from simulium-infested areas (Nnochiri, 1975). The author further states that, alternatively breeding sites may be destroyed by controlling the water-levels of rivers by the construction of dams, siphons or concrete channels. Cheesbrough (1991) also states that as much as possible avoid simulium bites by covering as far as possible those parts of the body most at risk. Perhaps the fear of the inhabitants to put up farm huts and camps may partly emanate from the presence of black flies in these endemic areas which are the main vector for onchocerciasis. Many farmers whose farms are close to rivers go to their farms very late in the mornings and return very early before the evenings set in. Blindness rates therefore are highest near rivers (Wilson, 1980).

The second other control measure is personal prophylaxis. Again, according to Nnochiri (1975) this consists in rubbing fly repellants e.g. dimethylphthalate and diethyltouamide over exposed skin surfaces. Apart from the use of repellants the wearing of protective clothing e.g. long trousers and long-sleeved shirts are encouraged to ward off black flies

and minimizes onchocerciasis diseases. In onchocerciasis prone communities, school children are encouraged to wear such clothings to protect themselves from the bites of black flies.

Additionally, according to the author, alternative approaches for preventing or controlling onchocerciasis include identification of new form of eye-care delivery, training of allied health personnel, development of new drugs or safer and most effective utilization of existing ones implementation of less expensive means of black fly control and development of public education programmes. The general principle of control and elimination cycle of transmission from vector to man to reduce or eliminate the parasite reservoir in the human population involving communities in control programmes are very crucial. This is mainly done through what is termed community directed treatment systems. At the local or community level, it is used in the administration of ivermectin drugs.

In a community Directed Treatment System, the community itself is in charge of the execution of the system, including the treatment of all eligible members of the community, collection of the drug, referral of severe adverse reactions and reporting (TDR, 1996). Since 1986; ivermectin, a microfilaricide has been used as a major tool in the control of black flies which give onchocerciasis. As part of the process of transfer of the onchocerciasis control programme activities, efforts have been made in the country to

integrate these activities into the health delivery system in line with the health reforms. This has brought community involvement in black fly control activities.

The identification of communities where the black flies are a nuisance is the first step towards community directed treatment of ivermectin (CDTI). During the first contact, the village chief or his representative was briefed on the purpose and rationale of the study. The research team then requested to meet the entire community on a mutually agreeable and agreed day. It usually coincided with the village's day of rest when the vast majority of residents were mostly likely to be around in the village. There was a brief contact usually for the first day. The chief or his representative often asked to be given time to consult with the elders. On the average, the research team visits the community twice.

On the second appointed day, at the village gathering, the team discussed with the chief, his elders and members of the community of both sexes, issues relating to the burden of onchocerciasis, mode of transmission of infection and the benefits to be derived from its elimination. At the end, communities or villages asked questions on issues that were not clear to them and answers were provided as truthfully as possible.

According to Special Programme for Research and Training in tropical Diseases (TDR Report 1996) health education and basic information about the use of the ivermectin was provided to the entire community. The following subjects were dealt with by all teams.

- ❖ When and where to collect the tablets.

- ❖ People eligible for taking the tablets
- ❖ People excluded for taking the tablets.
- ❖ How often the tablets should be taken.
- ❖ How individual does is determined.
- ❖ How the tablets are taken.
- ❖ Possible side effects and their management

In all communities, health education ended with the selection of community distributors. The criteria or the selection of the community distributors (assistants) were based on their discretion.



The following quotations are a sample that illustrates the health education approaches as reported from various sites.

*“A series of village meetings were held after which registration , health education, training, venue selection and final drug administration (procedure) were discussed’ (MALI).*

*“The villagers were made to know that ivermectin prevents and cures river blindness. Those who are ineligible were to be excluded through serious warnings” (ENUGU).*

*“The team from Accra gave us health education on*



Clearly there are testimonies to verify whether proper health education had been done or not. Different teams and community have different and varying criteria for the selection of those to distribute the drug in the community. Some of these are social status like a village head, civil servant, place of birth, education, sex and training. Also of considerable importance across sites were attributes like honesty and integrity as well as trustworthiness, diligence, competence and amicable disposition (TDR, Report, 1994). Some or a combination of these criteria are used in different communities. The report further stated that the number of these community directed distributors (CDD) selected also varied from one community to other. Then comes the actual selection.

According to the report, this was based on the prescribed characteristics of the community directed distributors, where such has been defined within the framework of the decision making that existed in the communities. Again, according to the report, in Cameroon, the health workers were the main distributors. However, many nurses has no means of transport while the few who had the means complained of lack of fuel and maintenance. Given these constraints, many nurses used UNICEF-trained community health workers to distribute the tables in their various communities.

Interestingly, the situation in Ghana is quite different. The report states that in Ghana, the people selected as distributors were those the community believed would accept the responsibility and perform well. In addition, consideration was given to the ability to speak a particular language. Farming and teaching were the main occupations of the chosen people. This worked perfectly for the programme – design (PD). In community design (CD), decisions on the characteristics of the distributors as well as the process of his selection were left entirely to the communities. Decisions were based on the information provided about the job description of the distributor at the time of contact was made with the community by the research team.

In Uganda, most of the distributors were farmers but in five communities church leaders were involved and in five others, teachers were the distributors and in two villages a carpenter was chosen, while a fishmonger was selected in another village. Students and a school-leaver were chosen in three and one communities respectively. Only one community chose a female as the distributor.

With Yaba and Ghana, no specific mode of distribution was recommended by the programme, and as a result there was a fair balance between the house-to-house and the central point modes of distribution.

TDR Report (1994) indicated that in Yola, Uganda, Mali, Yaba, Ghana and Cameroon the method of distribution was predominantly central point except in few villages where the house-to-house mode was adopted. In Yola and Yaba, the commonest central place was the house of the village head. The distributor's house was used in only three communities in the Yaba site and the only villages in Yola site that did not use the house of the village head used the dispensary. In the other sites, there was a good mix of different places that included the house of the village head, the distributor's house, the health centre or dispensary and the market place. Today, community centres and other places or tress are used in Ghana. To conclude even though the house-to-house mode of distribution was relatively more frequent in the programme design (PD) villages, no single method of distribution was characteristics of either community- design (CD) or progrname design. There were variations in both rounds of treatment and from villages to village. The selection of the mode of distribution (central or house-to-house) was for reasons of convenience and norms which were specific to the village concnered (TDR Report, 1994).



## **CHAPTER THREE**

### **METHODOLOGY**

#### **3.0 Introduction**

This chapter focuses on research design, population for the study, sample and sampling technique, description of instruments, procedure for data collection, validity and reliability of instruments, data collection, procedure and data analysis.

#### **3.1 Research design and qualitative approach**

The research design is premised on descriptive survey. According to Cohen, Mansion and Morrison (2003) descriptive survey is an example of non-experimental design because there is no manipulation of variables. These authors further state that, typically, descriptive surveys designs is used to gather data at a particular point in time with the intention of describing the nature of the existing condition or identifying standards

against which existing conditions can be compared. The data from the variable like headteachers, teachers and school children were not subjected to any manipulation and were therefore measured as they were.

The descriptive survey was also appropriate because it sought and found out the implications of onchocerciasis on the education of children of school going age in the area. It also assisted and indicated the trends that were developing by the existence of the disease in the township. It also informed the research to have adequate knowledge on what suggestions or decisions that could be taken on the findings of the research.

The qualitative approach is chosen because the researched used interview and observations as tools of data collection. Thus according to Fraenkel and Wallen (2003) qualitative researchers use three main techniques to collect and analyse their data; observing people as they go about their daily activities and recording what they do; conducting in-depth interviews with people about their ideas, opinions and experiences and analyzing documents. Best and Khan (1993) also share the same sentiments that qualitative research has different forms of data collection and the methods employed include in-depth open-ended interviews, observation and written documents.

The researcher also chose the qualitative approach since the researcher did not intend changing any of factors like situations, circumstances and experiences of participants.

### **3.2 Population**

The population is in the neighbourhood of 3,800. This includes all the headteachers and teachers of the Apesokubi schools, children of school-going age in the community, school children and the entire people of Apesokubi township.

### **3.3 Sample**

The sample for the study was 22 persons. This was the actual selected group. They comprised two headteachers, one each from the two schools used, 10 school children, 5 each from the two schools, four teachers, 2 from each school and 6 people who were parents and farmers. The researcher envisaged this figure to be representative enough of the population. According to Gray (1987) a 'good' sample is one that is representative of the population from which it was selected. This basically gave justification for the sample size in the study since it covered a broad spectrum of the people in the area.

### **3.4 Sampling technique**

Purposive sampling techniques was employed in selecting two (2) schools in Apesokubi township for the study. The choice of the two schools was done by the Assemblyman for the community in consultation with the researcher. Creswell (2005) contends that in purposive sampling, respondents are handpicked to be included in the sample and to develop samples that are satisfactory in relation to researcher's need. Amoani (2005) also

argues that researchers must pick cases that are judged to be typical of the population in order that errors of judgment in the selection process will counter balance each other. The two headteachers were involved. Four teachers and six (6) persons who are parents and farmers were selected through random sampling. Simple random sampling is used when the population is small and also give each respondent the same opportunity to be involved in the study.

Ten (10) school-going children were used for the study. They were selected by convenient sampling. According to Creswell (2005) convenient sampling is used when the respondent can provide information to answer questions. It was intended for school children who might have suffered from the debilitating effects of onchocerciasis at the time of the research.

### **3.5 Instrumentation**

In the collection of data for the study, the following instruments were used

- Interview
- Observation

#### **3.5.1 Interview**

Interviews are a way of verbally interacting with participants or respondents in conducting research (Avoke, 2005). The author further states that interviews can be

described as a form of conversation between two people. A semi-structured interview was conducted for headteachers, teachers, school going children, parents and farmers in Apesokubi community. According to Sarantakos (1998) interviews are systematic, can be controlled to avoid bias and could be related to the research questions of the study. In this respect, the semi-structured questions were closely linked to topics developed from the research questions.

The semi-structured interview was also employed because it allowed the respondents the opportunity to express themselves freely. Even though the encounter between the researcher and the respondents is structured, the respondent is given a considerable liberty in expressing his or her view on a situation presented to him or her (Amoani, 2005).

To Amoani (2005) this method allows the researcher to obtain more detail of personal reaction to certain questions. The interview was on one-on-one basis between the researcher and respondent where the interviewer expected responses from the interviewees. The process lasted for twenty to twenty-five minutes. Further probes were made to get the correct data where the interviewee could not answer the questions satisfactorily.

### **3.5.2 Observation**



According to Avoke (2005) observations are basically an opportunity of looking for what is happening or has taken place. The researcher was involved in a study to know the implications of onchocerciasis on the education of children of school-going age in Apesokubi township. It therefore sought to study the children in their natural environment and physical setting. Observing individuals in their natural setting is a naturalistic observation (Fraenkel and Wallen, 2003). It was therefore easy for the researcher to observe the school children to find out whether they had depigmentations on their skins, eye problems and nodules on their body. Some cases of skin depigmentation and eye problems were observed.

Amoani (2005) opines that observation as an instrument in research work enhances the possibility to deal with subjects which the observed are unable to give verbal reports and for this reason we can say that observation is independent of individual's ability to report. The author further argues that observation is independent of respondent's willingness to report and it helps to deal with problems of people who are afraid to be singled out.

### **3.6 Validity, reliability of instruments and pilot study.**

The validity and reliability of any research project depends to a large extent on the appropriateness of the instruments or test items used to measure the variables (Seidu, 2006). According to the author validation is the attempt to ensure that the research instruments used are not questionable or disputable. For reliability, the author argues that it is the degree of a research instrument (a test, questionnaire, an interviews schedule, or

an observation scheme) to measure a subject or variable at different occasions and on all occasions consistently give the same or similar results.

For the study, face validity was achieved by designing interview guide which was centred on the implications of onchocerciasis on the education of children of school going age in the Apesokubi township. According to Cohen et al (2003) to ensure content validity, the instrument must show that it fairly and comprehensively covers the domain that it purports to cover. In this direction the interview questions were given to my supervisor to read, criticize and offer expert advice where necessary. The head of Laboratories Onchocerciasis research unit at Hohoe Government Hospital was also consulted. All these helped in the elimination of unclear and unnecessary questions.

Reliability is obtained by administering the same test twice or more to the same group of people and comparing the results to find the extent to which the results for the two or more administrations of the test correlate (Seidu, 2006). Test-retest was conducted on some of the respondents outside the sample size. This was done in April, 2008 and the actual research carried out in May 2008.

A pilot study involving a headteacher, two teachers, two children of school going age, and a parent and farmer each was conducted. They were chosen from Tapa Amanyanya quite close to Apesokubi. It was conducted on one-on-one basis on separate occasions to

ascertain the worthiness of the interview questions. The respondents were asked to comment and make suggestions to improve the instrument. A few made useful suggestions from the pilot study. As a result of their views some items from the interview guide has to be ignored as they sounded offensive.

### **3.7 Procedure for data collection and access**

The Assemblyman for the Apesokubi electoral area took the researcher to the schools, obtained permission from the two headteachers and discussed what the study was all about. The interview schedule for the headteachers, teachers and school going children was also discussed. Rules, venue and duration of the interview were agreed upon. Codes were put in place of names to ensure confidentiality among respondents. The interview for the research work was one-on-one and lasted twenty to twenty-five minutes.

Observation on the school children to find out skin depigmentation, eye problems and onchocerciasis nodules on their bodies was made and put into writing as record purposes on the same day after the interviews.

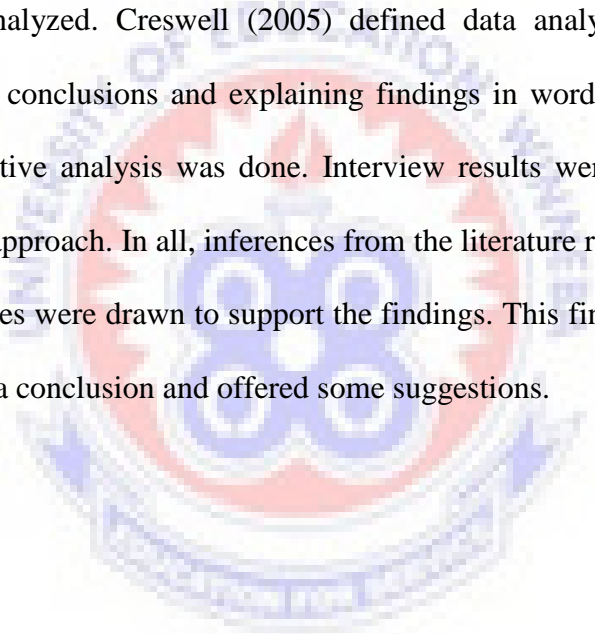
Parents and farmers were reached through the Assemblyman of the town. The assemblyman assembled them in his house where the researcher met them.

### **3.8 Period of data collection**

One month was used for data collection through conducting of interviews and making observations.

### **3.9 Data analysis**

According to Seidu (2003) for the raw data collected to make sense, it has to be organized and analyzed. Creswell (2005) defined data analysis as a process which involves drawing conclusions and explaining findings in words about a study. For this study, the qualitative analysis was done. Interview results were analyzed descriptively using a thematic approach. In all, inferences from the literature review and other pertinent and relevant studies were drawn to support the findings. This finally led to the researcher to come out with a conclusion and offered some suggestions.

The logo of the University of Education, Winneba, is a circular emblem. It features a central shield with a red and white design, surrounded by a blue border containing the university's name in both English and Akan. The emblem is semi-transparent and overlaid on the text.

The logo of the University of Education, Winneba, is a circular emblem. It features a central blue and white design resembling a stylized '8' or a cross with rounded ends. This is set against a red background with a white sunburst pattern. The words 'UNIVERSITY OF EDUCATION' and 'WINNEBA' are written in blue around the top and sides of the emblem, respectively. A blue banner at the bottom contains the motto 'WISDOM BETTER KNOWLEDGE'.

**CHAPTER FOUR**

**PRESENTATION OF ANALYSIS AND DISCUSSION**

**4.0 Introduction**

In this chapter, presentation, analysis and the discussion of the finding are based on the five main research question that were to guide the study.

**4.1 Research question 1:**

**In what ways has onchocerciasis affected the education of children of school-going age in the village?**

Transcript analysis revealed that children of school going age are affected by onchocerciasis in various ways as far as their education is concerned. The effects are broadly placed under direct and indirect ways.

### **Direct ways**

A teacher commented as follows:

*“Directly, school children go blind when they reach adulthood. This affects their higher education.*

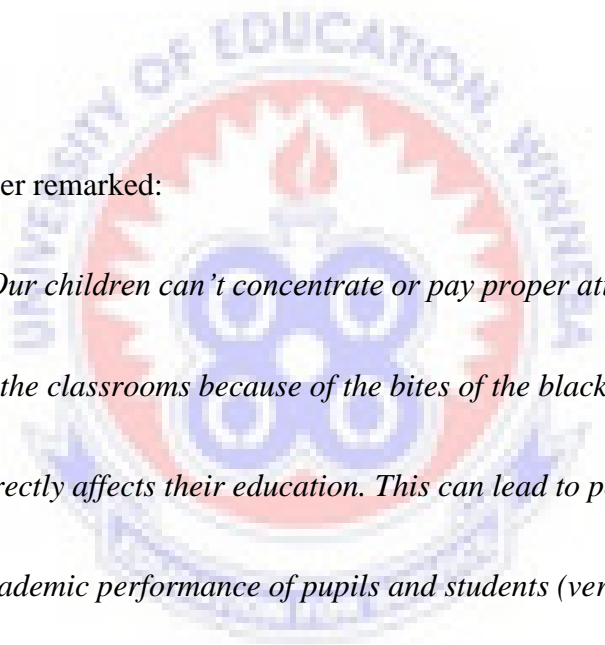
*(Verbatim expression by teacher in school ‘A’).*

Another teacher also remarked as follows:

*‘Continuous bites of the black fly may give children onchocerciasis which will affect them educationally in years to come. Directly, it affects them in their*

*future lives (Comment by a teacher in school 'B').*

Yet another teacher remarked:

The logo of the University of Education, Winneba, is a circular emblem. It features a central sunburst or starburst design in red and white. The words "UNIVERSITY OF EDUCATION" are written in a semi-circle at the top, and "WINNEBA" is written at the bottom. The emblem is surrounded by a blue border.

*“Our children can’t concentrate or pay proper attention in the classrooms because of the bites of the black flies. This directly affects their education. This can lead to poor academic performance of pupils and students (verbatim expression of a teacher; school ‘A’)”.*

The comments stated above clearly indicated that school children were at risk as far as their education was concerned. It was revealing that in their formative years at school, the situation was quite assuring but very gloomy when they should reach adulthood in education. They are likely to go blind which would negatively affect their education.

This goes to support a research conducted by Samba (1994) that indicated higher visual problems among the adult population although few children also experience visual loss impacting negatively on their formal education. Still on the direct ways onchocerciasis affects the education of children, it was observed that even at school gatherings and assemblies there were a lot of distractions posed by the menace of the black fly which is the main vector of onchocerciasis. Children were seen on several occasions attempting to ward off black flies that tried to feed on their bodies. It was also observed that it was normal for school children to drive these black flies away since teachers did not see it as naughtiness on the part of the school children in class and at gatherings. In most cases such warding off of the black flies were greeted with loud noise which was considered normal by the school community. The second emerging theme is discussed below.

### **Indirect ways**

Low incomes of parents of school children were being experienced in the area. Parents were mostly farmers and traders. The case was that, farmers and traders were not spared the bites of the black flies that give onchocerciasis.

According to one of the parents who is a farmer, and could not withstand the menace of the black flies during peak seasons normally in June and July had this to say.

*“You can’t go to the farm early in the morning to work.*

*If you do, the black flies will eat you very much. If you are not fortunate, you will get onchocerciasis. We*

*therefore need to make a little to feed on and so on and so on.*



A farmer also remarked in a similar way:

*“We don’t go to the farm very early. There are a lot of black flies which give onchocerciasis. On days that the whether is moody, we don’t go to the farm at all.”*  
*When we do, we close very early to avoid the bite of black flies. Indirectly, our produce are low and we can’t pay school fees (verbatim expression of a farmer)”.*

*“We don’t go to the market very early. There are a lot of black flies which give onchocerciasis. On days that the whether is moody; we don’t o to the market at all’.*  
*When we do, we close very early to avoid the bites of black flies. Indirectly, our sale are low and we can’t pay school fees (verbatim expression of a trader)”.*

A male farmer also commented this way:

*“In June and July we go to the farm very late and return very early. What I do is like a child playing in the farm. We have abandoned the fertile lands. You can’t withstand the menace of the black flies and so our productivity is very low. (Verbatim expression of a male*

All the above comments clearly attest to the fact that parents who are mainly farmers experienced low income as a result of their late attendance at work and early closure due to the menace of the black flies that trigger onchocerciasis disease. This corroborates with (TDR strategic direction for onchocerciasis, 2002) that the fear of blindness results in depopulation of the fertile river valleys, and this made onchocerciasis a major obstacle to socio-economics development in West African savannah regions. It further states that farmers would normally avoid fertile river valleys due to the menace of onchocerciasis. The Daily Graphic, Tuesday February 6, 2007 also quoted a Deputy Minister of Health Dr. Mrs. Ashietey that in Ghana owing to the fear of blindness, many people had left the fertile river valleys of some places in the Northern part of Ghana where the diseases was common.

Indirectly, onchocerciasis has its attendant health problems. There is widespread blindness and social exclusion due to onchocerciasis skin disease (OSD) particularly among adults and parents. Children sometimes drop-out of school to care for their adult peers and parents. A lot of money also go down the drain to seek medical care. In many cases school children take their parents to hospitals to seek treatment thereby denying these children access to education.

One parents in an interview session commented:

*“One can become blind from onchocerciasis. You may also have depigmentation of the skin or onchocerciasis skin disease. As a parent you can’t work to support your child in school and this affect him/her indirectly. (Comment from a parent)”.*

Another parent alluded to the above and remarked:

*“You spend much time seeking medical care for your visually impaired child. You become a burden in the society and community and in effect indirectly the education of your child suffers (Verbatim expression of a parent)’.*

The above comments support samba (1994) research that indicated high visual problems among the adult population. A case is also made about the relationship between school attendance of a child and skin disease status of the head-of-household (TDR, 1998). According to the study, where the head-of-household had onchocerciasis skin disease (OSD), children were twice as likely to drop out of school compared to other children of the same age from the same community. Hospital visits were very high in parent patients

with onchocerciasis skin disease and were taken care of by their children who have dropped out of school.

#### 4.2 Research questions 2:

##### **What categories of visual problems, do the children suffer in Apesokubi?**

There is no doubt that a good eye facilitates the academic work of children of school-going age. It was therefore necessary to find out what visual problem these children had in the schools in the area. Analysis from the observation revealed that, there were not much visual problems encountered by the school children.

However, a few of them demonstrated not seeing clearly from the chalkboard by copying wrongly from the chalkboard into their exercise books and also moving closer to the chalkboard to copy.

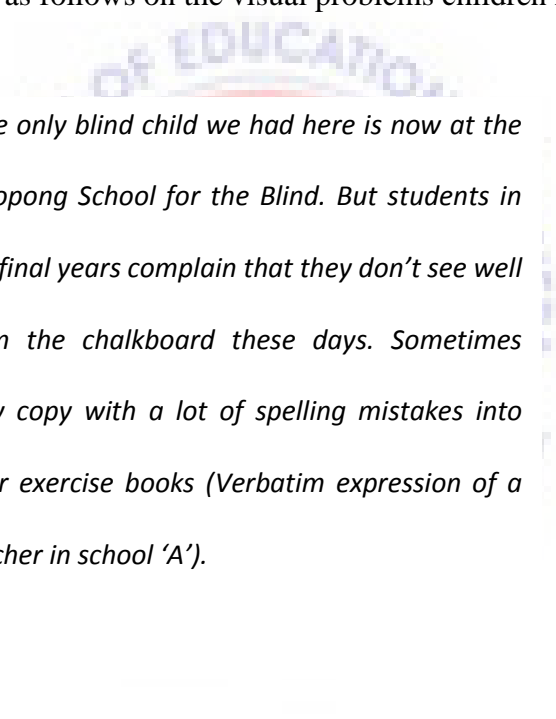
A teacher commented as follows:

*“There are no blind school children here as such. What we observe is that, some copy wrongly from the chalkboard as if they don’t have eye (comment from a teacher from school ‘B’)”*

Another teacher was quick to add:

*“Almost all our children are free from blindness. However, what personally annoys me is that some walk from their tables closer to the*

A teacher responded as follows on the visual problems children had in his school:



*“The only blind child we had here is now at the Akropong School for the Blind. But students in the final years complain that they don’t see well from the chalkboard these days. Sometimes they copy with a lot of spelling mistakes into their exercise books (Verbatim expression of a teacher in school ‘A’).*

The observation made by the researcher during data collection revealed that almost all the school children were free from total blindness.

Onchocerciasis disease strikes after several years of bites of infected black flies. This confirms Mason (1982) view part that the greatest incidence of blindness is usually found in adult particularly in males. What is clear is that, there is high incident of impaired vision among many of the school children. This is evident in the way and manner they sometimes copy words well spelt on the chalkboard into their exercise books wrongly. They also most often move closer to the chalkboard in an attempt to see properly and copy into their exercise books. It is not sufficient proof that these children are being attacked by onchocerciassi as they experience some form of limited vision. But the fact that children in their final years who have almost reached their adulthood are unable to see properly could be attributed onchocerciasis.

### **Impact of visual problems**

The impact of the visual problems among the school children was another emerging theme. The impact of the visual problems among the school children at the moment is not worrying.

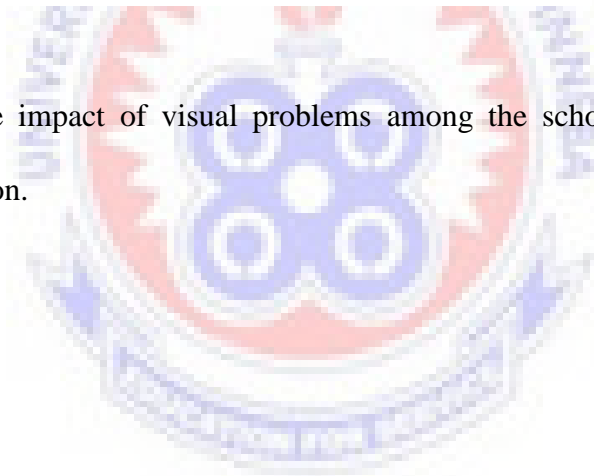
A teacher commented as follows:

*“We don’t see visual problems as a threat to our school children. The situation for now is good. Most of our children can see and do their academic work well (Comment from a teacher from school ‘A’).*

When another teacher responded to our interviewer:

*“Now there is no trouble with their eyes. I fear for them getting onchocerciasis in the near future because of the bites of the black flies. (Verbatim expression of a teacher from school ‘B’)”.*

The issue of the impact of visual problems among the school children gave another startling revelation.



This is how a teacher respondent saw it:

*“The bites of the black flies are too much for our school children. It will give the disease ‘oncho’. They may have problems with their eyes in future and can’t do practical work requiring the use of good eyes’ (Comment from a teacher in school (‘A’))”.*

On the part of a parent, he had this and said:

*“Our children can’t go to school in future. Their eyes will worry them and if we don’t take care, they would become a big problem for us to cater for them all their years in life). (Verbatim expression of a parent.)”*

The data from the above respondents revealed that in the interim, there is no cause for alarm regarding the impact of visual problems among the school children in the community. On the contrary, both teachers and parents were of the view that the situation would be negative both on children and their parents. Children are likely to miss out of school since they can become blind as they have limited vision. Where this happens, children education are hampered since they cannot reach the peak of their academic achievement. Parents also expressed similar sentiments that the toll of onchocerciasis on their school-going children could be very great and also have social implications for them as parents since children can be blinded regarding their educational progress. But it is reassuring that the area is covered by the West African Onchocerciasis Control Programme launched between 1974 and 1999.



More especially, perhaps the most gratifying achievements is that 11 million children in control programme area since the programme operations started have been spared the risk of onchocercial blindness.

#### **4.3 Research question 3:**

**What is the impact of onchocerciasis on the health and socio-economic activities of the people?**

One of the emerging themes was the issue of health of parents who are mainly farmers. Analysis of the transcripts revealed that parents who were mainly farmers feared very much of contracting the onchocerciasis disease. There was the realization that if they contracted the disease, it would impact negatively on their economic activities.

For instance one of the people who was a farmer remarked as follows:

*“You know this is a health problem. If I contract the disease, I can become blind. This will seriously affect my health since, I shall be visiting the hospital always (Verbatim expression of a farmer)”.*

Another farmer also responded in a similar way and said:

*“Onchocerciasis impacts negatively on the health of persons. In such circumstances you need to visit the hospital or clinic regularly. In fact, you waste a lot of time seeking medical attention (Comment by a farmer).”*

The above information revealed that the people were very much aware that onchocerciasis impacted negatively on their health. Analysis of the data revealed that they encountered high hospital visits which wasted their time as far as productivity was concerned. This is consistent with the research by TDR (1998) that revealed substantial ‘time costs’ too. It further states that those with severe onchocerciasis skin disease were found to made significantly more visits to health care facilities like the hospitals and clinics and to spend more time seeking health care than those without severe onchocercal skin disease.

Another emerging theme was low productivity.

Analysis of the data revealed low productivity among farmers. These people could not go to work very early and stay late to maximize productivity.

A farmer responded as follows:

*“Sometimes we come to the farm around 10:00 and close at 4:00 p.m. You can’t come early and close late. The black flies will feed on your blood and you will get onchocerciasis (Verbatim*



Furthermore, farmer respondent remarked:

*"I have stopped going to the best part of my land where the black flies are. What I get now from my farm is too small to feed my family and even get some to sell. I am afraid of 'oncho' (Commend by a farmer)'.*

Here, one could see that productivity among the people is low due to the activities of the black flies the main vector for onchocerciasis. Some farmers have abandoned their fertile

lands in the thick forest for fear of onchocerciasis. This confirms TDR Report (2002) that onchocerciasis skin disease (ODS) diminishes income generating capacity. According to the research, there are a lot of itching and pain in persons with onchocerciasis leading to reduction in productive income activities. Another emerging theme was depopulation and transfers in the area.

### **Depopulation and transfers of teachers**

Many of the respondents agreed that the area was experiencing depopulation of the local people and transfers of teachers. They argued that the town should have been more populated by now since it is one of the oldest towns in the area but this is not the case. In an attempt to avoid the disease, many serious inhabitants who are mainly farmers and trades have relocated to other onchocerciasis free-zones in the district and beyond. Teachers are often transferred or have even refused postings to the area for fear of onchocerciasis.

This is how a teacher reacted while commenting:

*“Initially we don’t know that the black  
flies exist so we accept postings here.  
Later we seek transfers and leave the area  
(Verbatim expression of a teacher from  
school ‘A’).*

A farmer from the community also remarked:

*“Most of our people have left the town for fear of getting onchocerciasis. The black flies are too many in the town”. There is too much itching and pain when they bite you.  
(Comment by a farmer)”*

A parent in town remarked:

*“Although the land here is fertile for farming, most of our people are leaving the area to farm elsewhere. The black flies are too much here to give us ‘oncho’  
(Comment by a parent)”*

There are clear indications that people are leaving the area for fear of onchocerciasis. Visitors like teachers posted to the area also seek early transfers for fear that the bites of the black flies will give them onchocerciasis in years to come. Despite the existence of the town many years now, the town is not expanding in terms of population. From the

literature review (chapter two) for this, study, TDR (2002) in a research stated that the fear of blindness resulted in depopulation of the fertile valleys, and this made onchocerciasis a major obstacle to socio-economic development in West African savanna regions. It argues that farmers would normally avoid fertile river valleys due to the menace of onchocerciasis.

#### **4.4 Research question 4:**

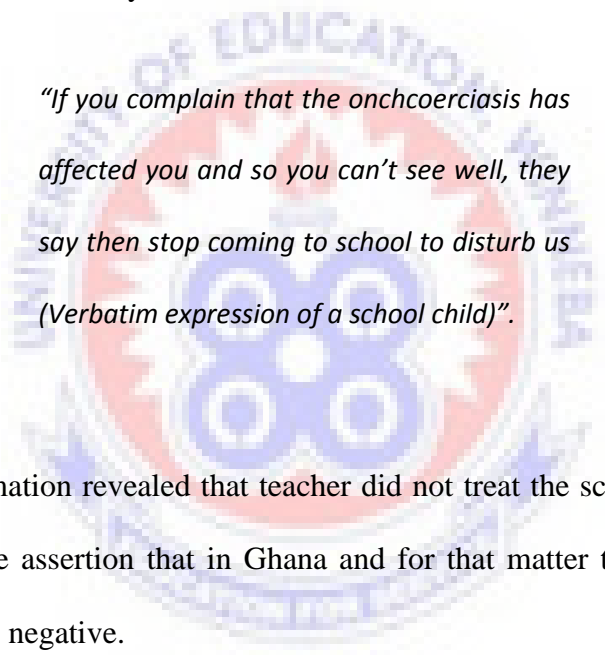
##### **What is the attitude of teachers towards school children affected by onchocerciasis?**

One of the emerging themes was the issue of treatment of children of school going age affected by onchocerciasis by teachers. Analysis of the transcript revealed that teachers did not treat these children very well.

For instance one of the school children afflicted by onchocerciasis remarked as follows:

*“Our teacher think we can see properly so they involve us in running which is very difficult for us to do. If you complain, they say you are also a school child so you must do everything. (Verbatim response from a school child)”.*

Another child had this to say:



*“If you complain that the onchocerciasis has affected you and so you can’t see well, they say then stop coming to school to disturb us (Verbatim expression of a school child)”.*

The above information revealed that teacher did not treat the school children well at all. This confirms the assertion that in Ghana and for that matter teachers attitude towards school children is negative.

Another theme that emerged was that teachers paid little attention to school children’s work affected by onchocerciasis.

A teacher commented as follows:

*"I feel disturbed when a few children copy wrongly from the chalkboard only to say that they don't see well. Oncho disease should not serve as an excuse (Comment by a teacher from school 'B')".*

A school child also remarked:

*"Our teacher don't pay attention to those us affected by oncho. Some don't allow us to copy properly from the chalkboard. Some don't copy properly from the chalkboard". (Verbatim expression from a child from school 'A')".*

The above are all indications that very little attention was paid to children affected by onchocerciasis in the schools there. This indeed is quite embarrassing to children under the care of regular teachers.

#### **4.5 Research question 5:**

##### **How is the onchocerciasis disease being managed in the town?**

It was evident that various ways had been introduced to manage the disease in the area. One was the West African 'Onchocerciasis Control Programme' launched in 1974 which



covered the area. Although the project which was aimed at combating the black flies by rendering them infertile ended in 1994, it has far reaching management results on the people in the area.

A citizen who was a parent remarked.

*“The ‘oncho’ control programme helped us a lot in the town. But for the project, most of us would have been blind by now. (Comment from a parent)”.*

Another citizen of the town who happened to be a parent also commented as follows:

*“The West African onchocerciasis Control Programme was indeed a blessing. Though the bites of the black flies still exist we don’t have onchocerciasis (Commend by a parent)”.*

A headteacher

*“People think “Oncho” is here but because of the West African ‘Oncho’ Control Programme, the black flies has been rendered infertile (Verbatim expression of a headteacher from school ‘B’).”*

These revelations are consistent with WHO (2000) which argues that onchocerciasis has been controlled and eliminated from the onchocerciasis control programme areas as a disease of public health importance. It further states that despite the negative effect of onchocerciasis, the onchocerciasis control programme launched from 1974 - 1999 had positive results in the health field.

Another emerging theme was the use of ivermectin drug in the management of onchocerciasis.

### **Ivermectin drugs**

The ivermectin drug is widely used in the area although not all the people find comfort using the drug. It is generally known that those who take the drug periodically are spared contracting onchocerciasis.

For instance a parent in the town responded to an interview and said;

*“Ivermecting drug has come to save us. Personally, I don’t like taking it because it gives headaches (Verbatim expression from a parent)”.*

A headteacher remarked:

*“Ivermectin is brought to the school by the health authorities for school community to take. I know this frees the children from contracting onchocerciasis. It is a very good by the Government to protect us (Verbatim expression by headteacher ‘A’).”*



Another parent remarked when she was granted an interview on the use of ivermectin.

*“Sometimes they supply expired ivermectin drugs for our use. Also at times we see swellings on our bodies especially our faces (Comment by a parent).”*

Ivermectin drugs were taken in schools, in churches and under trees in town.

One citizen, a parent commented at follows:

*“Our own people are trained by health officials and they give us the drug under trees in town and in churches. We have family registers for that (Comment by a parent).”*

This distribution system is called the Community Directed Treatment of Ivermectin (CDTI) where the local people like teachers and farmers were used. According to TDR (1996), since 1986, ivermectin, a microfilaricide has been used as a major tool in the control of black flies which give onchocerciasis.

Another emerging theme had to do with other control measures by the use of repellants, wearing of long sleeves and trousers among others.

#### **Use of repellants and wearing trousers and long-sleeves**

Even though the uses of ivermectin drugs were in operation in the community, the people made other conscious efforts at protecting themselves from onchocerciasis.

For instance, a farmer in an interview responded:

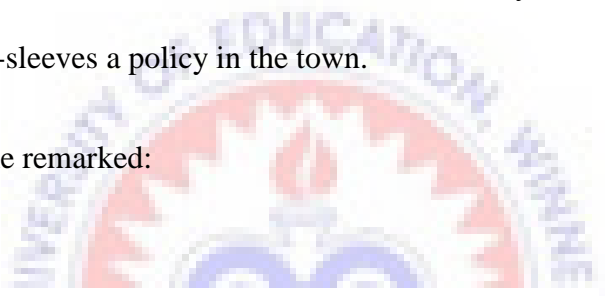
*' I wear trousers and long-sleeves to the farm. I use heavy 'socks' too (Verbatim expression of a farmer)'.*

A headteacher remarked:

*“Teachers come to school in trousers and long-sleeves. As for the children we don’t sack them if they come in trousers and long-sleeves. It is only that we have not made it compulsory (Comment from headteacher ‘A’)”.*

The headteacher of school ‘B’ was of the view that they need to make the wearing of trousers and long-sleeves a policy in the town.

In an interview, he remarked:

The logo of the University of Education, Winneba, is a circular emblem. It features a central sun with rays, a book, and a torch. The text 'UNIVERSITY OF EDUCATION WINNEBA' is written around the perimeter of the circle.

*“I think we have to report to school authorities to permit the wearing of long-sleeves and trousers among teachers and school children. We allow children in June and July when the black flies are much of a nuisance to wear trousers and long-sleeves (Verbatim expression by headteacher of school ‘B’)”.*

From the above analysis, it is clear that it is not mandatory for school children to wear trousers and long-sleeves to school. However, this is long overdue. The children at least can be spared the itching and pain from the bites of the black flies by the use of trousers

and long-sleeves. In the review of literature, it confirms the view held by Nnochiri (1975) that apart from the use of repellants, the wearing of protective clothing for example long-sleeves and trousers are encourage to ward off black flies and minimize onchocerciasis disease. In onchocerciasis prone communities, school children are encourage to wear such clothing to protect themselves from the bites of black flies.



## **CHAPTER FIVE**

## **SUMMARY, CONCLUSIONS AND RECOMMENDATIONS**

### **5.0 Introduction**

This chapter specifically deals with the summary, conclusions and possible recommendation based on the findings from the study on the implications of onchocerciasis on the education of children of school going age in Apesokubi in the Jasikan District in Ghana.

### **5.1 Summary of findings**

This study sought to find out:

- What ways has onchocerciasis affected the education of children of school-going age in Apesokubi?
- What categories of visual problem do the children suffer in township of Apesokubi?
- What is the impact of onchocerciasis on the health and socio-economic activities of the people in the area?
- Teachers attitudes towards children affected by onchocerciasis
- How is onchocerciasis disease being managed in the town

In all twenty-two (22) persons were involved in the study. Purposive sampling techniques were employed to select two schools in the township with their respective head teachers.

The semi-structured interview was used on headteachers, teachers, parents and farmers on a one-to-one basis. There was an observation on ten (10) school children five (5) each from the two schools to find out whether they had depigmentation on their skins, eye problems and nodules on their bodies.

The following is a summary of finding based on the themes that emerged from the study.

### **Direct ways**

Finding from the study revealed that children were likely to go blind when they get to adulthood. At higher levels of education, they were likely to be affected negatively. However, at the basic level of their education, they could cope with the situation except for few distractions and not paying proper attention in classes.

### **Indirect ways**

The research revealed that the threat of onchocerciasis affected the incomes of their parents. Parents therefore found it difficult paying school fees of their children. The health of both parents and children were also indirectly affected.



### **Visual problems**

Findings of the study revealed that there was no blindness among the school children. What was revealing however was that at the higher levels of their education, the children had started to copy words spelt correctly on the chalkboard wrongly into their exercises books. Some also walk closely to the chalkboard to see words before copying into their exercises books suggesting some form of visual defects.

### **Issues of health**

The research revealed that parents feared contracting onchocerciasis. Findings further revealed that if they contracted the disease, hospital attendance was going to be very high and at high costs. Farmers and traders were also going to be affected negatively regarding their economic activities.

### **Low productivity**

Findings of the study revealed that the people who are mostly farmers and traders went for work very late and returned very early during the day due to the nuisance of the black flies. In effect, productivity among the people was generally low.

### **Depopulation and transfers**

The town was not expanding in terms of population as it should judging from its existence many years back. Findings of the study also revealed that many of the inhabitants particularly farmers and traders were leaving the community and relocating to other areas devoid of onchocerciasis.

The study also revealed that teachers sought for transfers to other areas when they come and realize that black flies which give onchocerciasis are abundant in the township.

### **West African onchocerciasis control programme**

Findings of the study revealed that the West African Onchocerciasis control programme launched by successive Government between 1974 and 1999 brought much relief to the people of the area. The study further revealed that the programme made the black fly impotent and for now the disease is not a major health problem in the area as people might believe.

### **Use of ivermectin drugs**

The use of ivermectin drugs on yearly basis after relapse of the West African onchocerciasis control programme has come to consolidate efforts at eradicating onchocerciasis in the area. However, it was revealed that some people had difficulty taking the drugs because according to them the side effects after taking the drugs were

too unbearable. On the whole they were happy that the community distribution treatment of ivermectin was in the system.

### **Repellants, wearing of trousers and long-sleeves**

Findings of the study revealed that the use of repellants and the wearing of trousers and long-sleeves are being encouraged in the area. The research further revealed that the staff of the schools in the area have not up till now petitioned the District Directorate of Education to make it a policy in the schools mandating the children to wear trousers and long-sleeves to protect themselves from the bites of the black flies.

## **5.2 Conclusions**

It is gathered from the research that blindness among school children is not prevalent contrary to the view of the researcher.

What has been established is that there is low productivity among parents of these school children who are mostly farmers and traders and this is impacting negatively on their socio-economic activities. The end results would be that they would not be able to pay their children's school fees and provide them with other school materials which is likely to mar their chances for higher education.

The study had also revealed that there is no policy put in place by school authorities to enforce the wearing of trousers and longer-sleeves as prescribed school uniforms for school children to save them from the constant bites of the black flies.

### **5.3 Recommendations**

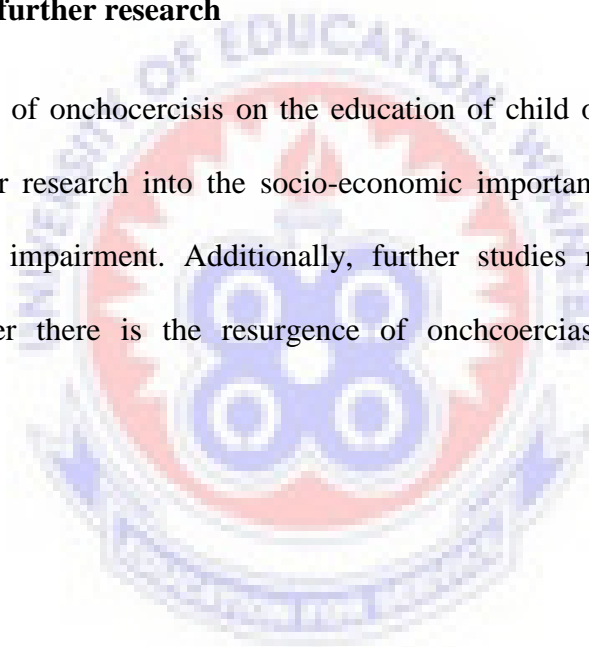
Based on the findings of the study, the following points are suggested for consideration:

- Visual problems among school children should be quickly reported to parents for regular eye check ups in hospitals and clinics.
- The District Special Educators should regularly visits schools in the township to conduct eye-screening tests.
- Parents should encourage the wearing of trousers and long-sleeves among their children at home also.
- Apart from the minors, every citizen in the area must be made to take the ivermectin drug yearly to forestall getting onchocerciasis.
- Teachers must be sensitized to know that the use of ivermectin renders the microfilaria impotent and should therefore take the drugs yearly to stay and work in the town.
- Teachers should also write boldly and legibly on the chalkboard for school children to see and copy.
- As things stand now, it is recommended that the wearing of trousers and long-sleeves should be made optional in the school in the township.

- Finally, it is recommended that it becomes a policy by the District Directorate of Education that all children of school-going age wear trousers and long-sleeves as their prescribed school uniform in the township.

#### **5.4 Suggestions for further research**

The implications of onchocerciasis on the education of child of school going age in the area need further research into the socio-economic importance of onchocerciasis as a cause of visual impairment. Additionally, further studies need to be conducted to ascertain whether there is the resurgence of onchocerciasis in the community or otherwise.



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**APPENDIX 'A'**

**SEMI-STRUCTURED INTERVIEW GUIDE FOR SELECTED TEACHERS,  
PARENTS AND FARMERS IN APESOKUBI SCHOOLS AND TOWNSHIP ON  
THE IMPLICATIONS OF ONCHOCERCIASIS ON THE EDUCATION OF  
CHILDREN OF SCHOOL GOING AGE**

School/Town:.....

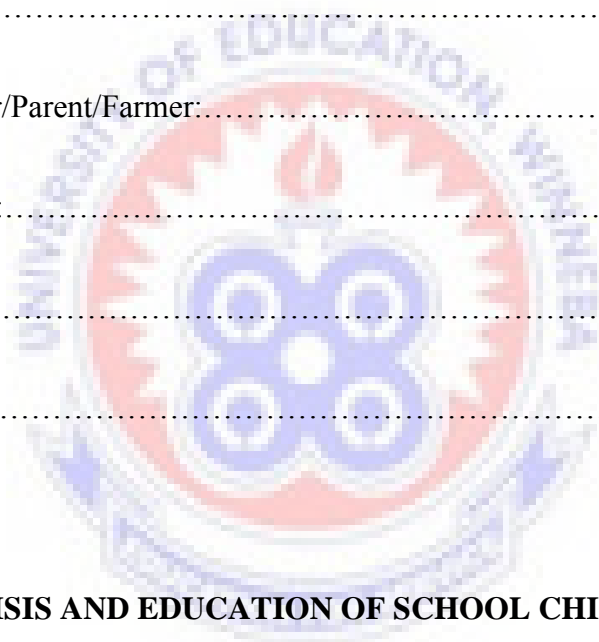
District:.....

Name of Teacher/Parent/Farmer:.....

Class of Teacher:.....

Interview Date:.....

Duration:.....



**ONCHOCERCISIS AND EDUCATION OF SCHOOL CHILDREN**

1. How are the children with onchocerciasis faring at school?
2. What interventions are put in place in the area to help children afflicted with onchocerciasis?
3. What measures are put in place to make these interventions effective in the community?

## **ONCHOCERCIASIS AND ITS SYMPTOMS AMONG SCHOOL CHILDREN**

1. What are the causes of onchocerciasis in the area?
2. What effects is it having on children of school-going age in the area?
3. How are the children reacting to this menace?

## **VISUAL PROBLEMS**

1. What are the visual problems that exist among the school children at Apesokubi?
2. Which of the above visual problems is dominant among the school children?
3. What are the impact of the visual problems among the school children?

## **TEACHERS ATTITUDES TOWARDS SCHOOL CHILDREN AFFLICTED BY ONCHOCERCIASIS**

1. How do teachers relate with children affected by onchocerciasis?
2. What form of assistance is/are given to such children by teachers?
3. How is the interrelationships enhanced between teachers and school children afflicted with onchocerciasis in the area.

## **MANAGEMENT OF ONCHOCERCIASIS**

1. Where do persons afflicted by onchocerciasis disease receive treatment from the area?
2. What control measures are put in place to combat the disease in the area?
3. What impacts are those control measures having on the school children?



## APPENDIX 'B'

### OBSERVATION GUIDE

- Symptoms of onchocerciasis in the community.
- School children behavior at assemblies.
- Children attire at school.
- Teachers attitudes towards pupil/students.
- Control measures.

