TITLE

DRACUNCULIASIS
A CASE STUDY OF PAIKORO LOCAL GOVERNMENT AREA OF NIGER STATE

By

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CERTIFICATION

I hereby certify that this research work has been supervised, read, and approved as meeting part of the requirement for the award of PGD Environmental Management in the Department of Geography, Federal University of Technology, Minna, Niger state.

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DEDICATION

In loving memory of my late mother, Mrs. Rahmat Mohammed Bello.

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ABSTRACT

A study of incidence of Guinea worm infection in some selected but endemic communities in Paikoro LGA of Niger State was carried out. The study showed that 85.95% of the inhabitants of the 14 villages studied all together were affected.

The study also showed that the groups 11-20 years and 21-30 years were mostly affected. These are the active age group involved in farming and food production and in other local socio-economic activities in the areas. They study showed a male preponderance as against the absence of sex predilection. No concrete explanation can be given for this.

The people are not unaware of the source of the diseases but they still obtained their drinking water from the unsafe sources. The reasons being their behavioural, and attitudinal approach to unsafe water as a source of the infection and lack of alternative sources, since their wells dry up during the dry season.

I order to prevent disability and substantial economic loss, which may seriously affect food production into the areas. Its estimation could not be ascertained in the course of this study, due to lack of proper records keeping by the people. Health education, provision of portable drinking water (safe alternative sources) as a long-term solutions and filtration and treatment with Abate (temephos) as short-term solutions are recommended.

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CHAPTER ONE

1.0 INTRODUCTION:

Guinea worm (Dracunculiasis) is an ancient disease that causes much suffering and disability in Nigeria. Though ancient, it is an easily avoidable and eradicable disease (L.D. Edungbola 1985). Like many endemic diseases, simple human behaviours are involved in the transmission of guinea worm, wading in a pond of water by infected person, and drinking water that has been contaminated.

Drcunculiasis is an incapacitating disease that affects about 3 million people per year in Africa and Asia with up to 140 million actually being at risk because they lack access to safe water supply (NIGEP).

Historical accounts indicates that Dracunculiasis is an ancient parasitic disease which was known to the Greeks and Romans, Edungba (1985). The earliest evidence of this disease is found in ancient Egypt. It has been incriminated as the fiery serpent that bit and killed many Isrealites as contained in the Holy Bible. Alfred J. Bollet (1980) has provided persuasive evidence that the biblical "fiery serpent" were indeed.

Guinea Worms

The Guinea worm disease (Dracunculiasis) is prevalent among people who live in rural areas, as peasant farmers, cattle rearers, etc who during the dry seasons invariably depend on contaminated shallow ponds for their drinking water. It is exclusively transmitted through water (Toye, 1985). It is known that water in shallow ponds and in step wells usually contain during the dry season a high population of

water flea called Cyclops, the intermediate host of guinea worm, which are heavily infested with guinea worm larvae (in endemic communities). Human ingest such Cyclops when they drink contaminated water (Toye 1985). When Cyclops are killed by acida gastric juices, the third stage Guinea worm larvae are librated. They penetrated the wall of the human stomach or small intestine and migrate into the abdominal or thoracic cavity. Male and female worms mate in the connective tissue. The male dies afterwards while the female matures in one year to become the familiar thread-like guinea worm which pierces the skin and discharge thousands of larvae into water when the infected human host dips the affected parts of the body into water (Muller, 1979).

The commonest site of emergence of adult guinea worm is the lower limb. This is a parasitic adaptation which ensures that the ulcer is located at an anatomical region most likely to be in contact with water, thereby ensuring that the life cycle continues uninterrupted. However, adult female guinea worm can emerge from any part of the body including the genital areas, breasts, trunk and buttocks (L. D. Edimgbola 1985). The Federal Government of Nigeria through the Federal Ministry of Health, in 1988 launched an eradication programme aimed at Global eradicatio by the year 1995 (A.D. Aliyu 2000).

METHODS OF PREVENTING GUINEA WORM

There are six major methods of preventing transmission of Dracuuculus medinensis (A.D. Aliyu 2000). There methods form the 8 efforts to eliminate guinea worm from

endemic village. A combination of methods is by far the most effective approach (A.D. Aliyu 2000). The methods are:

- Provision of safe drinking water from sources such as boreholes, pipe borne, deep wells, rain water harvesting.
- Prevention of contamination of water sources by infected person (e.g. building barriers around sources).
- Boiling drinking water from doubtful sources t kill Cyclops and guinea worm larvae.
- Filtering of water using fine-pored human materials to siere off Cyclops from drinking water.
- Use of insecticides such as abate in ponds (water) to kill the intermediate hosts (Cyclops) in water.
- Conducting health education to raise people's awareness about the transmission, impact, prevention and control of guinea worm infection and to mobilize in order to foster community action in eradicating the disease.

COMPLICATIONS AND IMPLICATIONS

Guinea worm infection is seldom fatal but it is accompanied by serious complications that may lead to protracted but reversible incapacity (Edungbola 1985). Permanent disability may ensure sometimes. Incapacity in dracuuculiasis is caused by

1. Tissue reaction against the worms product
2. Repeated multiple infection

3. secondary bacteria infection resulting fro negligence, ignorance and unsanitary methods of local management.

IMPACT OF GUINEA WORM DISEASE

Inspite of the lack of complete assessment evidence abound the because of the prolonged incapacity and coindence of its peak occurrence with agricultural activities, there is loss of agricultural activities and therefore fall in food production. Impact on school attendance is also substantial (Aliyu 2000). Gollanday (1982) estimated that about $300 million – billion of marketable goods were lost globally every year due to the disease.

ERADICATION

Being a disease transmitted exclusively by drinking water, the surest means of eradicating it is by an endemic area on a permanent basis is the provision and utilization of safe drinking water.

This study intends to look into the prevalence or possible implication of guinea worm infestation in some selected communities in Paikoro LGA, Niger State.

1.1 OBJECTIVE OF THE STUDY

1. To ascertain the present magnitude of guinea worm infestation among communities in Paikoro Local Government area.
2. To determine the persistent causes and sources of the disease.
3. Determine the age groups/sex mostly affected by the disease
4. Suggest methods of eradicating the disease
5. Assess the socio-economic losses caused by the disease.

1.2 HYPOTHESIS

The following research questions are posed.

1. Are the people in the community well informed of the disease (Dracunculiasis).
2. Are they also aware of how it is spread and how it can be presented.
3. Do the people of the community accept guinea worm as a health problem that can be.
4. What are the peoples beliefs about the disease.
5. It there adequate supply of safe drinking water.

1.3 SIGNIFICANCE OF THE STUDY:

In the year 1985 a National Conference on Dracuuculiasis (Guinea worm disease) was convened in Ilorin during which it participants concluded that Dracunculiasis is a serious national public health problem, the effects of which are manifest in decreased agricultural output, decreased school attendance and increased pain, suffering and disability. Appropriate action is needed at Federal, State and Local Government levels to eradicate the disease.

Dracunculiasis is reported to be endemic in 5 (five) Local Government areas of Niger State; out of these endemic villages, Paikoro LGA ransk as the most Guinea worm endemic in the State and has the highest number of Guinea worm endemic villages reporting about 80% cases in 1999 (Aliyu, 2000). Hence the significance of this study which is aimed at identifying or determining reasons for the endemicity of the disease in the LGA to suggest ameliorative or profer possible solution sot problems.

1.4 LIMITATIONS

This study covers some selected villages in Paikoro Local Government due to number of constraints such as:

1. Shortage of time
2. Shortage of funds
3. Inadequacy of other necessary materials such as transport, personnel, writing materials.

1.5 BRIEF HISTORY OF THE STUDY LGA (PAIKORO)

Paikoro Local Government area lies between Minna the State capital and Abuja the Federal Capital. Its history dates back I 1981 when it was created by the then civilian administration of the second republic but was scrapped in 1983 and later in 1991 recreated.

Paikoro LGA is situated in the south eastern part of Minna the Niger state capital. It is bonded by six other local governments.

Shiroro LGA bonds it to the North, Bosso LGA to North west, Katcha and Agaie to South west, Lapai LGA to South and Gurara LGA to the south east.

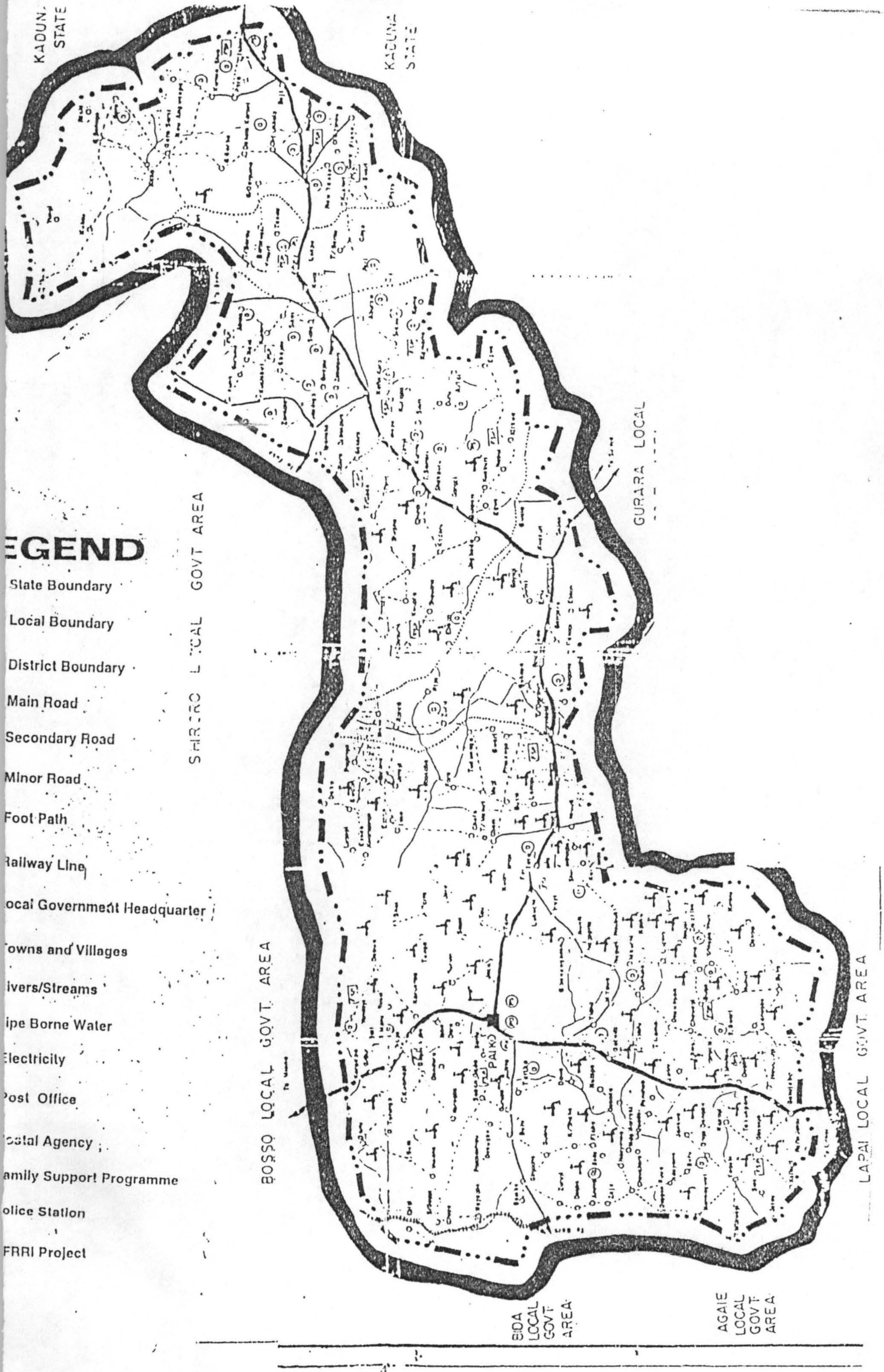
Paikoro, Adunu, Ishau, and Kwakuti districts with the Local Government headquarters at Paiko town 23 kilometres from Minna.

Paikoro LGA comprises three main ethnic groups – The Gwari, Kadara and Koro. There are Hausa and Fulani settlers in the LGA.

The 1991 census figure projects that Paikoro LGA has a population of about 107,691 people.

People of Paikoro LGA are mostly farmers and specialize in the production of yam, rice, cassava, guinea corn and millet.

They have such social facilities as electricity, water supply in some major towns of the LGA, health services, educational institutions, organized markets etc.


KADUNA STATE
KADUNA STATE
EGEND
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District Boundary
Main Road
Secondary Road
Minor Road
Foot Path
Railway Line
ocal Government Headquarter
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ivers/Streams
ipe Borne Water
lectricity
ost Office
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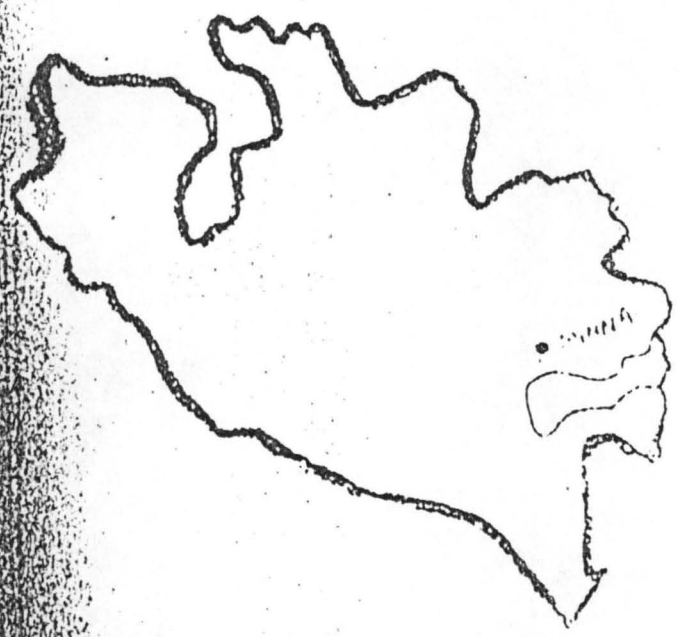
amily Support Programme
olice Station
FRRI Project
SHIRORO LOCAL GOVT AREA
GURARA LOCAL
BOSSO LOCAL GOVT AREA
PAIKO
LAPAI LOCAL GOVT AREA
BIDA LOCAL GOVT AREA
AGAIE LOCAL GOVT AREA



A MAP OF NIGER STATE OF NIGERIA, SHOWING (I
THE MAP OF PAIKORO LGA, THE STUDY AREA.

SOURCE: NIGER STATE MINISTRY OF INFORMA
AND CULTURE

CHAPTER TWO

2.0 LITERATURE REVIEW

There has been a lot of work done on Guinea Worm disease in Nigeria. Onabamiro, between 1951 and 1958 carried out research in southwestern Nigeria, which stands along the leading contributions worldwide to the knowledge of early stages of the development of Dracunculus medinesis, mammalian host. Muller (1971). He recovered 162 Guinea Worms in 10 dogs he killed, 43-48 days after infection. 153 (83.3%) of the recovered guinea worms were found in the subcutaneous tissues surrounding the auxiliary and lingual lymph nodes. In 1954 he (Onabamiro) identified up to 30 Cyclops species and subspecies in ponds in southwestern part of Nigeria which were new to science but only c. nigerianus (Thernocyclops nigerianus) was the species responsible for infection in Nigeria. (see Appendix 4)

Akpovi, et al in 1981 had began health education on Guineas Worm and were testing its efficacy in a distract near Ibadan. They found that despite the Health education, between 30% and 70% of the population were still affected by the disease. Thought the disease can be managed treated, but re-infection is common.

In 1979 Abotahin, reported the work he carried out in a village Wawa near the Kaiji lake Kwara State (now in Niger State since 1991). Out of 1,678 persons he examined, 98 patients had Dracunculus medinensis and he traced the source to a small lake created by a cattle dam in close proximity to the village as reservoir of infection.

Endungbola, in 1985 estimated that in Nigeria and other West Africa countries where the disease is endemic, active guinea worm transmission occurs virtually in every state (pre 1988 figures) although the level of endemicity varies. He projected that at that time about 2.5 million Nigerians have guinea worm every year. About 1 million of these experience temporary incapacity for 1 to 3 months while about 12,000 suffer irreversible disablement.

The educational attainment of certain communities is partly affected by presence or absence of certain diseases such as guinea worm. Between 1981 and 1982 Ilegbod et al tried to show the impact the disease has on children in Nigeria. 768 boys and 727 girls' age 6-14 years were examined at 4 primary schools in a village in southwestern Nigeria. 22% of the girls and 20% of the boys were infected with Guinea worm and on average the infected children were absent for about 25% school days as compared with a 2.5% absentee rate for uninfected children. Nearly 6% of children left school permanently because of Guinea Worm infection.

In 1986 Ilegbodu, et al, carried out a study of Guinea Worm infection in Ibarapa district in Oyo State and they arrived at the following prevalences of the infection at different times. 12.3%; 13.5%; 32.4% and 35%. They attributed it to the following reasons.

i) Water supply to the district was generally low throughout the year.

ii) There were extended periods in which no water was pumped to the places.

iv) The volume of water pumped varied periodically, low volumes (considerable

less than 40 litres per day recommended by World Health Organization for a tropical climate) usually occurring during the dry season.

In 1983 Edungbola and Watts carried out an investigation on the epidemiological assessment of the distribution and endemicity of Guinea Worm infection in Asa, Kwara State and it showed the disease to be wide spread and highly prevalent there, 6,250 individuals in 11 villages were examined and 53% had the infection and more adults than children showed evidence of active dracunculiasis.

Udonis, in 1986 carried out a field study in Ohaozara, Imo State of Nigeria to determine the effectiveness of a rural water supply project in the control of endemic dracontiasis in the area. In the pilot studies prior to the water installation project, 5.058 individuals were examined. A total of 2422 (47.9%) individuals had either draunculus blisters or uleers. An overall reduction of 71.8% was achieved in 18 months following water supply provision. He attributed it to the fact that provision of piped water reduces the dependence on stream and pond water and this can reduce transmission of the disease.

Brieger and Guyer, (1990) carried out study, in Idere, a rural community in Oyo State of Nigeria, on farmers loss due to guinea worm disease. In that report it was estimated that between 1987 and 1988, 15% of the population were affected. In-depth interviews were conducted with 20 farmers who had been disabled by the worm between October 1987 and May 1988. Information was sought on time and duration of illness, crops usually planted and crops the farmers could not plant because of guinea worm.

The study depended on subjective estimate by the farmers based on yields normally obtained. Data analysis was primarily descriptive with emphasis on progresses and trends observed. The average age of the farmers was 45 years (range 27-68), and 1 and 7 months, the disability ranged from difficulty in walking (1 farmer) and walking with the aid of a stick (2) to being bedridden (17). Time of infection varied with 8 farmers affected only in au tumn/winter (October to January), 3 from February to May only, whereas in the rest of the infected spanned both onwards, so many crops are planted in the spring (February to May). The May crops grown were maize, cassava, yams and melons, but not all grow by all the farmers. Losses were experienced in all crops due to inability to plant. It was estimated that total losses of the 20 farmer were 26,590 Nigerian Naira, and for the whole community would be 358,965 Nigerian Naira (equivalent to us $90,000).

Edungbola, et al (1987) in a study on Guinea worm control as a major contributor to self-sufficiency in rice production in one area of south eastern Nigeria, documented a loss of 45.000 man-days due to the disease. These 45,00 man-days loss of $20 million per year in profits from rice production alone for an area with a population of 1.6 million.

Ameh and Onwuliri (1995) conducted a survey on Knowledge Attitudes. Practices and beliefs (KAPB) and certain socio-cultural attributes of Guinea Worms disease in Ai-Ezza rural community of Ado Local Government Areas of Benue State in February, 1993 shows a disease morbidity rate of 63.4% of affected households and 41% of infected individuals.

An interview questionnaire shows that community tradition, religion, nutrition and material status were affected in a way that complicated the prospect of guinea worm control in the area. It is possible that cattle feacal matter, which was widely applied on guinea worm sores, may have contributed to the high rate (62.7%) of infection complication in the area and highly predisposing to tetanus.

In a group project study report by the students of the African Regional Health Education Centre (ARHEC), university of Ibadan, Ibadan. (1989). The students 10 in number conducted a cross – cultural and health education approach in the control of guinea worm infection in Niger State using Piko town as a pilot study area. In their report on the aspect of practice and beliefs synthesis, it was expressed, by the majority of the people through interviews that the guinea worm is a natural and normal problem. That every human being has guinea worm in his/her body and it only need time to manifest. However the general observation by the students on the community's main source of water meant for drinking, is clearly ponds which are all infested by the Cyclops the intermediate host of the dracunliasis (Guinea Worm), under close examination by a powerful hand lense.

The Guinea Worm disease; epidemiology, control and treatment detail study was carried out by Muller (1979). He described Guinea worm infection as one of the most easily prevented parasitic disease, but it is nevertheless a common cause of disability in rural areas of Africa, South West Asia and India; were people rely on ponds or wells infested with infected cyclopoids for their drinking water.

He went further to explain that the Guinea Worm infection is remarkably seasonal because of the following:

a) The influence of the climate on the types of water sources used and

b) The developmental cycle of the parasite.

Suitable conditions for infection occurs only where water for drinking is taken from stationary bodies of surface water such as ponds, step-wells or cisterns. Infection is not associated with running water or with draws wells with a circumference of less than 3 metres. He also emphasized that draunculiasis (Guinea Worm) infection is one of the easiest diseases to control or even eradicate, base on the following facts.

a) The period of infectivity is also a matter of weeks.

b) Human infection has to be contracted each day year.

c) There is no important animal reservoir.

d) Transmission is limited to small, easily defined floci. Once transmission is interrupted in an area for a single season, infection cases entirely unless it is reintroduced from one outside. The most effective and safe ways of controlling transmission and breaking the cycle of re-infection includes:

a) Sieving Water through a cloth

b) Chemical treatment of water bodies with Temephos (see Appendix 5)

c) Improvement of water supply.

Treatment consists of rolling out each emerging worm onto a small stick, a few centimeters each day. Certain drugs have been shown to reduce the pain and pruritus and enable the worm to be removed more quickly.

However it is likely that these compounds act against the host reaction rather than on the worms themselves.

The impact of portable rural water supply on the prevalence of Guinea Worm disease in Asa Kwara State of Nigeria was put forward by Edungbola et al (19880. In that report, the provision of protected water supplies, in the form of boreholds within villages, reduced the point prevalence of draunculiasis in affected communities from over 50% to 0% or nearly 0%, within 3 years of intervention. However less accessible or malfunctioning borehole have a less dramatic impart on prevalence of guinea worm remained almost unchanged. The socio-economic benefits of the decline of dracunculiasis included a rise in school enrolment, and a fall in school absenteeism. Local people so the link between guinea worm disease and water supply, and appreciated the many benefits of disease and 'their communities.

Evidence suggesting the disability from dracunliasis effect on mobility was explored in a study by Smith, et al, (1989), conduced in north eastern Imo State, Nigeria to define the disability of restriction of mobility associated with dracunliasis a simple of household units was visited every 2 weeks to determine who was affected by dracunliasis and to characterize the extend of disability. The average duration of symptoms was 13.7 weeks (range 3-29 weeks). 50% of all episodes of the disease resulted in severe disability for those aged 50% and over was significantly higher than for those less than 50 years old. The disease occurred during the peak yam and rice harvest time and the period of preparation for the planting season.

Eradicability of the Guinea Worm globally was reported by Hopkins and Ruiz-Tiban, (1991). The report revealed that the forty-four World Health Assemble (WHA) declared the goal of eradication dracunliasis (Guinea worm disease) by the end of 1995. The following strategies were to be adopted for global eradication.

i) Countries to establish national programme office and conducting baseline survey.

ii) Countries to implement interventions

iii) Countries to contain few remaining cases of guinea worm.

vi) Countries to conduct another case search.

v) Certification of eradication of guinea worms of countries by the WHO.

We are now in the year 2000, 5 years from the previous target data of eradication of the guinea worm, (1995). Literature revealed, studies are still going on as to why global eradication has not yet been achieved. However the level at which the cases of the infestation was brought down to the lowest level, in comparison with the initial case search, is highly significant, and the remaining cases are put at just 4%.

CHAPTER THREE

3.0 RESEARCH METHODOLOGY

This chapter deals with detail information on the procedure used for data collection. Information on this research were collected through the use of questionnaire, personnel observation and oral interview.

It describes the following

- Research design
- Sampling technique
- Instrument used for data collection
- Administration and processing of instruments
- Method used for data collection and analysis.

3.1 RESEARCH DESIGN

A research work of this nature requires a wide coverage on the adequate information relating to guinea worm disease in Paikoro Local Government.

3.2 SAMPLING TECHNIQUE

Random sampling technique was used in the selection of households in some of the villages where this study was carried out to get a fair opinion of the people and to avoid bias.

3.3 ADMINISTRATION AND PROCESSING OF INSTRUMENT

Questionnaires were personally administered hand by hand by the researcher and those that could not read or write were assisted in reading and recording their response.

3.4 METHODS USED FOR DATA COLLECTION

3.4.1 Questionnaire

This is a device getting answers to questions by using a form, which respondent fill by himself or is assisted fill. A total of 350 questionnaires were administered and out of this 306 were found useable. There were 16 questions contained in the questionnaire – 306 (87.4%) of the questionnaires were completed and returned.

The questionnaire were drawn from the research question stated in the study and used in 14 villages in the LGA. These are:

Jita Nupbi, Nagopita Jatai

Tungan Gans, Tungan Mallam

Bugo Tunbi, Kasuarra, Topi, Gwam

Kartato Sindagbe, Jere papi

Jidna Santuyi, Nagoyi Kukugbe

Gabadna, Lukpma.

3.4.2 Observation

The research made some personal visit to the villages, health facilities, etc. This was to enable the research make direct observation and assess, water supply, the affected people and cultural norms in respect to guinea worm.

3.5 ANALYSIS OF DATA

The data collected were analysed and put in form of table in percentage over 100 this x/y x 100/1 where x for the number of respondents and y stands for the total questionnaire filled and returned

CHAPTER FOUR

4.0 FINDING AND DATA ANALYSIS

The 14 communities (villages) earlier listed for study in Paikoro LGA is one of the few remaining communities that are still affected with Guinea worm disease. During the visits for this study, a random selection of houses was done. The individual's age ranged between 1-60 years and above. A total population of three hundred and six (306) patients were seen.

TABLE 1

FREQUENCY DISTRIBUTION AND PERCENTAGE OF GUINEA WORM IN PAIKORO LGA NIGER STATE BY SEX

SEX	AFFECTED	%	NOT AFFECTED	%	TOTAL
FEMALE	106	40.3	14	32.6	120
MALE	157	59.7	29	67.4	186
TOTAL	**263**	**100**	**43**	**100**	**306**

The table shows that our of the three hundred and six patients, a total of two hundred and sixty three suffered from the disease between January and July, 2000. The table also shows that more males were affected than females.

TABLE II

FREQUENCY DISTRIBUTION AND PERCENTAGE OF GUINEA WORM IN PAIKORO LGA, NIGER STATE BY AGE

AGE (YRS)	AFFECTED	%	NOT AFFECTED	%	TOTAL
1-10	25	9.5	30	69.7	55
11-20	87	33.1	4	9.3	91
21-30	77	29.3	1	2.3	78
31.40	36	13.7	2	4.7	38
41-50	21	7.9	2	4.7	23
17	17	6.5	4	9.3	21
TOTAL	**26.3**	**100**	**43**	**100**	**306**

This table shows that those in the age group of 11-20 years were most affected. The age group has a prevalence of 33.1% closely followed by the age group 21-30 years which has a prevalence of 29.3%. The least affected are those in the age group 1-10 which have prevalence of 6.5% and 9.5% respectively.

FREQUENCY DISTRIBUTION AND PERCENTAGE OF GUINEA WORM IN PAIKORO LGA, NIGER STATE BY AGE AND SEX

AFFECTED				NOT AFFECTED		
AGE (YRS)	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL
1-10	14	11	25	20	10	30
11-20	51	36	87	4	-	4
21-30	44	33	77	-	1	1
31.40	25	11	36	2	-	2
41-50	12	9	21	1	1	2
51-60	12	5	17	3	1	4
TOTAL			263			43

is table further shows among the age groups most affected that it is the males that affected more.

LE IV: FREQUENCY DISTRIBUTION AND PERCENTAGE OF GUINEA M IN PAIKORO LGA, NIGER STATE BY SOURCE OF DRINKING WATER

SOURCE OF NKING WATER	AFFECTED	%	NOT AFFECTED	%	TOTAL
				72.1	229
	753		31	27.9	77
ATER	198		12	100	306
	247		43		

The table shows that those who got the infection more are those who obtain their water from ponds or stagnant water 75.3%.

TABLE V: FREQUENCY DISTRIBUTION AND PERCENTAGE OF GUINEA WORM IN PAIKORO NIGER STATE BY PRESENTING SYMPTOMS

PRESENTING SYMPTOMS	NUMBER	%
ITCHING ONLY	161	61.2
ITCHING AND BODY PAINS	93	35.4
ITCHING AND HEADACHE	9	8.4
TOTAL	**263**	**100**

The table above shows that all the patients who suffered from the disease during the period of study all have itching as a presenting symptom. Those who have itching as a presenting symptom alone have a higher percentage (61.2%).

TABLE VI: FREQUENCY DISTRIBUTION AND PERCENTAGE AGE OF GUINEA WORM IN PAIKORO LGA NIGER STATE BY POINT OF WORM EMERGENCE

PRESENTING SYMPTOMS	NUMBER	%
FEET ONLY	116	44.1
JOINT ONLY	5	1.9
FEET AND JOINT	86	32.7
FEET, JOINTS & OTHER PARTS OF THE BODE	56	21.3
TOTAL	**263**	**100**

This table shows that the worm appears much more in feet. While some cases the worm appeared in the feet and some other site.

The reasons for other questions not analyzed will be reflected in discussion of results in the next chapter.

4.2 DISCUSSION

A total of three hundred and six people were studied out of which two hundred and sixty-three were affected during the period of study. This represents 85.9% of the population. This confirms an earlier assertion made by Edungbola, (1985) when he said that "..... active guinea worm transmission occurs virtually in every state although the level of endemicity varies".

Out of the two hundred and sixty-three that were affected by the disease, one hundred and fifty seven (59.7%) were males. This finding has deviated from the finding in the study carried out in Wawa village by Abolarin (1979) in which he found a male preponderance. 62 out 98 representing 68.3% were females while 36 representing 36.7% were males. My finding is also different from that of Onabamiro (1958) kale. (1977) and Edungbola, (1984) who at different time found that both sexes are equally affected. On the other hand the finding of Udonsi who in 1987 working in Ohazara Imo State reported a male preponderance. He found male prevalence was 45.5%. He further stated that there was a tendency towards a higher male prevalence than female prevalence rates. The probable explanation for the male preponderance in my study is because women boil the water they fetch from the cyclop laden stagnant water to prepare food for their infants. They are likely

to drink from remainder of the boiled water, whereas the male that would be on their farms in the day are likely to obtain water to drink wherever they feel thirst from a source that is near the farm and so drink from they Cyclops laden stagnant water.

In the third study, the age group most affected by the disease is that out of 11 – 20 years which represent 33.1% of population of those affected. This is closely followed by the age group 21-30 years which has prevalence of 29.3% Belcher et al (1975) have demonstrated a substantial drop in the 3rd and 4th decade of life in both males and females. Kale explained this on the basis of reduced exposure to infection. I these age groups occasioned by their less continues residence in academic areas. A deviation from this has been reported by Udensi, who in 1987, while carrying out this study in Ohaozara Imo State found a higher incidence in age group 20-29 and 40-49 years represented by a prevalence state of 70% and 44.5% respectively. The probable explanation for my own finding is that in Paikoro community the age group 11-20 and 21-30 years belong to the active/strong members of the community and they are those who go out to work on the farms and drink from stagnant water more freely while at work. The study shows that majority of those who contracted the disease have ponds and stagnant water as their source of drinking water. This is in deviation from findings of other people who have shown that more number of people get the disease from steams. Ilegbodu, etc. et al in (1986) reported that pond users wade some distance into the pond before sinking their containers to collect water. Those individual with guinea worm lesion on their legs are not prohibited from wading into ponds that provided drinking water for the community, this creates the

opportunity for continual inoculation of ponds containing Cyclops with larvae of Dracunculus medinensis. The possible explanation for the deviation found in my study is that during the dry seasons of the year, the stagnant water dry up while the streams still have water. The people are therefore left with no other option than to collect water from the stream. Majority of them get used to obtaining water from there and never go back to their stagnant water source.

In this study, out of the two hundred and sixty three patients, 16 representing 61.2% had body itching as the only presenting symptoms while 93 representing 35.4% had both itching and body pains as presenting symptoms and only 9 representing 3.4% had both body itching and headache as presenting symptoms.Kale (1985) in his study in Ibarapa district report that 80% of all persons in whom the adult female guinea worm eventually emerge experience a set of prodromal symptoms a few days or houses before emergence of the worm. The prodomata usually lasts for less than 24 hours and consists of urticarial rash, mild to moderate itching, fever, dizziness etc. He found that 20% of the patients did not admit to the presence of any prodomal symptoms and he attributed it to a possibility that symptoms were mild and transient in the patients as to go un-noticed.

The finding in this study is in line with findings in other studies. None of the people reported nausea, vomiting or fever as presenting symptoms because they attributed them to malaria.

emergence of the worm from the feet. 5 of the them representing 1.9% reported the emergence from the joints (knee and ankle).

In those patients where more than one worm emerged, 86 of them representing 32.7% reported the emergence from the feed and joints while 56 of them representing 21.3% reported emergence from multiple sites including feet, joints and other sites including unusual ones like the eye (two children) and the scrotum, (one adult). Emergence of the worm at site other than the feet has been reported by many workers. Abolarin (1979) while working in Wawa village in Kwara State (now in Niger State since 1991) reported that the private parts are sometimes the favoured sites chosen by the female worm to discharge the larvae may add to the reluctance patients to go to hospital. Similarly worm emergence at multiple sites at the same has been reported by many workers in the past as is it possible for more than female worm to be present in the body in the of an individual at the same time. Jain, in his study, reported that multiple infections of both hand and leg of the patient were seen and several worms

ensuring that new worms to complete the life cycle of the worm are produced and hence perpetuation of the illness.

All the people affected observed that worm emergence at the beginning of the rainy season. This is in conformity with reports of other workers.

The disability caused by Guinea worm diseases is mainly physical. The patients are unable to move or carry out their normal day to day activities. Abolarin 91979) reported that some patients were home confined or "bed-ridden". The duration of disability is not fixed. Different workers reported different periods of time. Kale (1977) and reported a mean period of disability 3 months, whereas the median period as 40 days. So also Edungbola, (1985) reported the period of temporary incapacity as 1-3 months. Muller working in Ghana and reported a mean period of 15 weeks. Death due to this disease has not been reported but Edungbola has estimated that about 12,000 people suffer irreversible disablement. Since temporary disabilities are more common, this has led Kale (1977) to propose a classification for disabilities as follows:

GRADE I (Mild) – Disability is where the patient is mobile but suffer a considerable discomfort.

GRADE II (Severe) – Patients is immobile, or is unable to use the affected limb and suffers a considerable discomfort.

In this study the main disability is physical except in one patient who had the worm emerging from the scrotum and he thought it would interfere with his ability to produce children and this led him to attempt suicide.

None of my patients went to hospital for this illness. This is because they believe that there is no drug in the orthodox medicine for the treatment of guinea worm. This belief is not different from that of other people in other parts of the country reported by other workers. Abolarin reported from this study in Wawa village that few patients went to hospital or dispensary and he gave the reason for that as peoples believe that traditional treatment is more effective than modern medicine. To support this statement he quoted Belcher et al (1975b) as having accepted that neither thiobandazole nor metronidazole was effective for Guinea worm. So far there have been the drugs in use. Paikoro LGA endemic villages people carry out their traditional medication by doing "Tsakiya" (a thin iron rod is place in fire until its tip has become red hot. It is brought out and place on the skin suspected to be habouring the worm). The worm is extruded and thrown into fire.

It is interesting to note that all my patients know that guinea worm disease is got from bad drinking water. They are aware that the source is either the stagnant water or stream they obtain their drinking from. The possible explanation for why they continue to drink from the stream is that the wells they dig dry up or where boreholes are provided do not yield enough water for the demanding population and/or lack of maintenance other alternative than to revert to drinking water from the streams or the ponds left with water.

In the study the incidence of the disease between infant and children is low. Out of the two hundred and sixty-three infected, 25 were in the age group 1-10 years presenting 9.5% when this number is compared with that of those not affected with

the age group (30 representing 69.7% of those not affected) one may conclude that their age group is among those who are least affected. Many workers working in Asa district in Kwara State (Nigeria) reported that more adults than children showed clinical evidence of active dracontiasis but there was no marked difference between sexes. In another study carried out by Edungbola aonge in Babana district of Kwara State, he observed that in dracunculus endemic areas, children are generally less infected than adults, this he attributed to long pre-patient period of guinea worm infection, the destruction of infective guinea worm larvae in the unconscious process of boiling children water with medicinal products prior to ingestion and prolong breast feeding.

However, among the infected children I met with during my study, two of them had multiple sites of worm emergence among which were the upper eyelid in both of them. The probable explanation for this is that these children have much less subcutancous tissue than expected which makes it easier for the worm to move through long distance and come to reside in the face.

It was possible for me to have an idea on the economic loss due to the disease because all those interviewed are either farmers i.e. the men while the women are wives of the farmers who along with their children sometimes help the men on the farm. They are subsistence farmers growing food only for consumption of their families. Although, only a few of the crops are taken to the market for sale in order for them to be able to buy some of those things they need at home. The difficulty in this area of economic loss is further expressed for the fact that the typical rural

farmers to do not keep records of investment for planting and cropping and cannot estimate profits, investments and losses.

CHAPTER FIVE

5.0 CONCLUSION AND RECOMMENDATIONS

In conclusion, this study has shown that Guinea worm is endemic in the selected villages in Paikoro LGA. It is amazing that the people know the disease is caused by bad drinking water but they have continued to obtain their drinking water from the same sources.

Many of the people might have had the sequelace of the infection but because they do not attend hospital none of such sequence has been reported. Secondary infection like Tetanus is one recognized sequelace which was reported by workers like Lauckner et al (1961) in Ibadan, when they said that guinea worm was the third most important portal of entry of tetanus spores. Ameh and Onwuliri (1985) reported on the Knowledge, attitudes, practices, beliefs (KAPB) and certain socio-cultural attributes of guinea worm disease among a rural community in Benue State, Nigeria, he advance ample evidence on the cultural practice of that community under study on the use of cattle feacal matter which was widely applied on Guinea worm sores nay have contributed to the high rate (62.7%0 of infection complication in the area nd highly predisposing to tetanus. Abolarin (1987) further said that lack of education out personal hygiene worsened the situation because secondary infection gravated the misery. Pairkoro LGA being one of the guinea worm most endemic A in Niger State and in the country – therefore needs aid to completely eradicate disease.

5.1 RECOMMENDATIONS

One way by which food sufficiency in Paikoro LGA and other parts of the country could be achieved is by combating Guinea worm infestation. This is because majority of farmers in the place and (the entirety of the LGA) are heavily afflicted by the illness during the rainy season and most precisely during harvesting period. Control or eradication can be approached from the following facts.

1. **HEALTH EDUCATION**

   Health workers should be sent to give health talks with the aid of posters, on the importance of personal hygiene.

   They should be informed that the illness can be prevented by filtering water for drinking by the use of cloths or boiling or chemicals such as Temophos.

2. Wells or boreholes could be constructed by the government for the people.

3. Provision of pipe borne water is the ultimate answer if it is possible within the limit of government and community resources to the guinea worm problem. Wells only may not achieve the desired objectives if the behavioural dimensions are not added because people's behaviour may be difficult to change towards a particular health problem, just as Gilles an Bell in 1964 reported that Akufo people in Western Nigeria preferred pond water which may be highly infected with Cyclops to well water because of the extra effort required to draw the water.

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Hopkins, 1982 reported that the supply of pipe water to a town of 30,000 people in Nigeria in the 1960's reduced the incidence of Guinea worm disease from over 60%

to zero 2 years. Another finding reported by Udonsi (1987) working in Ohaozara village in Imo State corroborates this. He stated that overall reduction of 71.8% in the disease was achieved in 18 months following water supply provision.

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APPENDIX 1

SAMPLE OF QUESTIONNAIRE OF RESEARCH PROJECT

QUESTIONNAIRE ON RETROSPECTIVES STUDY OF GUINEA WORM INFESTATION AS SEEN IN SOME SELECTED ENDEMIC VILLAGE IN PAIKORO LGA NIGER STATE.

L.G.A.:..... Village or Community:.....

INTRUCTIONS

I sincerely appeal to you to kindly fill in this questionnaire object possible. The information in the questionnaire shall strictly be research purposes and your anonymity and confidentiality is assured.

1. Age of respondent

   (a) 1-10 ( ) (b) 11-20 ( ) (c) 21 30( ) (d) 31-40 (e) 51-60+( )

2. Sex of the respondent: (1) Male ( ) (2) Female ( )

3. What is your occupation

   (a) Farmer ( ) (2) Trader ( ) (3) Civil Servant ( ) (4) Unemployed ( )

   (5) Others _____

4. How long have you stayed in this village.

5. Source of Drinking Water:

   (a) Well ( ) (b) Stream ( ) (c) Pond/Earth Dam ( ) (d) Pipe ( )

6. How many people in the house hold had Guinea worm between 1999 ..... June, 2000 .....

   (a) Number of victims.....

   (b) Age of victims .....

   (a) 1-10 ( ) (b) 11-20 ( ) (c) 21-30 ( ) (d) 31-40 ( ) (e) 51-60+( ).

7. How do you feel at the beginning of the illness?

(a) Fever ( ) (b) Headache ( ) (c) Nausea ( ) (d) Itching ( ) (e) Others .....

8. Which part of the body does the disease frequently appear?

(a) Leg/lover limb ( ) (b) Upper body ( )

9. What season of the year did you notice the illness?

(a) Dry ( ) (b) Rainy ( )

10. What do you think is the cause of the Guinea worm?

(a) Heredity ( ) (b) Evil spirits ( ) (c) Bad drinking water ( )

(d) Others .....

11. Which method have you employed for treatment?

(a) Hospital ( ) (b) Traditional concoctions

How?.....

12. Any associated disability

(a) Physical ( ) (b) Mental/Psychological ( )

13. Income estimate before infection

(a) Estimate ..... (b) Don't know ( )

14. Income estimate after infection

(a) Estimate ..... (b) Don't know ( )

15. How did the guinea worm infection affect you personally?

(i) Unable to perform daily routine ( )

(ii) Unable to go to the farm ( )

(iii) Unable to go the market/school ( )

(iv) Unable to attend festival/ceremonies ( )

16. What assistance to you need from the government to help eradicate disease?

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