THE UNIVERSITY OF ZAMBIA

SCHOOL OF MEDICINE

DEPARTMENT OF POST BASIC NURSING

STUDY TO DETERMINE PREVALENCE OF URINARY SCHISTOSOMIASIS AMONG SCHOOL GOING CHILDREN AGED BETWEEN 7 AND 18 YEARS IN BASIC SCHOOLS OF MANSA DISTRICT, LUAPULA PROVINCE, ZAMBIA.

BY

FRANCIS CHUNGU CHAMPO

SRN (1992) KITWE, ZRM (1997) NDOLA

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LIST OF ABBREVIATIONS

AIDS	Acquired Immune-Deficient Syndrome
CBAs	Community Based Agents
CBOH	Central Board of Health
CHWs	Community Health Workers
CSO	Central Statistical Office
DHMT	District Health Management Team
DHO	District Health Office
GDP	Gross Domestic Product
HIV	Human Immune-Deficient Virus
IEC	Information Education and Communication
MMD	Movement for Multiparty Democracy
MOH	Ministry of Health
NHCs	Neighbourhood Health Committee
NHR	National Health Reforms
OPD	Out Patient Department
PBN	Post Basic Nursing
SCI	Schistosomiasis Control Initiative
SHN	School Health and Nutrition
STH	Soil Transmitted Helminths
TBAs	Traditional Birth Attendants
UNICEF	United Nations International Children's Fund
USAID	United States Agency for International Development
VIP	Ventilated Improved Pit latrines

WHO	World Health Organization
ZBCP	Zambia Bilharzia Control Programme
ZDHS	Zambia Demographic Health Survey

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DECLARATION

I Champo Chungu Francis hereby declare that the work presented in this study for a Bachelor of Science in Nursing has not been presented wholly or in part for any other Degree and is not being submitted for any other Degree programme.

Sign: _____ Date: 8th May, 2009.

Approved: _____ Date: 16/06/09

(Supervising Lecturer)

STATEMENT

I hereby certify that this study is entirely the result of my own independent investigations. The various sources to which Iam indebted are clearly indicated in the references.

Sign: _____ Date: 8th May, 2009.

DEDICATION

This challenging but interesting work is dedicated to my wife Ivy, and all my children especially the youngest two, Kabwe and Chungu for their unending love during my long absence away from them.

ABSTRACT

The aim of this study is to determine the prevalence of urinary schistosomiasis among school going children in basic schools of Mansa District.

The reason to undertake this study emanated from the long working experience of the researcher at Senama Urban Clinic in Mansa District of the Republic of Zambia. There was an increasing number of patients who attended the clinic complaining of urinating blood.

Schistosomiasis is a prevalent parasitic infection, with an estimated 200 million people worldwide affected. Zambia is one of the developing countries in the sub Saharan region also affected by schistosomiasis. Table 3;(Page 6) shows an increase of 14.6% magnitude in the prevalence rate of schistosomiasis haematobium in southern province from 1993-2007, while the prevalence rate in Lusaka Province stood at 40% in 2000.

The main factors that may influence the prevalence of schistosomiasis in Mansa District include service related factors, disease related and socio-cultural related factors.

Low literacy levels, poverty, sub-standard hygiene practices, and inadequate public health infrastructure are some of the factors that have greatly contributed to high prevalence of Bilharzia especially in rural communities coupled with lack of scientific information on the disease among the high risk groups particularly school aged children.

Schistosomiasis is a global public health concern which requires the participation of everyone in order to mitigate its effects. Above all it calls for political will and involvement of healthcare providers and other stake holders to join efforts to try and eliminate the problem.

Literature review has shown that, urinary schistosomiasis is a prevalent parasitic infection affecting millions of people worldwide. There is even an increased risk of higher prevalence of the infection due to global warming and increased populations. Most studies have shown that the most affected are the school going children who like playing and wading in contaminated pools of water, however, everybody else is at greater risk of contracting the disease if in contact with infected water.

A descriptive cross sectional study design was used for this study, with the help of the structured interview schedule to collect data from the respondents.

The study population was the school going children aged between 7 and 18 years of age. A simple random sampling and systematic sampling methods were used to select the study sample. These selected methods were given each element in the population an equal chance of being selected for the sample and thus avoiding bias. The sample size for the study were 50 school going children aged between 7 and 18 years old. The study was undertaken between mid September and October, 2008.

Bound copies of research findings and recommendations will be sent to the respective schools and District of study.

The study revealed that there was low level knowledge, poor hygiene practices and negative attitudes among the respondents especially in the age group 7-10 years. The identified gaps have necessitated recommendations to the concerned authorities.

The research findings will be beneficial to both the community under study and the Ministry of Health in the formulation of policy, guidelines and health education messages on the prevention of schistosomiasis among school going children in Mansa District and the entire nation at large.

Ministries of Health and Education should ensure that Zambia Bilharzia Control Programmes (ZBCP) are undertaken and policies adhered to, so as to reduce the prevalence of Schistosomiasis among school going children. Health education messages should also be administered by all health care providers and stake holders at school and community levels on modes of transmission, good hygiene practices in order to prevent transmission of the disease.

The health authorities should, therefore, recognize Bilharzia as one of the priority public health problems and should come up with strategies such as preventive health messages to school going children if the disease is to be prevented. Hence, there is a greater need to conduct more research on the prevalence of schistosomiasis in Zambia.

CHAPTER ONE

1.0 INTRODUCTION

1.1 BACKGROUND INFORMATION

The reason to undertake this study emanated from my long working experience at Senama Urban Clinic in Mansa District of the Republic of Zambia. I was amazed at the increasing number of patients who attended the clinic complaining of blood in the urine. Most of these cases were unreported. Furthermore the cause of this haematuria does not feature among the top ten priority health problems in the District. It is possible that the number of people affected could be higher, taking into account other people who do not seek medical attention from the health facility for various reasons such as underestimating the seriousness of the illness among other things. Hence I decided to conduct this study which aims at determining the prevalence of Bilharzia among school going children in Mansa District which is one of the Districts in Zambia.

1.1.1 AN OVERVIEW OF ZAMBIA

Geographically, Zambia has a land area of 752,614 square kilometers and is land locked with eight neighbouring countries. The longest boundary is shared with the Democratic Republic of Congo to the north and northwest, Tanzania to the northeast, Malawi to the east, Mozambique to the southeast, Botswana and Zimbabwe to the south, Namibia to the southwest, and Angola to the west. Zambia derives her name from the Zambezi River. It lies between latitudes 8 degrees and 18 degrees south and between 20 degrees and 35 degrees longitudes east. The country has a tropical type of climate and vegetation with three distinct seasons, the cool and dry winter from May to August, hot and dry season from September to October, and the warm and wet season from November to April. The average rainfall ranges between 600mm to 1 400mm per year (CSO, 2003).

Administratively, Zambia is divided into nine provinces, namely Central, Copperbelt, Eastern, Luapula, Lusaka, and Northern, North-Western, Southern, and Western provinces. These provinces are further divided into a total of 72 Districts. Lusaka is the capital city of Zambia and the seat of government. The government comprises of central and local government structures.

Zambia's estimated population stands at 11.7 million people (UNAIDS, 2006). The average annual growth rate is estimated at 2.6 per cent (ZDHS DRAFT, 2007). The demographic and health survey of 2007 estimates infant mortality to be at 70 per 1000 live births while maternal mortality is estimated at 449 per 100,000 live births. Under-five mortality is estimated at 148 per 1000 live births while the total fertility rate is estimated at 6.2, (ZDHS DRAFT, 2007). The population density ranges from 65 people per square kilometers in Lusaka province to 5 people per square kilometers in Northwestern province (CSO, 2003). The population is concentrated along the line of rail because major towns are along this route. The rural area is underdeveloped, and as a result most of the people including the youths move to urban areas in search of employment and livelihood and end up living in slums. Mansa District, like the rest of the country, is blessed with natural resources such as rivers and streams and these remain the major sources of water for the inhabitants in the district. Many of the rural population in the District draw water from these unsafe water sources for agriculture and household consumption and thus rendering them susceptible to Bilharzia especially the children who bath and play in streams and stagnant water bodies which are a source of infection.

The country's socio-economic status is characterized by a weak economy, with underdeveloped infrastructure, particularly transport and communication infrastructure in rural areas, high levels of unemployment and poverty prevalence among its population, and significant resource constraints. However Zambia has good fertile land, good weather, and is rich in minerals and natural resources, which all offer significant potential for meaningful social-economic developments.

1.1.2 OVERVIEW OF THE HEALTH CARE SYSTEM IN ZAMBIA

It was in 1981, that Zambian government, through the Ministry of Health adopted the Primary Health Care (PHC) concept with the vision of providing health to all by the year 2000 and beyond (CBOH/MOH, 2004). This concept still emphasizes that health services should be provided as close to the family as possible through community participation and at a cost that the family and community can afford. In 1991, the Movement for Multiparty Democracy (MMD) came into power, and the government introduced the concept of National Health Reforms (NHR)

whose vision was to provide equitable access to cost effective quality care as close to the family as possible (CBOH,1997). Health reforms stress the need for families and communities to be self-reliant and to participate in their own health and development and promotion of safe water supply and good sanitation as it is one of the components of primary health care. Access to health services in Zambia is estimated at about 99% in urban areas, while in rural areas only an estimated 50% of households are reported to be within 5 kilometres distance from a health facility, (ZDHS, 2002).

Zambia spends about 3% of its Gross Domestic Product (GDP) on health. It is estimated that 38% of the total health expenditure comes directly from households in the form of cost sharing. In 2000, the donors and partners share of Ministry of Health budget amounted to 41%, (ZDHS, 2002).

The overall health sector priorities include strengthening health care delivery (planning, monitoring and evaluation), promoting reproductive health, maternal, neonatal and child health, reinforcing health information system for health policy and management, provision of safe water and good sanitation promotion.

1.1.3 PREVALENCE OF SCHISTOSOMIASIS IN ZAMBIA

Schistosomiasis or Bilharzia is a major disease of public health importance in humans occurring in over 70 countries of the tropics and sub-tropics (WHO 2002). Schistosomiasis is a prevalent parasitic infection, with an estimated 200 million people worldwide affected. While the distribution of infection has changed, with 80-85% of current disease now found in sub-Saharan Africa, the number of people infected is not decreasing. Furthermore, there is a growing awareness that the impact of schistosomiasis, long underestimated, rivals that of malaria and tuberculosis (Bergquist, 2002). As already stated, around 200 million people are currently infected with Schistosomiasis (Chisulo *et al*, 2000). In Africa, the snail (intermediate) hosts belong to the family Planorbidae (WHO 1954), and species of *Bulinus* serve as hosts for the common parasite of the bladder Schistosoma haematobium.

In Zambia, Schistosoma haematobium is transmitted by the snail *Bulinus globosus* (Brown, 1980). This ties the transmission of the disease to places where people and snails come together

at the same water habitat (Fenwick et al, 2006). Hence, Schistosomiasis tends to be commonly found in rural communities where contact with water bodies can be a routine and inevitable occurrence. Bilharzia infection can result in severe illness, disability and death (Warren, 1973). Some forms of the disease have also been linked to hepatitis (Prata, 1982), cancer (Gilles *et al*, 1998) and HIV/ AIDS (Cox, 1990). The disease even when not associated with other infections, affects the physical and mental development of children, and greatly diminishes the strength and production power of adults.

In Zambia schistosomiasis is present in all nine provinces of the country. A review of some early prevalence studies in Zambia shows the prevalence of S. hematobium infection to be 14-40% and that for S. mansoni ranges from 0-7%, in the Northern and Luapula Provinces. The areas around Lakes Kariba in the south, and Bangweulu in the north had prevalence rates of 3-35% for S. hematobium and 2-6% for S. mansoni. A nationwide survey found the overall prevalence of S. hematobium to be about 16%. The Gwembe Valley in the South had the highest prevalence of 57.9% for S. hematobium; S. mansoni with a prevalence of 45-77%, in the Northern Province from more recent studies is not very widespread, (Central African Journal of Medicine, 2003). A survey carried out at three primary schools in different locations of Chitongo area in Southern Zambia, schistosoma haematobium prevalence ranged from 4.4%-49.6% across the schools (Medical Journal of Zambia, 2007). In the other study carried out in Ng'ombe Compound of Lusaka town, the prevalence of schistosoma haematobium ranged from 19.7%-40% with higher prevalence in males (63%) than in females (37%), (Shehata, 2000).

TABLE 1: PREVALENCE OF SCHISTOSOMA HAEMATOBIUM IN ZAMBIA

YEAR OF STUDY	PROVINCE AND AREA AFFECTED	PREVALENCE RATE
1983	LUAPULA PROVINCE AROUND LAKE BANGWEULU	35%
1985	GWEMBE VALLEY IN	57.9%

	SOUTHERN PROVINCE	
1993	LAKE KARIBA IN SOUTHERN PROVINCE	35%
2000	NGOMBE COMPOUND IN LUSAKA PROVINCE	40%
2007	CHITONGO AREA IN SOUTHERN PROVINCE	49.6%

SOURCE: (CENTRAL AFRICAN JOURNAL OF MEDICINE, 2003 AND MEDICAL JOURNAL OF ZAMBIA, 2007)

The table above shows an increasing trend in the prevalence rate of ***S. hamaematobium*** in Southern, Luapula and Lusaka provinces of Zambia from 1983 to 2007.

TABLE 2: PREVALENCE OF SCHISTOSOMA MANSONI IN ZAMBIA

YEAR OF STUDY	PROVINCE/AREA OF STUDY	PREVALENCE RATE
1983	NORTHERN PROVINCE	7%
1983	LUAPULA PROVINCE	7%
1985	SOUTHERN PROVINCE GWEMBE VALLEY	77%
1993	SOUTHERN PROVINCE AROUND LAKE KARIBA	6%

SOURCE: (CENTRAL AFRICAN JOURNAL OF MEDICINE, 2003 AND MEDICAL JOURNAL OF ZAMBIA, 2007)

This table above strongly suggests that ***S. mansoni*** is less spread in Northern and Luapula provinces but more concentrated in the Gwembe valley of the Southern Province of Zambia.

TABLE: 3 PREVALENCE OF SCHISTOSOMIASIS HAEMATOBIUM IN ZAMBIA

YEAR OF STUDY	PROVINCE/AREA OF STUDY	PREVALENCE RATE
1993	SOUTHERN PROVINCE AROUND LAKE KARIBA	35%
2000	LUSAKA PROVINCE NGOMBE AREA	40%
2007	SOUTHERN PROVINCE CHITONGO AREA	49.6%

SOURCE: (CENTRAL AFRICAN JOURNAL OF MEDICINE, 2003 AND MEDICAL JOURNAL OF ZAMBIA, 2007)

The table above shows an increasing trend in the prevalence rate of ***S. haematobium*** in Southern Province while Lusaka Province has a 40% prevalence rate. The table also shows that no recent study has been carried out in Mansa District of Luapula Province.

From the three tables above it is evident therefore, that ***S. haematobium*** and ***S. mansoni*** are endemic in Zambia in both rural and urban settings. ***S. haematobium*** distribution being more widely spread across the country with high prevalent rates more concentrated in the Southern Province of Zambia whereas ***S. mansoni*** is more concentrated in the Southern part of Zambia with relatively high prevalence in the Gwembe Valley than the rest of the country. No recent study on the prevalence rates of ***S.haematobium*** and ***S.mansoni*** has been conducted in Luapula Province as tables 1 and 2 show.

1.2 STATEMENT OF THE PROBLEM

Schistosomiasis is a prevalent parasitic infection, with an estimated 200 million people worldwide affected. With the current rate of global warming and population increase, there is an even greater risk of higher prevalence and mortality due to this disease. The most parts of the world affected are Africa, Latin America, and the Caribbean. Others are the Middle East, Southern China, and South East Asia. Out of an estimated 200 million people infected with the disease, 120 million are symptomatic, and of whom 20 million have severe consequences. And

further 600 million are at risk of infection. A few countries have eradicated the disease, and many more are working towards it (http://en.wikipedia.org).

The 80-85% of current disease is found in Sub-Saharan Africa and the number of people infected is not decreasing. Estimates of mortality are difficult to calculate, owing to the limited data available, but they may be as high as 150,000 per year as a result of non-functioning kidney (Schistosoma haematobium infection) and 130,000 from haematesis (S. mansoni infection) (Van Der Werf et al., 2003). A 22.4% prevalence rate of schistosoma haematobium was recorded in some primary schools in Jos, Nigeria, and a 53.8% in Milalani Village in Kenya (American Society of Tropical Medicine and Hygiene, 2004).

Zambia is one of the developing countries in the sub Saharan region also affected by schistosomiasis. Small scale- surveys and research programmes have indicated that ***S.haematobium*** and ***S.mansoni*** are endemic in Zambia in both rural and urban settings. ***S.haematobium*** is more widely spread across the country, with prevalence ranging from 3%-49.6%, whereas ***S.mansoni*** distribution is concentrated around the Gwembe valley in the Southern Province of Zambia (Central African Journal of Medicine, 2003). The lack of recognition of schistosomiasis infections as public health problems and contributors to morbidity is as true in Zambia as is in the rest of Africa. It is estimated that the disease lowers the productivity of the population by 33% (WHO, 1965). It is estimated that approximately 2 million Zambians are infected with Bilharzia (Medical Journal of Zambia, 2007).

In Zambia, there should not be schistosomiasis in the presence of an adequate and effective health education messages to pupils in relation to playing in infected water sources, stagnant pools of water inclusive. But data shows the reverse to be the case. Table 3 shows an increase of 14.6% magnitude in the prevalence rate of schistosomiasis haematobium in Southern Province from 1993-2007, while the prevalence rate in Lusaka Province stood at 40% in 2000.

Coming to the study location, there was a 35% prevalence rate of Schistosoma haematobium around Lake Bangweulu in Luapula Province and a 7% prevalence rate of Schistosoma mansoni in 1983. The data on Luapula Province show that not many studies have been conducted in Luapula Province as regards prevalence of schistosomiasis in the area. Luapula Province has

abundant water sources which have not been tested for schistosomiasis since 1983 as depicted in tables 1and 2. The lakes, rivers, streams, and stagnant pools of water all form potential sources of infection to both school going children and adults alike.

The disease commonly affects school going children who like playing and wading in contaminated water. Infection occurs in the children when the skin comes in contact with contaminated water in which the ***Bulinus globosus***, certain types of snails that carry schistosomiasis germs are living. Fresh water becomes contaminated by Schistosoma eggs when infected persons urinate or defaecate in the water. The eggs hatch, and if the ***Bulinus globosus*** snails are present in the water, the parasites grow and develop inside the snails. The parasite leaves the snail and enters the water where it can survive for about 48 hours. ***Schistosoma*** parasites can penetrate the skin of persons who are wading, swimming, bathing, or washing in contaminated water. The parasites can also enter through the lining of the mouth or intestinal tract of people who drink untreated water. Within several weeks, worms grow inside the blood vessels of the body and produce eggs. Some of these eggs travel to the bladder or intestines and are passed into the urine or stool. In urinary schistosomiasis (due to *S.* ***haematobium***) damage to the urinary tract is revealed by blood in the urine. Urination becomes painful and is accompanied by progressive damage to the bladder, ureters, and then the kidneys. Bladder cancer is common in advanced cases.

Children with very heavy infection suffer impaired mental development and extensive liver damage, bleeding and death. Schistosomiasis, in general, negatively affects the children's health, nutrition, cognitive development, retardation of growth, delayed puberty, learning and education access and achievement. Treatment of children at a young age can provide a long lasting reduction in the number of eggs trapped in the body and therefore prevent severe liver damage as an adult (Medical Journal of Zambia, 2007). However, schistosomiasis is also prevalent amongst groups of people who often do not have access to proper health care or effective preventive measures.

Schistosomiasis not only does it have a negative impact on infected persons, but also on the service provision. Increased incidence of infection will result in increased numbers of patients

seeking health attention in health facilities, increasing the work load on the already few available health care providers. It will also mean increased costs in terms of purchase of drugs and diagnostic equipment to treat the infected clients.

Since this disease is of public health concern, global efforts are being made towards its eradication. This has been shown by the WHO member countries agreeing at the World Health Assembly, in 2001, that at least, 75% of school-aged children in high burden disease areas should be treated for schistosomiasis and soil-transmitted helminth infections by 2010 to reduce morbidity (Journal of Helmintology, 2005; 181-5).

The Government of the Republic of Zambia, through the Ministry of Health and Education, has developed a control programme that aims to treat approximately 2 million Zambians estimated to be infected with Bilharziasis (Medical Journal of Zambia, 2007). A National Plan of Action for schistosomiasis control was compiled by the Ministry of Health in 1998, but the programme began in 2000 after the School Health and Nutrition (SHN) was created in collaboration with the Ministry of Education, with support from the United States Agency for International Development.

The Zambia Bilharzia Control Programme (ZBCP) was established in 2002 to take the lead in the control of Schistosomiasis and Soil transmitted helminthes in Zambia. The programme has been funded by the Schistosomiasis Control Initiative (SCI) since 2004. The ZBCP has conducted cross-sectional surveys to provide parasitological data and geographical positioning systems in schools to assess prevalence. Risk maps were developed to identify areas at high risk of infection for schistosomiasis and STH and where control should therefore be targeted. The maps confirm that ***S. haematobium*** is prevalent extensively and that ***S. mansoni*** has a very focal distribution in Zambia.

The Government of the Republic of Zambia has been very quick in responding to the evidence based treatment protocol of schistosomiasis. The District Pharmaco-therapeutic Committee in conjunction with the Ministry of Health through the National Formulary Committee authorized the use of paraziquantel as the drug of choice in treating schistosomiasis. It is a one tablet stat

treatment which guarantees complete cure in people infected. The old treatment called "ambilhar" despite having several severe complications, also used to take several weeks before treatment was effected. So the Ministry of Health was able to move from the old treatment to the current treatment with paraziquantel.

Currently the Bilharzia Control Programme carries out mass chemotherapy of school-age children and populations at risk. In Zambia, ZBCP adopted paraziquantel as the main drug of use in the control strategy aimed at reducing morbidity. The control of urinary schistosomiasis is directed primarily to the treatment of school going children in order to shorten the long period of heavy infections. In the long term, the above measures to the treatment of schistosomiasis are an important move in the prevention of carcinoma of the bladder (Trends in Parasitology, 2006). The programme was scheduled to operate in 4 of the 9 provinces of Zambia. The pilot phase of the programme started in Eastern, Central, Lusaka and Southern Provinces before being scaled up to the rest of the country (Zambia Bilharzia Control Programme, 2005). It was hoped that the programme would offer at least two rounds of treatment to up to 2 million children and adults in Zambia. These programmes cost the Ministry of Health money.

It can be seen from tables 1 and 2, that there is an urgent need for this study to be conducted in order to come up with the body of knowledge on the prevalence of urinary schistosomiasis among school going children in Mansa District of Luapula Province. This information can be used by both the Ministry of Health and the Ministry of Education in coming up with a policy to test and disinfect all infected rivers, stagnant pools of water and other unsafe water sources in all the provinces of Zambia but primarily focusing on Mansa District of Luapula Province which is the location of the study.

This shows that not many studies have been conducted in Luapula Province. Luapula Province is blessed with abundant water sources such as lakes, rivers, and streams which are not being tested for schistosomiasis and these are potentially risk sources of infection. Therefore, this study should be conducted in order to come up with a body of knowledge on the prevalence of urinary schistosomiasis among school going children in Mansa District of Luapula Province.

As seen from the above information, school going children in primary schools are the most affected. The direct effects of urinary Schistosomiasis are underestimated because of its chronicity in nature and run a long insidious course. Schistosomiasis has varying effects on these children such as to reduce physical capacity, lowering of immunity and thus susceptible to infections and consequently producing a marked reduction in productivity. Schistosomiasis in general negatively affects the children's health, nutrition, cognitive development, learning and education access and achievement. In the studies of histopathological observations in new and classic model of Schistosomiasis haematobium infection, it was found that the disease caused a number of pathologies in humans. In the urinary tract it caused granulomatous cystitis with polypoid mucosa sandy patches, fibrosis, obstructive uropathy, urethral changes such as polypoid formation, and squamous cell carcinoma (Chirwa, 1996).

In response, to this challenge, the Government of the Republic of Zambia, through the Ministry of Health and Education, has developed a control programme that aims to treat the infected (Medical Journal of Zambia, 2007). The Bilharzia Control Programme carries out mass chemotherapy of school-age children and populations at risk. The control of urinary Schistosomiasis is directed primarily to the treatment of school going children in order to shorten the long period of heavy infections. The Zambia Bilharzia Control Programme was established in 2002 to take the lead in the control of Schistosomiasis and Soil transmitted helminthes in Zambia. The programme has been funded by the Schistosomiasis Control Initiative (SCI) since 2004. In the long term, the above measures to the treatment of Schistosomiasis are an important move in the prevention of carcinoma of the bladder.

Despite having the Zambia Bilharzia Control Programme in the country, not all Districts have initiated and implemented the programme. And Mansa is one such District in which this programme is non existent.

In view of these facts, the disease should receive more consideration than it has in the past. This information will be used as an evidence base for policy and guidelines formulation for treatment and health education messages of the school going children.

1.3 FACTORS INFLUENCING OR CONTRIBUTING TO THE PREVALENCE OF BILHARZIA

Unfortunately, not much has been achieved in the control of urinary schistosomiasis in the country and Mansa District to be specific, largely because the disease is mainly a rural occupational disease that affects people engaged in agriculture or fishing and other people residing in rural agricultural and peri urban areas. There is a high level of the risk of becoming infected as a result of low literacy level, poverty, sub-standard hygiene, and inadequate public health infrastructure. Another important factor that has adversely affected control efforts is lack of scientific information on the disease in many rural communities among the high risk groups particularly school aged children. Therefore several factors may influence the prevalence of schistosomiasis in Mansa District. These factors will be discussed under service related factors, disease related and socio-cultural related factors.

1.3.1 SERVICE RELATED FACTORS

i. Health education messages

It is possible that health centre staff in Mansa District do not conduct health education messages to the people on the prevalence and prevention of schistosomiasis. Knowledge on schistosomiasis actually plays a role in preventing the disease. It may be possible that people in Mansa District may not have adequate information on how to prevent and control Bilharzia. Information education and communication (IEC) is key to knowledge for it, positively, affects the behavior of individuals, groups, and families. Inadequate knowledge and lack of sensitization of children on the importance of avoiding bathing, swimming, and wading in stagnant water and discouraging people from urinating and depositing excreta in bushes may contribute to the high prevalence of Bilharzia.

ii. Staffing levels

Most of the health centres in the District are understaffed and thus available staff is not able to screen clients thoroughly well. It is possible that inadequate history taking may miss out some useful information on schistosomiasis and consequently contributing to the high prevalence.

iii. Availability of drugs

Paraziquantel is not readily available in most of the health centres because it is not among the drugs packed in the health centre drug kits. Schistosomiasis is not among the top ten priority diseases in the District, so the 4% grant to purchase drugs is used to buy drugs such as quinine and fansidar other than paraziquantel.

iv. Distances to health facilities

Some communities live far away from the health centres rendering them to go to traditional healers or use other means other than reporting to health facilities thereby contributing to the high prevalence of schistosomiasis in the District.

v. Attitude of staff

Poor attitudes of some members of staff towards the patients prevent them from coming to health facilities for medical advice for fear of being mistreated or shouted at. Therefore good attitude of health care providers can help to reduce the increased prevalence of schistosomiasis in the District. Negative attitude towards clients' impacts negatively in the way clients are screened and treated. If not much attention is given to clients there is a likelihood of misdiagnosing and consequently giving wrong medication.

The Zambia Bilharzia Control Programme (ZBCP) aims at reducing Bilharzia morbidity through adequate teaching on how to prevent the disease (CBOH, 2000). Teaching people to construct good sanitary facilities and to discourage them from washing or bathing in rivers can contribute to reduced morbidity of Bilharzia.

1.3.2 SOCIAL, ECONOMIC AND CULTURAL RELATED FACTORS

i. Environmental Sanitation

A clean environment reduces the risk of disease. Poor sanitary conditions are a medium of increased incidence of schistosomiasis. Passing of urine and faecal matter near water sources increases the risk four fold. The sanitary facilities such as toilets in Mansa District are mainly pit

latrines which are poorly constructed and have no proper doors and roofs. Most of these toilets are constructed near houses and many other houses don't even have toilets. The poor state of toilets makes it possible especially in the rain season to wash away faeces towards the water sources and contaminate them. Those households with no toilets are forced to use bushes as an alternative, perpetuating the spread of schistosomiasis. People with poor sanitary facilities are highly exposed to schistosomiasis infection.

ii. Inequity and Poverty

Schistosomiasis, as with many communicable diseases, is a result of inequity and poverty. People get infected because they do not have access to safe drinking water, and maintain transmission because of the absence of proper excreta disposal systems. Infection is acquired during the course of routine domestic, agricultural, or occupational duties.

iii. Contact with infected water

The people in Mansa rural live near streams and rivers, and fetch water and bath in these same rivers. This predisposes them to schistosomiasis because they are always in contact with water. Piped water in Mansa central is very scarce and people are forced to dig unprotected wells from which they draw water for household use, and hence predisposing themselves to schistosomiasis.

iv. Medical fees

Most of the people in Mansa rural are poor and cannot afford to pay for their health care services and are therefore prompted to use herbs or stay away from seeking medical attention. Others fear to go to the health facilities because passing blood in urine is associated with sexually transmitted infections and instead they go to traditional healers for treatment.

v. Cultural beliefs

Cultural norms prohibit the communication of the disease between adults and children because passing blood in urine is perceived as a sexually transmitted infection that cannot be discussed so openly.

vi. Age

School aged children like playing in pools of water, and swimming in rivers and streams and thus increasing the risk of getting schistosomiasis. They contribute more to transmission through their pattern of water contact and indiscriminate urination and defaecation. Their water contact patterns also mean they are re-infected even after treatment more rapidly than others. People of Mansa District depend on fishing and agriculture for their livelihood and frequent contact with water predisposes them to schistosomiasis.

vii. Poor health seeking behaviours

Prevalence of schistosomiasis is likely to be high when the literacy levels are low among the communities because they will not be enlightened on the prevention and control measures of schistosomiasis. Low literacy levels lead to poor health seeking behaviours and inadequate knowledge about the disease.

viii. Compliance to treatment

Bilharzia control can be achieved through many ways other than preventive measures alone. Chemotherapeutic is one such measure that can help to reduce the incidence of schistosomiasis. Schistosomiasis if untreated remains in the human body for as long as 20 years (Davidson, 1989). This entails that an individual remains a carrier of the disease, and continue to pass Schistosoma through urine and faeces, hence increasing the morbidity. The high incidences of untreated schistosomiasis contribute to the increased prevalence of Bilharzia. The infection with schistosomiasis is mild in most cases causing many individuals not to seek medical attention on time or not complying with treatment.

ix. Level of education

Compliance to treatment also depends on the level of education of an individual. Educated people are more likely to comply with treatment than individuals with low education. Because educated individuals know and understand the consequences of untreated schistosomiasis. Encouragement from parents also has some influence on compliance. Parents who encourage

their children to take medication as prescribed have greater influence than parents who do not. Age also may have some influence on compliance; older people comply to treatment than younger ones because he/she understands the instructions and keep the review dates.

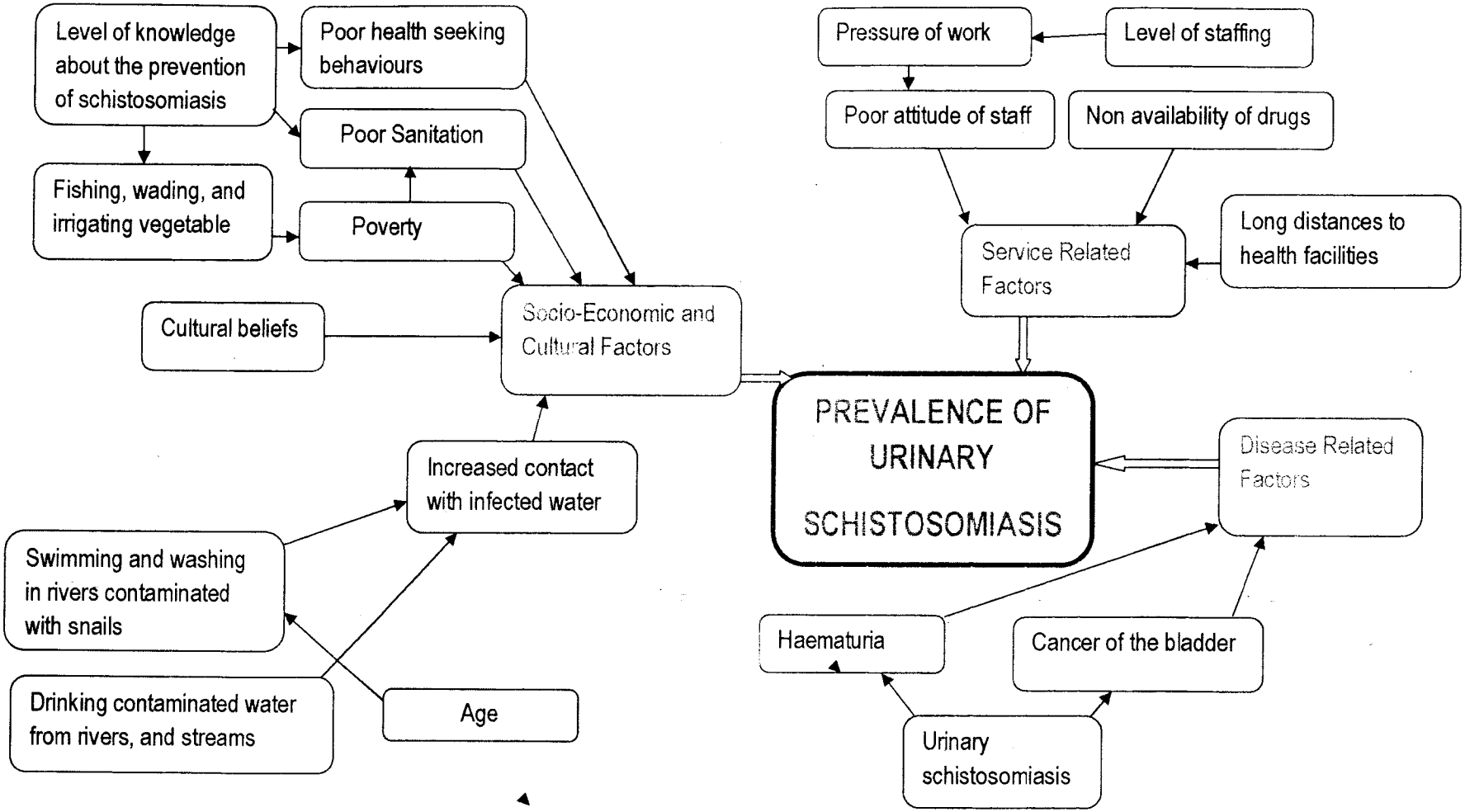
1.3.3 DISEASE RELATED FACTORS

The disease tends to run a chronic course mostly due to perforation of blood vessels and entrapment of eggs by host tissues. The host's reaction to entrapped eggs results in granulomas formation. *S.* ***haematobium*** causes bladder wall pathology, leading to ulcer formation, haematuria, and dysuria. Granulomatous changes and ulcers of the bladder wall and ureter can lead to bladder obstruction, dilatation, secondary urinary tract infections and subsequent bladder calcification, renal failure, lesions of the female and male genital tracts, and hydronephrosis. *S.* ***haematobium*** is also associated with increased risk of bladder cancer. Schistosomiasis also causes chronic growth faltering and can contribute to anemia (Ross and others 2002). Geographically, Mansa District has a warm climate favourable for schistosomiasis development. Mansa District has also a lot of slow flowing streams and rivers, which habour snails the intermediate hosts for Bilharzia.

1.3.4 CONCLUSION

Factors contributing to the increased prevalence of Bilharzia among school going children in Mansa District may include inadequate knowledge on how to prevent schistosomiasis, high contact with infected water and poor compliance to the treatment of schistosomiasis.

1.4 DIAGRAM OF PROBLEM ANALYSIS OF FACTORS



1. 5 JUSTIFICATION OF THE STUDY

This study seeks to determine the prevalence of urinary schistosomiasis and the factors that may be contributing to the increased prevalence among school going children in Mansa District. The author was motivated to conduct this study based his experience of working with children with Bilharzia, especially that it can be prevented.

Most studies have revealed that young children acquire schistosomiasis through playing, swimming, and wading in infected rivers, streams, and stagnant water in the Southern, Northern and Lusaka Provinces of Zambia. It has been also noted that most school children in the District have schistosomiasis evidenced by the passage of blood in the urine as they attended Out Patient Department (OPD). This experience has urged me to conduct this study on the prevalence of Bilharzia among school going children in Mansa District of Luapula Province.

Most studies on this topic have focused on the other Districts of Zambia. So far there is no current study in Mansa District on this topic. The last study was done way back in 1983 hence the need to conduct this study. The study will produce a current body of knowledge and it is hoped that the health care providers will use the information from this study to enrich the health education messages for the school going children. Further, the findings will form the basis for further research in this area.

The new findings will be forwarded to Ministry of Health and Ministry of Education for formulation of policy guidelines on the prevention of schistosomiasis among school going children in Mansa District and the country as a whole.

1.6 RESEARCH OBJECTIVES

Research objectives are statements that describe the outcome of the study. They answer questions and summarize what is to be achieved by the study (Basavanthappa, 2007). Research objectives should be closely related to the statement of the problem. There are two types of research objectives namely general and specific objectives.

1.6.1 General Objective

This is a general statement that describes what is to be achieved by the study in general terms. In this study the general objective is;

- To determine the prevalence of urinary schistosomiasis among school going children aged between 7 and 18 in Mansa District and come up with necessary recommendations.

1.6.2 Specific Objectives

Specific objectives are a breakdown of a general objective into smaller and logically connected parts. They systematically address the various aspects of the problem as defined under statement of the problem and the key factors that are assumed to influence the problem. In this study specific objectives are the following;

- To asses the level of knowledge on prevention of schistosomiasis of school going children in Mansa District.
- To identify recreational practices and occupational activities of school going children in relation to schistosomiasis.
- To determine the attitude of school going children towards the prevention of schistosomiasis in Mansa District.
- To make recommendations on the outcome of the study.

1.7 HYPOTHESIS

Hypothesis is a tentative preposition formulated for empirical testing. A hypothesis is an assumption statement about the relationship between two or more variables that suggest an answer to the research question (Basavanthappa, 2007).

The following are some of the predictions made on the relationships between variables under study. Variables will be formulated from the following hypotheses;

- The lower the knowledge on the transmission of schistosomiasis the higher the prevalence levels of schistosomiasis among school going children.
- The poorer water and sanitary conditions where the children play, the higher the prevalence of schistosomiasis.

- The lower the compliance to treatment of schistosomiasis the higher the prevalence rates of schistosomiasis.

1.8 OPERATIONAL DEFINITION OF TERMS AS USED IN THIS STUDY

1.8.1 Schistosomiasis; A parasitic disease caused by blood flukes of the class trematoda.

1.8.2 Knowledge; Ability to state the mode of infection, signs, and symptoms, and how to prevent schistosomiasis.

1.8.3 Sanitation; The equipment or systems that keep a place clean such as rubbish pit or toilet, the community with sites and environments that reduce contamination to water sources.

1.8.4 Water source; A place or systems that supply water to the population under study.

1.8.5 Water contact; Walking, stepping, bathing, and working in contaminated water with cercaria.

1.8.6 Compliance; Able to take and complete treatment for schistosomiasis as prescribed.

1.8.7 Prevalence; Actual number of old and new cases of Bilharzia among a population under study in Mansa district.

1.9 VARIABLES AND CUT OFF POINTS

VARIABLES	INDICATORS	CUT OFF POINTS	QUESTION NUMBER
Knowledge	High level	When the respondent is able to state correctly the signs of Bilharzia, modes of transmission and preventive measures and scores 18-23 correct responses to knowledge questions.	7-23
	Moderate level	Able to answer 12-17 correct responses to knowledge questions.	
	Low level	Able to answer less than 12 correct responses to knowledge questions.	
Practice	Good	When the respondent has indicated using water from the tap or protected well, farm after school, use water closet at home and washes hands after using toilet and is able to answer 5-8 correct responses to questions on practice.	24-32
	poor	Able to give 0-4 correct responses to questions on practice.	
Attitude	Positive	When respondent indicates that does not believe in traditions that promote infection with Bilharzia, believes Bilharzia is a serious disease and can contribute to its prevention and is able to give 4-5 correct responses to questions on attitude.	33-41
	Negative	Able to give 0-3correct responses to questions on attitude.	

CHAPTER TWO

2.0 LITERATURE REVIEW

2.1 INTRODUCTION

Literature review is a stage in the research process, which refers to the activities involved in identifying a comprehensive picture of the state of the knowledge about the topic. The main purpose of literature review is to enable the researcher understand the topic in a way that permits a clear formulation of the problem. It is based on primary data from individuals, organizations, and both published and unpublished information. Literature review provides the researcher with the opportunity to determine how much pertinent material is available concerning the potential study and helps to put the problem in the context of what has already been done, (Dempsey and Dempsey 2000).

Literature has revealed that schistosomiasis is one of the most endemic parasitic diseases of the warm climates. Schistosomiasis is a parasitic infection which poses a serious threat to human life. Although it has a low mortality rate, schistosomiasis is an often chronic illness that can cause liver and intestinal damage and can be very debilitating. It often complicates into serious chronic effects such as cancer of the bladder and anaemia. The literature review will highlight global, regional, and national perspectives under the knowledge of school going children regarding the cause of Bilharzia, their attitude towards the information they receive and their response after receiving the information from health care providers.

2.2 GLOBAL PERSPECTIVE

It is now estimated that 200million people are infected with schistosomiasis (WHO, 2002) and a further 600million are at risk of being infected. The study by WHO Health Experts (2001) argued that people are exposed to infection because of varying factors such as poverty, inadequate knowledge about transmission of infection and preventive measures. Other factors include poor housing, sub-standard hygienic practices, and inadequate sanitary conditions.

A global surveillance study has indicated that, infected people do not bother to seek medical attention because of the chronic nature of the disease and the affected individuals have few or no symptoms (WHO, 2002).

WHO(1990) published a report after a study on the exposure of United States of America army personnel in the Philippines to schistosomiasis, indicating that most of the exposure was related to inadequate knowledge on the mode of transmission, and presence of cercariae in water and their penetration into the skin.

Literature has also revealed that exposure to schistosomiasis is a health hazard for persons who travel to disease-endemic areas. Outbreaks of schistosomiasis have occurred among adventure travelers on river trips in Africa, as well as among resident expatriates, such as Peace Corps volunteers in high-risk areas. Those at greatest risk are travelers who wade, swim, or bathe in freshwater in areas where sanitation is poor and the snail hosts are present (http:wwwn.cdc.gov/travel), due to unawareness of the dangers lurking in the rivers.

Benthon, (2001) indicated that specific occupations, household clustering, and behaviors influence the prevalence and intensity of schistosomiasis infections. Engagement in agricultural pursuits and frequent contact with infected water, for example, remains a common denominator for schistosomiasis.

Crompton and Savioli, (1993) in their study suggested that Poverty, Sanitation, and Urbanization are directly linked to the prevalence of schistosomiasis in endemic areas. Schistosomiasis depends for transmission on environments contaminated with egg-carrying faeces. Consequently, it's intimately associated with poverty, poor sanitation, and lack of clean water. The provision of safe water and improved sanitation are essential for the control of schistosomiasis.

According to Chen Xn study of 1998, her investigation revealed that compliance to chemotherapy in heavily endemic areas of schistosomiasis was largely dependent on adequate knowledge about schistosomiasis which helped to create positive practices towards the disease.

In another study of Harland (1995), argues that health education is key to successful eradication of schistosomiasis. Literature review suggests that when health education is not properly prepared and done it tends to have negative influences on knowledge, attitudes, and practices.

The global perspective has revealed that Bilharzia is a public health concern and therefore requires all countries to device preventive programmes to mitigate its effects by addressing knowledge, attitudes, and practices of people.

2.3 REGIONAL PERSPECTIVE

Schistosomiasis is one of the most prevalent parasitic infections found in the world with 80-85% infected persons live in sub Sahara Africa. Schistosomiasis was first described in 1851 by Theodor Bilharz, after whom the disease was initially named (Bilharzia) in Cairo, Egypt (Ross et al, 2002).

Schistosomiasis has been reported in many parts of Africa such as West Africa, North Africa, East Africa, and Southern Africa. It is reported that schistosoma mansoni has a more focal distribution in Africa. It is more concentrated in Libya and extensively present in the Nile delta, upper Nile, South of Khartoum and around the Equatorial in the west, and Central Africa.

In a study done by Gujral (2000), to determine the risk behaviours and level of knowledge among school going children in Maputo, Mozambique, revealed that the highest prevalence was related to inadequate knowledge about schistosomiasis and it's transmission among the majority of these children.

WHO, (2002) reports that the increase in water resources developmental projects in some parts of Africa has contributed to the increased prevalence and endemicity of schistosomiasis, especially around manmade lakes, and irrigation schemes in Egypt, East Coast of Africa, Israel, Central and Southern Africa.

Schistosoma haematobium is reported to be widely distributed throughout Africa with more prevalence in countries like Egypt, Sudan, Madagascar, Mauritius, parts of the Middle East and areas surrounding the Mediterranean.

The report further indicates that water resource developments are built in endemic areas without safeguards to prevent transmission. Rarely do they conduct health impact assessment, and even when they do, the results are not used to design safer schemes or site communities away from potential transmissions.

The report has also indicated that significant population increase over the last 50 years has meant there are more people who can be infected and contribute to transmission. Immigration and population movements within the region, has introduced the infection to new areas and many people from non-endemic areas have moved to areas where transmission occurs.

The report further suggests that the economic situation in many African countries has contributed to the increased prevalence of the disease. This situation has resulted in underfunding of health systems and dismantling of the public health infrastructure. Besides many countries endemic for schistosomiasis have other priority public health problems such as malaria, HIV/AIDS, and tuberculosis, which consume the bulk of public health resources.
Literature has also revealed that schistosomiasis is as a result of inequity and poverty which is so prominent in many of the African communities. Schistosomiasis is more prevalent in areas where people have low literacy levels, do not have access to safe, potable water and proper excreta disposal systems.

In the other study by Davy and Wilson (1977), indicated that the high prevalence of schistosomiasis in Africa was due to presence of slow flowing streams, warm climatic conditions, light shady firms and mud bottom rich in decaying matter and the vegetation which support the multiplication of cercariae.

A study of schistosomiasis among the labouring community of Gezire irrigated areas revealed that, human water contact behaviours were identified to be critical in the transmission of schistosomiasis. These factors included; collection of water from the canal, washing, bathing, swimming, and excreting in the canal. It was further noted that since the canal was the only source of water, people spent a lot of time on the mentioned activities. The water contact behaviours expose the people to more risks of infection.

Regional perspective has shown that Bilharzia prevalence in the region has greatly been influenced by economic status of countries in the region, poverty, and diseases such as malaria, tuberculosis, and HIV/AIDS, which seem to consume much of the countries' budgets. In order to fight Bilharzia the region is required to consider it as one of the priority public health problems.

2.4 NATIONAL PERSPECTIVE

Zambia's economic situation has rendered it almost impossible for the government to meet the socio-economic requirements to the communities. This is the provision of safe water, good sanitary conditions, and adequate health education to promote optimum health and prevent disease. This situation has resulted in an increased morbidity and prevalence of certain preventable parasitic infections such as urinary schistosomiasis.

In the study conducted by Chirwa (1996), in Nchelenge revealed that the residents had inadequate knowledge on the transmission and preventive measures on schistosomiasis and so practiced water contact behaviours which promoted increased prevalence of schistosomiasis in the area.

In another study conducted in Chitongo area among school children in 2002, revealed that inadequate knowledge among the school going children on the transmission and prevention of schistosomiasis was the major contributing factor to the high prevalence in the area. The study further recommended that public health education and chemotherapy to the children and health workers would increasingly contribute to the reduction in the high prevalence of schistosomiasis in area.

A study conducted by Banda (2005), in Mbala showed that there was low knowledge on Bilharzia among school going children aged 7-10 years and this attributed to increased prevalence of schistosomiasis in the area for they didn't know how they can prevent getting infected. The study further indicated that the District is experiencing high prevalence of schistosomiasis because of the swamps and dambos that surround the District which happen to be the major source of water for most of the communities.

An evaluation of Urinary Bilharziasis ***Schistosoma haematobium*** investigated in Ng'ombe Township by Shehata (2000) revealed that the poor economic profile of parents and the lack of willingness to pay for treatment were the main contributory factors to the continued prevalence of Urinary Bilharziasis in the area.

In the study conducted by Shehata (2000), in Chamba Valley, revealed that increased human water contact contributed to the increased prevalence of schistosomiasis in the area. The study further revealed that the prevalence was higher in boys than girls this may be due to the fact that boys have increased water contact than girls because they frequently spend their leisure time swimming, fishing, hunting and taking cattle to drink water in the flood plains and streams.

In order to mitigate the effect of schistosomiasis, the Bilharzia Control Programme has been put in place to treat infected people especially the school going children who are mostly affected as seen from the literature review, through the Ministries of Health and Education.

2.5 CONCLUSION

The conclusion drawn from the literature review above is that 200million people are infected with schistosomiasis and a further 600million are at risk of infection globally. Most of the data reviewed show that the disease is endemic in areas with poor socio-economic status, poor sanitary conditions, and unsafe water supply sources. The prevalence is worsened if coupled with ignorance, poverty, and inadequate knowledge on the disease. Unfortunately many of these factors and conditions are so prominent in the sub Sahara region of Africa in which Zambia is found. However, with adequate public health messages, improved living conditions of the people, combined with political will of governments in power, schistosomiasis can be eradicated. If left unchecked schistosomiasis has chronic and debilitating effects on the children and adults alike, thus lowering the productivity of individuals, communities, and nations at large. Study done by Chirwa (1996) in Nchelenge District focused on the residents and it appears it is the only study that has been conducted in the Province on Bilharzia. So far, no study has been conducted on school going children in the District to determine prevalence and this creates a gap in knowledge on Bilharzia which this study seeks to fill.

CHAPTER THREE

3.0 RESEARCH METHODOLOGY

3.1 INTRODUCTION

The methodology describes the way pertinent information will be gathered to answer the research question or describe the phenomenon related to the research problem (Dempsey and Dempsey, 2000).

The research methodology includes the description of the study participants and how the study participants were selected, research settings, a description of tools and techniques that were used to collect data. It also describes how the researcher intends to ensure validity and reliability and the ethical considerations that were made. The research methodology has finally described how the pilot study was conducted; the plan for data analyzed and plans for dissemination of the research findings.

3.2 RESEARCH DESIGN

According to Polit and Hungler (2001) a research design is the researcher's overall plan or strategy for answering research questions or testing the hypotheses. The author used a descriptive cross sectional study design because it aims at quantifying the distribution of certain variables in a study population. A descriptive study portrays an accurate profile of the situation regarding knowledge, attitudes and practices of school going children in Mansa District towards urinary schistosomiasis.

Advantages of descriptive cross sectional design

- Portrays an accurate profile of persons, events or situations.
- Can be carried out on either small or large scale studies.
- Describe in depth the number of cases.
- Aims at quantifying the distribution of certain variables in a study population at one point in time.

3.3 RESEARCH SETTINGS

"A research setting is a physical location and conditions in which data collection takes place in the study," (Polit and Hungler, 2001).

3.3.1 Mansa District Profile

Mansa District is situated in Luapula Province of Zambia. It is the Provincial Headquarters and has a projected population of 221,758 at 3.3% growth rate (CSO 2000), and covers an area of 161,000 sq. kilometers. It is one of the seven Districts in Luapula Province. The major top ten priority health problems causing morbidity and mortality in all ages include the following;

i. Malaria
ii. Tuberculosis
iii. Respiratory infections - Pneumonia
iv. Protein Energy Malnutrition
v. Diarrhoea non-blood
vi. Anaemia
vii. Trauma
viii. Cardiovascular Disease
ix. Respiratory infection non-Pneumonia

Mansa District like the rest of the Province is blessed with natural resources such as rivers and streams and these remain the major source of water for the inhabitants in the District. Many of the rural population in the District draw water from these unsafe sources for agriculture and household consumption and thus rendering them susceptible to Bilharzia.

3.4 STUDY POPULATION

The term refers to the entire number of units under study or the whole or the inhabitants, (Treece and Treece 1986).

The study population in this study was the school going children aged between 7 and 18 years of age in basic schools of Mansa District.

3.5 SAMPLE SELECTION

''Sample selection is a process of selecting a portion of the population to represent the entire population,'' (Treece and Treece 1986.)

In order to get a sample which was representative of the District in determining the prevalence of urinary schistosomiasis, the author used the multistage sampling procedure. Multistage sampling is carried out in stages or phases and usually involves more than one sampling method. "Multistage sampling is undertaken by randomly sampling a percentage of a population and then within each of its selected areas randomly sampling smaller subunits," (Treece and Treece 1986). In this study therefore, simple random sampling and systematic sampling methods were used.

"Simple random sampling is a probability sampling procedure in which the required number of sampling units is selected at random from the population in such a manner that each population element has an equal chance of being selected for the sample,''(Dempsey and Dempsey 2000). Where as in systematic sampling (quasi random sampling), individuals are chosen at regular intervals from the sampling frame.

Names of all the basic schools in Mansa District were written down in order to have a sampling frame. A sampling frame is the listing of all the units that comprise the study population. The mixed names of all basic schools in the District were put in the box, after which the box was shaken vigorously to ensure randomization. Then papers were taken out of the box by an independent person, and the names of the basic schools were noted and recorded. Then from each selected school a list of names of pupils was compiled from which every 5^{th} child was considered for the sample and urine specimen collection.

3.6 SAMPLE SIZE

"A sample size is the number of study participants," (Polit and Hungler, 2001).

In this study, the sample size of fifty (50) participants from the five selected basic schools in the District was used. Every 5^{th} child from the selected schools registers was considered for the study. The relatively small sample size was considered due to limited time and financial resources in which the study was conducted.

3.7 DATA COLLECTION TOOLS

A data collection tool is an instrument used for collecting data. A tool in research is an instrument or device used to collect data (Treece and Treece, 1986). Types of data collecting

tools include; questionnaires, checklists, structured interview schedule, interview guide, Q-sort e.t.c

In this study a structured interview schedule was used to collect data from the respondents. It had both open and closed ended questions. This was administered by the researcher and trained research assistants at five selected basic schools in the District. The interview schedule comprised four sections that were used to collect demographic data (Section A), knowledge on urinary schistosomiasis (Section B), practice (Section C) and their attitudes (section D).

Advantages of using a structured Interview schedule

- There was face to face contact
- Respondents were able to describe things in their own words.
- Misunderstandings were being corrected there and then.
- Questions were rephrased to the respondents while retaining the same meaning.
- Non-verbal cues of respondents were easily noted and dealt with during the interview.
- The interview schedule was a relatively simple method of obtaining data.
- The method was flexible and the interviewer was able to explore responses and tailored the interview to the situation.
- The interview allowed opportunity to appraise the validity as the interviewer was present to observe what was happening.
- The interviewer was in a position to observe the respondent's level of understanding.

Disadvantages of using a structured Interview schedule

- It was time consuming
- It was costly when it came to transport; the author was required to move to and from.
- The instrument was unable to probe a topic in depth without becoming lengthy.
- There were some biases in the information collected
- The presence of the interviewer in some instances influenced the respondents; they answered the questions differently than they could have answered if they

filled the questionnaire by themselves.

3.8 DATA COLLECTION TECHNIQUES

"Data collection technique is gathering information needed to address a research problem (Polit and Hungler, 2001).

An interview involves direct personal contact with the participant who is asked to answer questions. The questions are written in English but would require to be translated into Bemba in order to easy communication between the researcher and the respondents, taking into account the study population. Data was collected over a period of 15 days. The procedure for the interview was as follows;

- Self introduction of the investigator/research assistant to the respondents.
- An explaination of the purpose of the study was given to the respondents.
- Reassurance of respondents on confidentiality and anonymity.
- Informing the respondents on how the feedback will be provided.
- After getting consent, the researcher/research assistant (interviewer) read out the questions to the respondents.
- Responses were entered as given by the respondents.
- At the end of the interview, the investigator went through the interview schedule to check for consistency in the responses given and for completeness of the interview schedule.
- The interviewer asked the interviewee for any questions, comments, or contributions regarding the study and finally thanked the respondents for taking part in the study.
- Took note and recorded the duration of each interview.

3.9 PILOT STUDY

A pilot study is a small scale trial run of the main study, (Treece and Treece 1986).

A pilot study was conducted in Kapesha's compound basic schools, because the area has similar characteristics with the main study area.

Five (5) respondents both males and females aged between 7and 18 years in five sampled basic schools were interviewed. The number of respondents interviewed represented 10% of the sample size of 50.

The pilot study was done to:-

i. Test the validity and reliability of the data collection instruments in order to detect and solve unforeseen problems.
ii. Detect any errors in the interview schedule for the main study.
iii. Determine the duration of each interview.
iv. Determine the appropriateness and clarity of the questions.

3.10 VALIDITY

"Validity is the degree to which an instrument measures what it is supposed to measure," (Polit and Hungler, 2001). There is internal and external validity. According to French (1998), internal validity concerns the extent to which conclusions can be drawn about the causal effects of one variable on another. This entails that internal validity is high only when we are sure that our interventions rather than the extraneous factors brought about the effects. Whereas external validity is concerned with the extent to which research findings can be generalized beyond the sample of research participants tested.

In this study, validity was ensured by employing strategies that dealt with threats to validity. Questions were asked on all the variables under study. Questions were logical, sequential, clear and concise. All the respondents were asked the same questions in the same order. A pilot study was conducted and necessary clarifications were made to the questions after the pilot study These strategies included; appropriate selection of study design, random selection of study participants, careful designing of data collection tools, and pre-testing research instruments.

3.11 RELIABILITY

"Reliability is the degree of consistency or accuracy with which an instrument measures the attribute it is designed to measure," (Polit and Hungler, 2001). The instrument used should be able to bring out the accurate information such that if the same instrument is used after a period

of time by others, it should yield the same findings or responses. The research tools were tested before the main study was conducted using a pilot study in an environment with similar characteristics as the environment in which the main study was conducted.

3.12 ETHICAL CONSIDERATIONS

Ethics can be defined as "systems of moral values that is concerned with the degree to which research procedures adhere to professional, legal, and social obligations to the study participants," (Polit and Hungler, 2001).

The following were considered:

- Permission from the supervising lecturer at University of Zambia, School of Medicine-PBN was obtained.
- Permission was also obtained from the Director of Health Mansa District Health Management Team.
- Permission from the Provincial Education Officer and District Education Board Secretary was sort.
- The respondents were briefed about the purpose of the study and informed that they had the right to participate or withdraw from the study.
- The respondents were also assured of confidentiality of personal information shared with the researcher or research assistants.
- The completed interview schedules were kept under strict security conditions to avoid unauthorized access to the information contained therein.

4. CHAPTER FOUR

4.0 DATA ANALYSIS AND PRESENTATION OF DATA

4.1 INTRODUCTION

The purpose of the study was to determine the prevalence of Schistosomiasis among school going children in Mansa District. The findings presented in this chapter are based on the responses from fifty (50) respondents interviewed from five (5) basic schools namely Fiyongoli, Mansa, Mwanguni, Kaole, and Namwandwe Basic Schools in Mansa District, Luapula Province, Zambia. The findings were entered on the data master sheet and analysed.

4.2 DATA ANALYSIS

"Data analysis is the systematic organization and synthesis of research data, and the testing of research hypothesis using those data," (Polit and Hungler, 2001).

After data collection, the raw data was checked for accuracy, uniformity, completeness and consistency. The data was analyzed manually using a data master sheet and a scientific calculator. There was sorting, verification of responses, coding of open- ended responses and entering of data on the data master sheet for quantification. The data master sheet was partitioned into four (4) categories namely demographic data, knowledge on Bilharzia, practices and attitude towards Bilharzia by respondents. This made it easy to draw frequency tables and cross tabulations.

4.3 PRESENTATION OF FINDINGS

The study findings were presented according to the sequence of sections and questions of the interview schedule.

The findings of the study were presented in frequency tables, graphs and pie charts. The frequency tables make the data easy to interpret. Thus the reader can get a general overview of the study findings prior to discussions of the study findings. The study findings were presented under sections. Section A presented demographic data, section B had questions that tried to elicit general knowledge on Bilharzia, and section C had questions that probed hygiene practices of the children, section D had questions to establish and ascertain both positive and negative attitudes of the respondents towards

Bilharzia. Cross tabulations of the variables helped to show clearly the relationship between ... which makes it easier to draw meaningful inferences. Cross tabulation is the technique used to compare two or more variables, testing relationships and finding the colloration between the two variables (Treece and Treece, 1986).

SECTION A: DEMOGRAPHIC DATA (n=50)

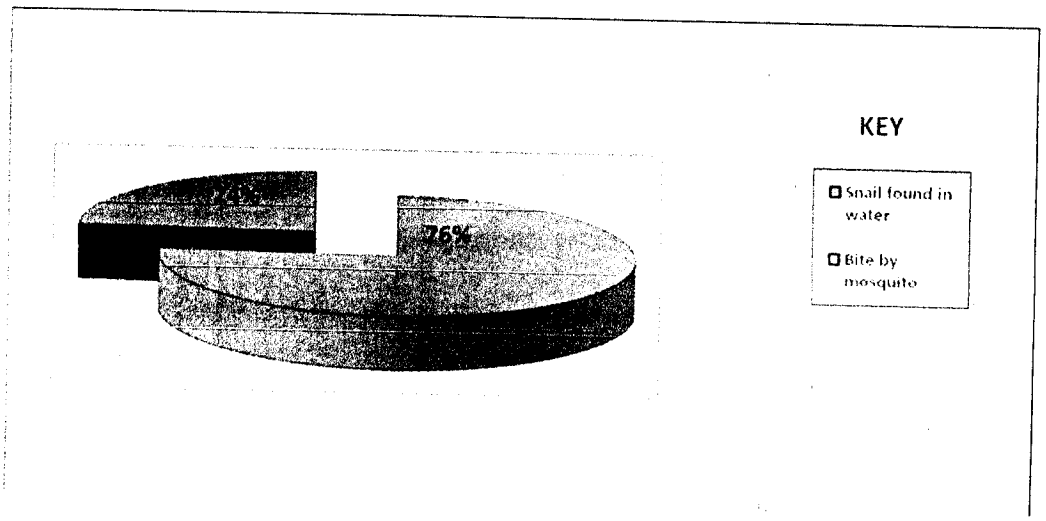
Table 4: Respondents age (n=50)

Age	**Frequency**	**Percentage (%)**
7- 10 years	12	24%
11- 14 years	23	46%
15- 18 years	15	30%
Totals	**50**	**100%**
Sex of respondent		
Female	23	46%
Male	27	54%
Totals	**50**	**100%**
Tribe		
Bemba	34	68%
Aushi	3	6%
Other	13	26%
Totals	**50**	**100%**
Denomination		
Roman Catholic	14	28%
Seventh Day Adventist	11	22%
United Church of Zambia	4	8%
Others	21	42%
Totals	**50**	**100%**
Grade		
1-3	12	24%
4-7	23	46%
8-9	15	30%
Totals	**50**	**100%**
Residential area		
High density	29	58%
Medium density	16	32%
Low density	5	10%
Totals	**50**	**100%**

1. Most of the respondents 46% (23) were in 11-14years, followed by 15 (30%) in 15-18 years, while the rest 24 % (12) were in the 7-10 years age groups.
2. Majority54 % (27) of the respondents were males, while46 % (23) were females.
3. Most 68% (34) of the respondents were Bemba, 26% (13) belonged to other tribes while 6% (3) were Aushi from Mansa.
4. Majority of the respondents 42% (21) belonged to other denominations,22% (11) Were Seventh Day Adventist, 8% (4) were United Church of Zambia, while 14(28%) were Roman Catholic.
5. Majority of the respondents 46 % (23) were in grades 4-7, 30% (15) were in 8-9, while 24%(12) were in grades1-3.
6. Most 58% (29) of the respondents resided in high density areas, 32% (16) resided in medium density areas while 5(10%) resided in low residential areas.

SECTION B: KNOWLEDGE ON BILHARZIA

Figure 1: Respondent's knowledge on cause of Bilharzia (n=50)



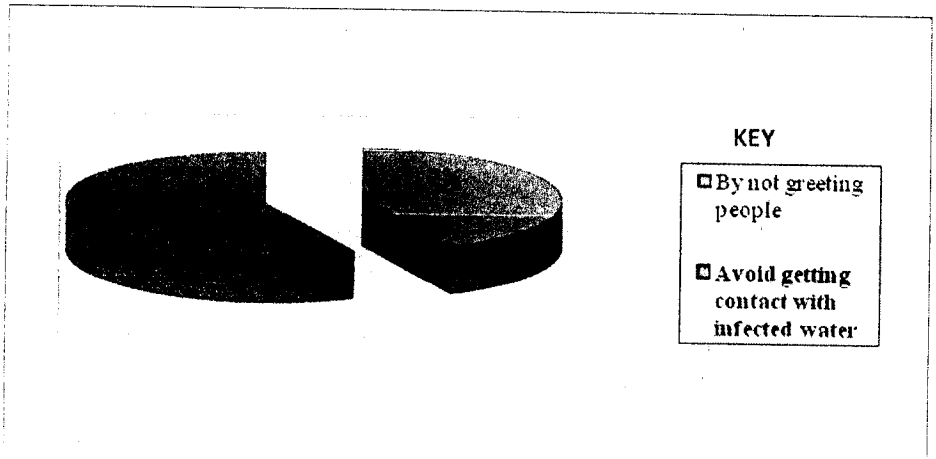
The majority 76% (38) of the respondents were knowledgeable about the cause of Bilharzia, while 24% (12) didn't know the cause of Bilharzia.

Table 5: Respondent's knowledge on transmission of Bilharzia

Variable	Frequency	Percentage (%)
Transmission of Bilharzia		
Contact with infected water	46	92%
Playing football	1	2%
Witchcraft	3	6%
Totals	**50**	**100%**

Majority 92% (46) were knowledgeable about transmission, while 8% (4) didn't know how Bilharzia is transmitted.

Figure 2: Respondent's knowledge on how Bilharzia can be prevented (n=50)



Most 98% (49) of the respondents said Bilharzia can be prevented by avoiding getting into contact with infected water, while 2% (1) said can be prevented by not greeting people.

Figure 3: Respondent's knowledge on commonest sign of Bilharzia (n=50)

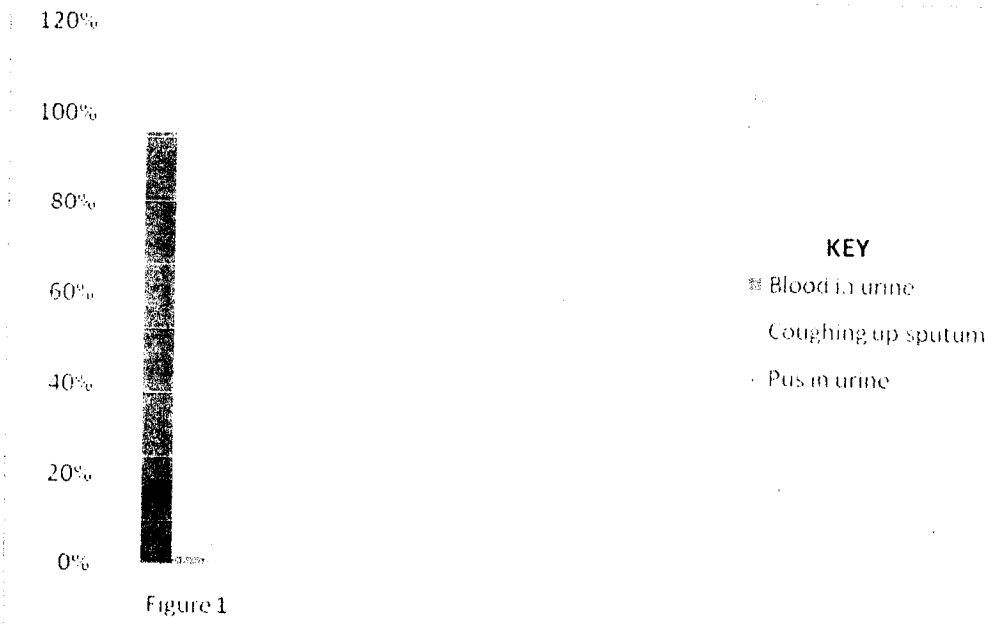


Figure 1

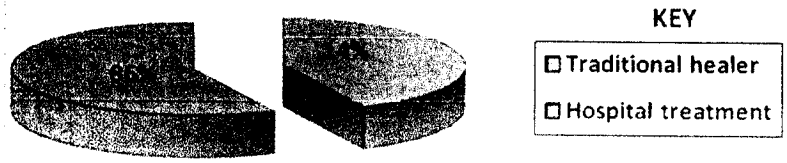
Most 92% (46) of the respondents knew the commonest sign of Bilharzia, while 8% (4) didn't know

Table 6: Respondent's knowledge on whether Bilharzia can be cured (n=50)

Variable	Frequency	Percentage (%)
Can Bilharzia be treated		
Yes	44	88%
No	6	12%
Totals	**50**	**100%**

The majority 88% (44) of the respondents had knowledge that Bilharzia can be treated, while 12% (6) did not know that Bilharzia can be cured.

Figure 4: Respondent's knowledge on treatment of Bilharzia (n=50)



The majority 86% (43) of the respondents indicated that Bilharzia can be treated using hospital treatment while 14% (7) said Bilharzia can be treated using herbs from traditional healer.

Table 7: Respondent's knowledge on whether they have suffered from Bilharzia before (n=50)

Variable	Frequency	Percentage (%)
Suffered from Bilharzia		
yes	12	24%
No	38	76%
Totals	**50**	**100%**

24% (12) of the respondents indicated that they had suffered from Bilharzia before, while 76% (38) said they had not suffered from Bilharzia before.

Table 8: Respondent's knowledge on whether they were completely cured (n=50)

Variable	Frequency	Percentage (%)
Completely cured		
Stopped passing blood in urine	8	67%
Didn't stop passing blood in urine	4	33%
Totals	**12**	**100%**

The majority 67% (8) of the respondents stopped passing blood in urine after hospital treatment, while 33% (4) didn't stop passing blood in urine.

Table 9: Respondent's knowledge on whether Bilharzia is taught in schools (n=50)

Variable	Frequency	Percentage (%)
Bilharzia taught in school		
Yes	24	48%
No	26	52%
Totals	**50**	**100%**

The majority 52% (26) of the respondents said Bilharzia is not taught in schools, while 48% (24) indicated that Bilharzia is taught in schools.

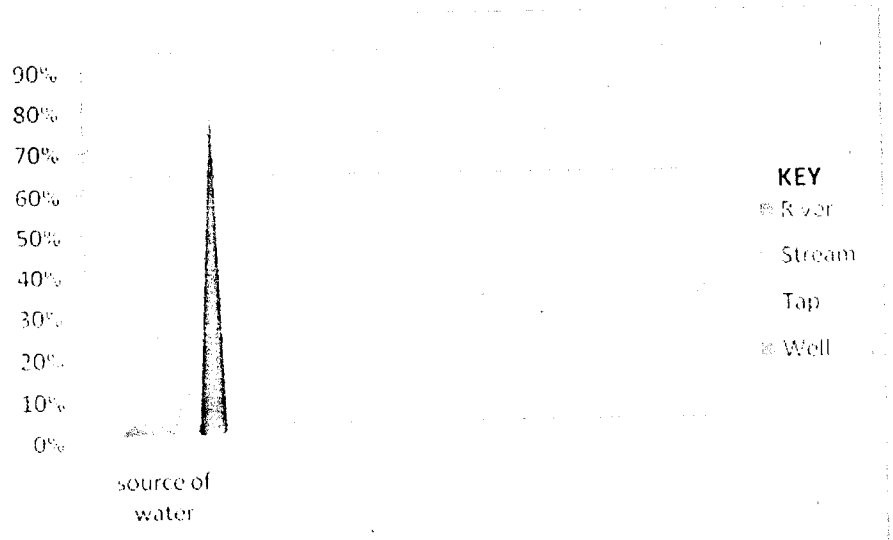
Table 10: Respondents general knowledge on Bilharzia (n=50)

Variable	Frequency	Percentage (%)
Level of knowledge on Bilharzia		
High level knowledge	38	76%
Medium level knowledge	0	0%
Low level knowledge	12	24%
Total	**50**	**100%**

The majority 76% (38) of the respondents had high level knowledge on Bilharzia, while 24% (12) had low level knowledge on Bilharzia.

SECTION C: PRACTICE TOWARDS BILHARZIA

Figure 5: Respondent's source of water for home use and bathing (n=50)



Most 82% (41) of the respondents get water for home use and bathing from the wells, while 14% (7) draw water from the taps, 2% (1) from the river and stream respectively.

Table 11: Respondent's activities after school (n=50)

Variable	Frequency	Percentage (%)
Activities after school		
Farming	16	32%
Swimming	12	24%
Not playing in water	22	44%
Totals	**50**	**100%**

The majority 44% (22) of the respondents didn't play in water after school; while 32% (16) engaged in farming and 24% (12) liked swimming.

Table 12: Respondent's toilet facility at home (n=50)

Variable	Frequency	Percentage (%)
Toilet facility at home		
Pit latrine	45	90%
VIP	2	4%
Water closet	3	6%
Totals	**50**	**100%**

Most 90% (45) of the respondents use Pit latrines; while 6% (3) use Water Closet and 4% (2) use VIP.

Table 13: Respondent's ability to wash hands after use of toilet (n=50)

Variable	Frequency	Percentage (%)
Ability to wash hands after use of toilet		
Able to wash hands	47	94%
Unable to wash hands	Nil	
Able to wash hands sometimes	3	6%
Totals	**50**	**100%**

Most 94% (47) of the respondents indicated that they wash hands always after using the toilet, while 6% (3) said they do sometimes wash hands after using the toilet.

Table 14: Respondent's alternative if no toilet facility (n=50)

Variable	Frequency	Percentage (%)
If no toilet facility		
Neighbors	28	56%
Bush	10	20%
Waits until toilet is found	12	24%
Totals	**50**	**100**

The majority 56% (28) of the respondents said they use neighbors, while 24% (12) would wait until toilet is found and 20% (10) use the bush.

Table 15: Respondent's hygiene practices towards Bilharzia (n=50)

Variable	Frequency	Percentage
Hygiene practices		
Good hygiene practices	24	48%
Poor hygiene practices	26	52%
Totals	**50**	**100%**

The majority 52 %(26) of the respondents had poor hygiene practices towards Bilharzia and 48% (24) of the respondents had good hygiene practices.

Table 16: Respondent's source of water at school (n=50)

Variable	Frequency	Percentage (%)
Source of water at school		
Bore hole	39	78%
Stream	2	4%
well	9	18%
Totals	**50**	**100%**

The majority 78% (39) of the respondents said they draw water from the bore holes at school, while 18% (9) draw from the well and 2(4%) get water from the stream.

Table 17: Respondent's status if ever given urine sample for testing for Bilharzia (n=50)

Variable	Frequency	Percentage (%)
Ever given urine sample for testing		
Yes	2	4%
No	48	96%
Totals	**50**	**100%**

Most 96% (48) of the respondents said they had never given urine samples to test for Bilharzia, while 4% (2) had given.

Table 18: Respondent's response when they went to the hospital were given health education on Bilharzia (n=29)

Variable	Frequency	Percentages (%)
Given health education on Bilharzia		
Yes	9	31%
No	20	69%
Totals	**29**	**100%**

Majority 69% (20) of the respondents who went to the health facilities were not given health education on Bilharzia, while 31% (9) received health education on Bilharzia.

Table 19: Respondents hygiene practices towards Bilharzia (n=50)

Variable	Frequency	Percentages (%)
Practice towards Bilharzia		
Good hygiene practice	24	48%
Poor hygiene practice	26	52%
Totals	**50**	**100%**

Majority 52% (26) of the respondents had poor hygiene practices towards Bilharzia, while 48% (24) had good hygiene practices towards Bilharzia.

SECTION D: ATTITUDE TOWARDS BILHARZIA

Table 20: Respondent's traditional belief towards Bilharzia (n=50)

Variable	Frequency	Percentage (%)
Belief towards Bilharzia		
Know	7	14%
Don't know	43	86%
Totals	**50**	**100%**

Majority 86% (43) of the respondents didn't know traditional beliefs related to Bilharzia, while 14% (7) said they know of traditional beliefs associated with Bilharzia.

Table 21: Respondents who believe and feel if they drunk medicines prescribed by the health care practitioner can cure them (n=12)

Variable	Frequency	Percentage (%)
Drunk the medicine		
Yes	8	66%
No	4	34%
Totals	**12**	**100%**

Majority 66% (8) of the respondents said they drunk the medicine prescribed by the health worker, while 34% (4) said dint drink the medicine.

Table 22: Respondent's opinion on the seriousness of Bilharzia (n=50)

Variable	Frequency	Percentage (%)
Seriousness of disease		
Serious disease	37	74%
Not serious disease	13	26%
Totals	**50**	**100%**

Most 74% (37) of the respondents said Bilharzia is a serious disease, while 26% (13) said it's not a serious disease.

Table 23: Respondent's willingness and interest in contributing to the prevention of Bilharzia in their area (n=50)

Variable	Frequency	Percentage (%)
Respondent's interest		
Yes	46	92%
No	4	8%
Totals	**50**	**100%**

Majority 92% (46) of the respondents said they were interested and prepared to contribute to the prevention of Bilharzia in their areas, while 8% (4) said they were not prepared and interested.

Table 24: Reasons for Respondent's willingness and interest in contributing to the prevention of Bilharzia (n=46)

Variable	Frequency	Percentage (%)
Reason		
Good for own health	28	61%
Good for family	16	35%
Good for everybody	2	4%
Totals	**46**	**100%**

Most 61% (28) of the respondents indicated personal good health as the main reason for their willingness and interest in contributing to the prevention of Bilharzia, while 35% (16) said it's good for the health of their families.

Table 25: Respondents attitude towards Bilharzia (n=50)

Variable	Frequency	Percentage (%)
Attitude towards Bilharzia		
Positive attitude	33	66%
Negative attitude	17	34%
Total	**50**	**100%**

Majority 66% (33) of the respondents had positive attitude towards Bilharzia and 34% (17) had negative attitude.

CROSS TABULATIONS SHOWING RELATIONSHIPS BETWEEN VARIABLES

A) KNOWLEDGE

Table 26: Relationship between knowledge and age (n=50)

Knowledge level	**Age**			**Totals**
	7-10	11-14	15-18	
High	7(58%)	16(70%)	15(100%)	38(76%)
Moderate	0(0%)	0(0%)	0(0%)	0(0%)
Low	5(42%)	7(30%)	0(0%)	12(24%)
Totals	**12(24%)**	**23(46%)**	**15(30%)**	**50(100%)**

All 100% (15) of the respondents aged 15-18 had high knowledge and 42% (5) aged 7-10 had low knowledge.

Table 27: Relationship between knowledge and sex (n=50)

Knowledge	**Sex**		**Totals**
	Males	Females	
High	21(78%)	17(74%)	38(76%)
Moderate	0(0%)	0(0%)	0(0%)
Low	6(22%)	6(26%)	12(24%)
Totals	**27(54%)**	**23(46%)**	**50(100%)**

Majority 78% (21) of the male respondents had high knowledge and 26% (6) female respondents had low knowledge on Bilharzia.

Table 28: Relationship between knowledge and education level (n=50)

Knowledge	**Grades**			**Totals**
	1-3	4-7	8-9	
High	7(58%)	18(78%)	13(87%)	38(76%)
Moderate	0(0%)	0(0%)	0(0%)	0(0%)
Low	5(42%)	5(22%)	2(13%)	12(24%)
Totals	**12(24%)**	**23(46%)**	**15(30%)**	**50(100%)**

Majority 87% (13) of the grades 8-9 had high knowledge and 42% (5) of grades 1-3 had low knowledge on Bilharzia.

B) PRACTICE

Table 29: Relationship between practice of wading and playing in infected water and age (n=50)

Practice	**Age of respondent**			**Totals**
	7-10	11-14	15-18	
Always in contact with infected water	3(25%)	7(30%)	2(13%)	12(24%)
Never in contact with infected water	9(75%)	16(70%)	13(87%)	38(76%)
Totals	**12(24%)**	**23(46%)**	**15(30%)**	**50(100%)**

Majority 30% (7) of respondents aged 11-14 were in the habit of wading and playing in suspected infected water and 87 % (13) of respondents aged 15-18 were not in the habit of wading and playing in suspected infected water.

Table 30: Relationship between practice of wading and playing in infected water and educational level (n=50)

Practice	**Educational level**			**Totals**
	1-3	4-7	8-9	
Always in contact with infected water	3(25%)	7(30%)	2(13%)	12(24%)
Never in contact with infected water	9(75%)	16(70%)	13(87%)	38(76%)
Totals	**12(24%)**	**23(46%)**	**15(30%)**	**50(100%)**

Majority 30% (7) of grades 4-7 had the poor habit of wading and playing in suspected infected water and 87% (13) of grades 8-9 were not in the habit of wading and playing in suspected infected water.

Table 31: Relationship between practice of wading and playing in infected water and knowledge (n=50)

Practice	**Knowledge**		**Totals**
	High	Low	
Always in contact with infected water	0(0%)	12(24%)	12(24%)
Never in contact with infected water	38 (76%)	0(0%)	38(76%)
Totals	**38(76%)**	**12(24%)**	**50(100%)**

Majority 76% (38) of respondents with high knowledge had low water contact and 24% (12) of respondents with low knowledge had high water contact.

Table 32: Relationship between practice of wading and playing in infected water and sex (n=50)

Practice	**Sex of respondents**		**Totals**
	Males	Females	
Always in contact with infected water	7(26%)	5(22%)	12(24%)
Never in contact with infected water	20(74%)	18(78%)	38(76%)
Totals	**27(54%)**	**23(46%)**	**50(100%)**

Majority 26% (7) of male respondents were in the habit of wading and playing in suspected infected water and 78% (18) of the female respondents were not in the habit of wading and playing in suspected infected water.

Table 33: Relationship between practice and age (n=50)

Practice	**Age of respondents**			**Totals**
	7-10	11-14	15-18	
Good hygiene practices	4(33%)	8(35%)	12(80%)	24(48%)
Poor hygiene practices	8(67%)	15(65%)	3(20%)	26(52%)
Totals	**12(24%)**	**23(46%)**	**15(30%)**	**50(100%)**

Majority 80% (12) of the respondents aged 15-18, had good hygiene practices and 67% (8) of respondents aged 7-10 had poor hygiene practices towards Bilharzia.

Table 34: Relationship between practice and educational level (n=50)

Practice	**Educational level**			**Totals**
	1-3	4-7	8-9	
Good hygiene practices	4(33%)	9(39%)	11(73%)	24(48%)
Poor hygiene practices	8(67%)	14(61%)	4(27%)	26(52%)
Totals	**12(24%)**	**23(46%)**	**15(30%)**	**50(100%)**

Majority 73% (11) of grades 8-9 had good hygiene practices and 67% (8) of grades 1-3 had poor hygiene practices.

Table 35: Relationship between practice and knowledge (n=50)

Knowledge	**Practice of respondents**		**Totals**
	Good hygiene practice	Poor hygiene practice	
High	14(58%)	18(69%)	32(64%)
Low	10(42%)	8(31%)	18(36%)
Totals	**24(48%)**	**26(52%)**	**50(100%)**

Majority 69% (18) of respondents with poor hygiene practices had high knowledge and 42% (10) of respondents with good hygiene practices had low knowledge.

Table 36: Relationship between practice and residence (n=50)

Practice	**Respondents residence**			**Totals**
	High	Medium	Low	
Good	11(38%)	10(63%)	3(60%)	24(48%)
Bad	18(62%)	6(37%)	2(40%)	26(52%)
Totals	**29(58%)**	**16(32%)**	**5(10%)**	**50(100%)**

Majority 63% (10) of the respondents from medium density areas had good hygiene practices and 62% (18) of respondents from high density areas had bad hygiene practices.

Table 37: Relationship between residence and water source (n=50)

Water source	**Respondents residence**			**Totals**
	High	Medium	Low	
Clean water source	0(0%)	2(13%)	5(100%)	7(14%)
Poor water source	29(100%)	14(87%)	0(0%)	43(86%)
Totals	**29(58%)**	**16(32%)**	**5(10%)**	**50(100%)**

All 100% (29) and 87% (14) respondents from high and medium density areas respectively got water from bad sources, while 100% (5) of respondents from low density areas got water from good sources.

Table 38: Relationship between respondents' attitude and practice (n=50)

Attitude	**Respondents practice**		**Total**
	Good hygiene practices	Poor hygiene practices	
Positive	14(58%)	8 (31%)	22(44%)
Negative	10 (42%)	18 (69%)	28 (56%)
Totals	**24 (100%)**	**26 (100%)**	**50 (100%)**

Most 69% (18) out of 26 respondents with poor hygiene practices had negative attitude towards Bilharzia, while 58% (14) out of 24 respondents with good hygiene practices had positive attitude towards Bilharzia.

Table 39: Relationship between respondents' attitude and knowledge (=50)

Attitude	**Respondents knowledge**		**Totals**
	High	Low	
Positive	30 (79%)	3 (25%)	33 (66%)
Negative	8 (21%)	9 (75%)	17 (34%)
Totals	**38 (100%)**	**12 (100%)**	**50 (100%)**

Table 36 shows that 79% (30) out of 38 respondents with high level knowledge had positive attitude towards Bilharzia and 75% (9) out of 12 respondents with low level knowledge had negative attitude towards Bilharzia.

5. CHAPTER FIVE

5.0 DISCUSSION OF FINDINGS

5.1 INTRODUCTION

The discussion contained in this chapter is based on the data collected from the study that aimed at determining the prevalence of schistosomiasis among school going children aged between 7 and 18 years old in the basic schools of Mansa District, in Luapula Province, of Zambia. The sample considered 50 respondents who were randomly selected from five basic schools in Mansa District namely Namwandwe, Fiyongoli, Mansa, Kaole, and Muwanguni Basic Schools. The results were based on the analysis of responses from the 50 respondents.

5.1.2 DEMOGRAPHIC CHARACTERISTICS OF THE RESPONDENTS

Table 1 shows that the sample included boys and girls aged 7-10, 11-14, and 15-18years old. Majority 46% of the respondents were aged between 11-14 years old. This is because the study targeted children aged between 7 and 18 years old. Majority 54 % of the respondents were males and 46 % were females. This could be attributed to the fact that in most rural areas of Zambia females get married at a very tender age, and because of long distances to schools and coupled with apathy towards education of girls, there are more boys in schools than girls. It is therefore, the duty of health care providers to educate the communities on the importance of educating the girl child in order to empower them as it is one of the Millennium Development Goals to be attained by 2015(United Nations Country Team, Zambia, 2005). This will also be in line with the United Nations affirmative action for the girl child (UNICEF, 2000).

The school entry- age should be lowered further to 5 years in order to afford the school going children an opportunity of being health-educated about schistosomiasis, modes of transmission and methods of preventing its transmission. This finding entails that Community Based Agents (CBAs) should be teaching families on the prevention of schistosomiasis so as to create an early awareness of the disease, especially to children before the school entry- age.

Majority 46% of the respondents were in grades 4-7. This was very good and in support of the Ministry of Education report (1996), which seeks to educate the youth, who are the future generation.

Majority 68% were Bemba, 26% were other tribes, and 6% were Aushi, this is because majority of the residents claim to be Bemba by tribe when in actual fact they are Aushi.

Table 1 also shows that, majority 58% of the respondents resided in high density areas, 32% resided in medium density compounds, while 10% came from low density areas. This is because most rural towns in Zambia, like Mansa, especially compounds, are densely populated. This finding is supported by WHO, (2002) report, which indicated that significant population increases over the last 50 years has meant there are more people who can be infected with urinary schistosomiasis and contribute to the transmission of the disease. This is further supported by the picture seen in urban areas of Zambia, where the most densely populated areas are the shanty compounds with poor water and sanitary conditions, thus predisposing them to urinary schistosomiasis. In these uncontrolled and unplanned over-populated areas, there are abundant stagnant pools of infected water due to poor drainage systems. Children are often seen playing in these pools of water innocently. There is also indiscriminate urination in the shanty compounds predisposing to high prevalence of schistosomiasis in these compounds (Chanda, 2004).

5.2 DISCUSSION ON VARIABLES

5.2.1 KNOWLEDGE ON BILHARZIA

Table 23 of the study revealed that the majority 42% of the respondents in the age group 7-10 had low level knowledge on Bilharzia. This could be attributed to the fact that, this age group represents children who have just entered school and may not have learnt anything on Bilharzia. This finding supports the study conducted by Banda, (2005) in Mbala, which showed that there was low level knowledge on Bilharzia in the similar age group of 7-10.

The study in table 24 further showed that Majority 78% of male respondents were more knowledgeable than 26% female counterparts. This is because majority 67% of male respondents had suffered from Bilharzia before than the 42% of female respondents. And that mostly in rural areas more boys are interested in school than the females.

Table 25 shows that the majority 87% of grades 8-9 were more knowledgeable than the 42% respondents in grades 1-3 on Bilharzia. This is because those in grades 8-9 were much older than those in grades 1-3 and could have probably learnt about Bilharzia in upper school. Therefore children in this age group should be targeted for health education by health care providers especially during school health programmes. This finding is supported by the study done by Gujral, (2000) in Maputo, Mozambique, when he was determining risk behaviors and level of knowledge among school going children, it revealed that the highest prevalence was related to inadequate knowledge about Bilharzia and its modes of transmission among the majority of these children. The study finding is further supported by yet another study conducted by Shehata, in Chitongo area in 2002, among school going children, also indicated that, inadequate knowledge on transmission and prevention of Bilharzia was the major contributor to the high prevalence of schistosomiasis in the area.

The study further revealed that (Tables 28 & 29), majority 30% of the respondents aged 11-14 had high practice of wading and playing in infected water than the 87% of grades 8-9. This is because those in upper grades were more knowledgeable, older and learnt about Bilharzia in upper school. This finding is in line with the study conducted by Chirwa, (1996), in Nchelenge, which revealed that residents practised water contact behaviours such as wading and playing in the lake, working bare foot in gardens along the lake e.t.c and consequently promoted to the increased prevalence of Bilharzia in the area, because of inadequate knowledge on the modes of transmission and preventive measures of schistosomiasis. Therefore, this is a challenge to health care providers who should always be able to provide key health messages as regards modes of transmission and prevention of schistosomiasis to all health consumers especially the school going children in lower schools.

Table 28 further shows that, majority 76% of the respondents with high knowledge had low practice of wading and playing in infected water as compared to the 24% that had low knowledge with high practice of wading and playing in infected water. This is trying to tell us that adequate knowledge prevents individuals from doing unhygienic practices. This finding is supported by WHO (2002), report, which indicated that schistosomiasis is more prevalent in areas where people have low literacy levels.

The objective to assess the level of knowledge on Bilharzia among school going children has been met. This is evident by 42% low level knowledge of respondents aged between 7and10. This finding is also supported by the hypothesis which states that, the lower the knowledge on the transmission of schistosomiasis the higher the prevalence levels of schistosomiasis among school going children. The author has therefore failed to reject the null hypothesis.

5.2.2 PRACTICE

Table 29 shows that, the majority 26% of the male respondents were in the habit of wading and playing in infected water, while 78% of the female counterparts were not in the habit of wading and playing in infected water. This is because boys like farming, wading, fishing and swimming in water than the girls. This finding in the study, is further supported by the study conducted by Shehata,(2000) in Chamba valley, which revealed that, the prevalence of schistosomiasis was higher in boys than girls because boys have increased water contact than girls due to swimming, fishing, hunting and taking animals to drink water in the infected flood plains and streams. And as such increased human water contact contributed to the increased prevalence of schistosomiasis in the area. The finding is further supported by another study of laboring community of Gezire (Chirwa, 1996) in irrigated farms, on schistosomiasis; the study indicated that human infected water contact behaviours were the main reason for transmission of schistosomiasis. These risk behaviours and unhygienic practices included washing, bathing, swimming, collection of water from the canal, and excreting in the canal. These risk behaviors and unhygienic practices expose people to more risks of infection with schistosomiasis.

The findings in table 30, show that, majority 80% of the respondents aged 15-18, had good hygiene practices as compared to 67% aged 7-10 that had bad hygienic practices. This is because those in age group 15-18 were highly knowledgeable on Bilharzia (Tables 26 and 27) and older as compared to those aged 7-10 that had low knowledge and younger. Table 31; further shows that majority 73% in grades 8-9 had good hygiene practices and 67% in grades 1-3 had bad hygienic practices. This is because those in upper grades were highly knowledgeable on transmission and preventive practices on Bilharzia and learnt about Bilharzia in schools. Those in lower grades had bad practices because they had low knowledge on transmission and preventive practices of Bilharzia and did not learn about Bilharzia in schools. This finding is

supported by the study conducted by Congdon (2001), which revealed that increased prevalence of Bilharzia is high in areas of poor hygienic practices. Health care providers have a challenge of developing key health education messages to these children on the need to have good hygienic practices in order to prevent the transmission of urinary schistosomiasis. The health care providers also need to be creative and innovative.

Table 32; shows that majority 69% of the respondents with poor hygiene practices, had high knowledge on Bilharzia and 42% of the respondents with good hygienic practices had low knowledge. This finding is trying to illustrate that some people may have adequate knowledge on the transmission and preventive practices of Bilharzia, but their hygiene practices may essentially be as bad as shown in table 32. This is also true with people with low knowledge on the transmission and preventive practices of Bilharzia, but mean while have good hygiene practices as shown in table 32. So knowledge and practice are two different things that must be measured separately. It does not mean that when someone is so knowledgeable about something even their personal hygiene and practice is good. This finding further illustrates that health care providers need conduct health education which should be given to everybody on good hygiene practices despite their educational levels, in order to improve both knowledge and hygiene practices. The case of schistosomiasis transmission emphasizes the importance of involving the communities through the CHWs and TBAs who can health educate the families in rural communities.

Table 33 shows that the majority 63% from medium density areas had good hygienic practices as compared to the 62% from high density areas that had bad hygienic practices. This finding implies that those from poor economic status have bad hygienic practices as compared to those that come from sound economic families. This finding supports the study conducted by WHO (2002), which revealed that schistosomiasis is as a result of inequity in health service provision and poverty which is so prominent in many of the African communities and Mansa is no exception. Therefore, communities need to be mobilized and sensitized on the need to participate in preventive measures such as improvement of water sources and construction of VIP toilets.

The study further revealed that, all 100% respondents from high density areas and majority 87% respondents from medium density areas got water for home use from infected water sources, while 100% of respondents from low density areas got water for home use from good water sources. This finding implies that people from high and medium density areas get water from sources that are not clean and protected hence the increased prevalence of Bilharzia. This finding correlates with WHO (2002) study, which reports that, schistosomiasis is more prevalent in the areas where people do no have access to safe, potable water and proper excreta disposal systems. Further the finding is in support of another study conducted by Banda (2005), in Mbala District, which indicated that, the District is experiencing increased prevalence of schistosomiasis, because of the swamps and dambos that surround the District and are the major source of water for most of the communities. There is need, therefore, to improve most of the water sources in most of the Zambian communities if we are to reduce on the transmission of schistosomiasis.

The findings of this study, is further supported by the study conducted by Davy and Wilson (1977), which reported that the high prevalence of schistosomiasis in Africa, was due to the presence of slow flowing streams, warm climatic conditions, light shay firms and mud bottom rich in decaying matter and the vegetation which support the multiplication of cercariae. In Mansa District, there are a few rivers and streams which are the main sources of water for the majority of the population. There is need, therefore, by the Zambian government with the help of stake holders to improve water and sanitary conditions of people in the rural areas.

According to the above findings, the objective on practice has been met. This objective sought to assess the practices of school going children in relation to schistosomiasis. It was found that 52% of the respondents had poor hygienic practices and hence the increased prevalence of schistosomiasis among the school going children. Therefore, the author has failed to reject the null hypothesis because it is in support of the study findings.

5.2.3 ATTITUDE

Table 35 shows that majority 56% of the respondents had negative attitude towards Bilharzia and 44% had positive attitude out of 50 respondents. This finding is supported in the study conducted by Shehata (2000), in Ngombe Township which revealed that unwillingness to get treatment by

the children and unwillingness to pay towards treatment by parents were the main contributing factors to the continued increased prevalence of urinary schistosomiasis in the area. This shows that health care providers need to mobilize communities and increase an awareness of the prevalence of urinary schistosomiasis in catchment populations through mass health education messages.

Table 36 has further revealed that, 66% out of 50 respondents had positive attitude towards Bilharzia and 34% had negative attitude. This finding implies that if there was adequate community mobilization and health education, transmission of Bilharzia can be prevented, because the most affected age group is very much in support of Bilharzia prevention programmes both at school and community levels.

The objective on attitude has been met as research findings indicate that 66% of the respondents had positive attitude towards schistosomiasis. However, this finding is contrary to the null hypothesis on attitude and hence it has been rejected.

5.3 IMPLICATIONS TO THE HEALTH CARE SYSTEM

The implications of this study are related to the problems under study, its objectives and hypotheses. The study revealed that most of the respondents had low knowledge on Bilharzia, especially those in the age group 7-10 years, while those in the age group 15-18 years were more knowledgeable as compared to the other age groups. The study further revealed that the majority of the respondents had poor hygiene practices in the same age group 7-10 years as compared to other age groups. However, the study finding also revealed that, majority of the respondents had positive attitudes towards Bilharzia across all age groups. Hence, these findings have different forms of implications on the various components and dimensions of nursing practice namely practice, education, administration and research as discussed hereunder;

5.3.1 Practice

The findings of this study revealed that (Table 33), there were bad hygiene practices towards Bilharzia among school going children. This implies that the school going children need adequate health messages from health care providers at every level of the health care delivery system so as to prevent the transmission of urinary schistosomiasis and consequently reduce on

the prevalence. This will help to reduce infection rates and thus less cost towards treatment of schistosomiasis.

5.3.2 Education

This study revealed that (Table 23), there was low level of knowledge among school going children in the lower grades especially those entering school for the first time. This, therefore, requires that, the health care system in conjunction with the Ministry of Education can come up with community and school based preventive programmes against schistosomiasis. This will help to boost the understanding of health education messages to school going children and community at large, which may lead to improved knowledge and change of practices. Therefore, there is also need to train and incorporate teachers in preventive programmes in order to intensify knowledge in pupils thereby improving practice and attitude towards Bilharzia.

5.3.3 Administration

The study revealed that schistosomiasis is not one of the top ten priority diseases affecting the District. Therefore, schistosomiasis should be considered as one of the priority problems that the district should prevent from occurring and mitigate its chronic debilitating effects. It's the duty of every health care provider at all levels of health care delivery system, to give health education messages to the school going children. Both Ministries of Health and Education should support Bilharzia prevention school programmes in the district. Preventive programmes against schistosomiasis should be included in the action plans and budgeted for in all health facilities of the District. The District Health Boards are required to initiate School Health and Nutrition programmes in collaboration with the Ministry of Education. The programme of training primary school teachers to conduct health education and treat school children infected with schistosomiasis with paraziquantel should be supported. This programme has since been started in Chibombo District and should spread to other districts in the country.

5.3.4 Research

The findings of this study have indicated that, no research has so far been conducted on Bilharzia in Mansa District. In accordance with the findings of this study, urinary schistosomiasis should be given maximum attention, by giving health education messages to school going children on

the modes of transmission and preventive practices in order to reduce rate of transmission and consequently lower the prevalence. More research should be done on Bilharzia in the District so as to increase awareness and improve on practices, knowledge and attitudes towards schistosomiasis.

5.4 CONCLUSION

The study sought to determine the prevalence of urinary schistosomiasis among school going children aged between 7and 18 years in basic schools of Mansa District, in Luapula Province of Zambia. The sample was drawn from the basic schools within the District and a structured interview questionnaire was used to get responses from the fifty (50) sampled respondents.

The study revealed that low level knowledge, poor hygienic practices and negative attitudes were some of the factors among others that contributed to the increased prevalence of schistosomiasis among school going children in the District. Therefore, all these factors need to be addressed through vigorous health education messages, in order to prevent transmission of schistosomiasis and mitigate the chronic effects of the disease. The gaps identified on knowledge, practice and attitude in this study necessitates that recommendations be made to respective authorities.

5.5 RECOMMENDATIONS

In view of the findings of this study, the author wishes to make some recommendations to various levels of health care delivery system that can effectively, through managers initiate changes and developments suggested hereunder;

5.5.1 District

- The MOH as the policy making body, through District Health Management Teams(DHMT), should ensure that Zambia Bilharzia Control Programmes (ZBCP) are undertaken and policies adhered to, both by Ministries of Health and Education.
- The Ministry of Health should consider including schistosomiasis in the CHWs' training so that they can teach families and communities about its transmission and methods of prevention, so as to create an early awareness in the children.

- There is need to have a District focal person at the District Health Office (DHO) to conduct surveillance programmes for Bilharzia in the District, as it is the case for immunizable diseases, and sexually transmitted infections.
- There is need to include Bilharzia to the top ten priority health problems affecting the District and budget for its activities in the action plan for all health centres in the District in order to reduce on the transmission.
- DHMT to identify and collaborate with stakeholders who are able to improve the water and sanitary conditions of the growing population in the District, by improving community water sources such as WASHE, Care International, e.t.c. Improving water sources can significantly help to reduce increased prevalence of Bilharzia in the District.
- There is need to promote and increase funding for research programmes in order to attract more researches to be conducted in the District on Bilharzia, especially on aspects of species found in the District and to determine contact sites so as to come up with an intensive approach to combat snail population.
- The DHMT should lobby for educational materials on Bilharzia such as pamphlets, magazines, posters to be distributed in schools, clinics and communities both in English and local languages, that can send key messages on signs and symptoms, good hygienic practices and modes of transmission.

5.5.2 Health centre

- Health centre management in conjunction with DHMT must conduct capacity building on Bilharzia Control Programmes in order to increase awareness and level of knowledge among health centre staff who are always in direct contact with health consumers on the daily basis.
- Health centre staff to device a data collection tool that is user friendly, in order to be able to capture Bilharzia cases and accurately record, to avoid under reporting and incorrect recording of Bilharzia cases.
- There is need to intensify routine surveillance of Bilharzia in basic schools of the District and to involve teachers in the programme, who should equally be trained in the Bilharzia control programmes.

- There is great need to intensify health education messages on Bilharzia as regards modes of transmission, good hygienic practices and developing a positive attitude towards Bilharzia in order to improve the health status of school going children and the entire catchment population at large.
- Should involve communities in the prevention and control programmes of Bilharzia through neighbourhood health committees.
- Encourage formation of anti-Bilharzia clubs in schools through youth friendly corners of the health facilities.

5.5.3 Community

- Communities should be encouraged to participate in Bilharzia control programmes through NHCs and village health committees.
- Each household should be mobilized and encouraged to improve their sanitary conditions and water sources with the help of the Environmental Health Technician. And should help them lobby for assistance from local non-governmental organizations available to sink boreholes for safe water supply.
- Communities should be mobilized and encouraged to have good hygiene practices in order to curb the transmission of Bilharzia.
- There is need to increase awareness of Bilharzia among community members and should consider it as one of the health problems affecting them and therefore through NHCs should be included in the community action plan.
- All quarries in the communities should be buried because this is where children like going to play in collected pools of infected waters.

5.5.4 Plans for Dissemination of Research Findings

Dissemination of findings entails the measures that will be employed to make known to relevant authorities and study subjects what the study will measure or research findings. A research report will be written and submitted to the department of Post Basic Nursing in the School of Medicine, which will serve as reference tool to other researchers. Other copies will be sent to the Ministry of Health and USAID as sponsors for the study and the findings may be used in the formulation of policies and health education messages on

prevention of urinary schistosomiasis. And other copies will be sent to Mansa DHMT and stake holders who may use it as reference during planning. Presentation of the study findings will be done during the Research Day which will be organized by the Research Coordinator in the school.

5.5.5 Study Limitations

- The sample size of 50 respondents was too small to generalize the findings onto the general population. This was due to the inadequate resources and the short period in which the study had to be conducted.
- It was not easy to interview respondents because of long distances in between the schools and they were also busy with their school calendar activities.

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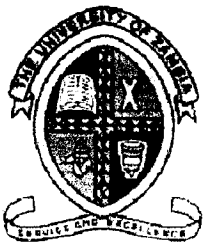
APPENDIX I



THE UNIVERSITY OF ZAMBIA

SCHOOL OF MEDICINE

DEPARTMENT OF POST BASIC NURSING

STRUCTURED INTERVIEW QUESTIONNAIRE FOR DATA COLLECTION ON DETERMINING THE PREVALENCE OF URINARY SCHISTOSOMIASIS AMONG SCHOOL GOING CHILDREN AGED 7-18 YEARS IN BASIC SCHOOLS OF MANSA DISTRICT.

RESEARCH TOPIC: TO DETERMINE PREVALENCE OF URINARY SCHISTOSOMIASIS IN MANSA DISTRICT AMONG SCHOOL GOING CHILDREN

Questionnaire Number: _____

Date of Interview: _____

Place of Interview: _____

INSTRUCTIONS TO THE INTERVIEWER

1. Introduce yourself to the respondents.
2. Do not write the respondents name on the questionnaire.
3. Ask all questions in the order they are arranged.
4. For questions with responses, tick (✓) your answers in the boxes provided.
5. For questions without alternatives, write responses clearly on the spaces provided.
6. Respondents should be free to ask questions during the course of the interview.
7. Assure the respondents that all information will be treated as confidential and used for the purpose it is intended for.
8. Thank the respondents at the end of each interview.
9. Do not write in the space marked '**For Office Use Only**'

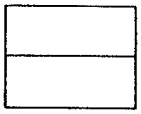
SECTION A: DEMOGRAPHIC DATA

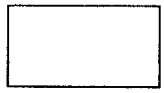
FOR OFFICE USE ONLY

1. Sex of respondent

a) Male

b) Female



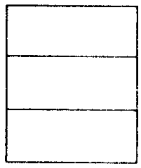


2. How old where you on your last birth day?

a) 7-10

b) 11-14

c) 15-18



3. What tribe are you?_____

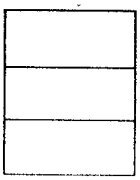
4. What is your denomination?

a) Roman Catholic

b) Seventh Day Adventist

c) United Church Of Zambia

d) Other (specify) _____

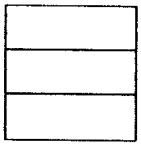


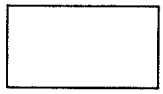
5. What grade are you?

a) 1- 3

b) 4- 7

c) 8- 9





6. Where do you live?

a) High density area

b) Medium density area

c) Low density area

SECTION B: KNOWLEDGE ON BILHARZIA | **FOR OFFICE USE ONLY**

7. Do you know the disease called Bilharzia?

a) Yes
b) No

8. If yes to question 7, what is Bilharzia?

_____

_____

_____

9. How can one get Bilharzia?

a) Playing football/net ball
b) Witchcraft
c) Contact with infected water
d) Any other, (specify)_____

10. How can one know that he/she is suffering from Bilharzia?

a) Passing blood in urine
b) Coughing up sputum
c) Pus in urine
d) Any other (specify)_____

11. Can Bilharzia be treated

a) Yes
b) No

12. If yes to question 11, how can Bilharzia be treated?

a) Using hospital treatment
b) Using traditional healers

c) Mention the medicine Traditional Healers use

Specify_____

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13a. Is Bilharzia a serious problem in your area?

a) Yes

b) No

13b. State the complications of Bilharzia?

_____

_____

14. How can one protect himself/herself from getting Bilharzia?

a) Not greeting people by hand

b) Not getting in contact with infected water

15. Do you learn about bilharzia in your school?

a) No

b) Yes

c) Don't know

d) Not sure

16. Where did you get your information about Bilharzia?

a) School

b) Church

c) Friends

d) Clinic

17. Have you ever suffered from Bilharzia before?

a) Yes

b) No

18a. If yes to question 17, did you seek medical attention?

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a) Health institution
b) Traditional healer
c) Other (specify)_____

_____

18b. What treatment were you given?

_____

_____

19 If yes to question 18 were you given medicines?

a) Yes
b) no
c) not applicable

20 If the answer is No to question 19,
what were the reasons for not being given medicines?

_____

_____

_____

21 If you were given medicine, were you completely cured?

a) Yes
b) No
c) Not applicable

22 How do you know that you were completely cured?

_____

_____

23 Did you believe and feel if you drunk medicines prescribed by the health care provider you can be cured?

a) Yes
b) No
c) No applicable

SECTION C: PRACTICE

24 Where do you get water for home use and bathing?

a) River
b) Stream
c) Tap
d) Well
e) Pools of water
f) Any other (specify)_____

25 What do you do after school?

a) Farming
b) Fishing
c) Swimming

26 What type of toilet do you have at home?

a) Pitlatrine
b) Water closet
c) VIP
d) Any other,(specify)_____

27 Do you wash your hands after using the toilet always?

a) Yes
b) NO
c) Sometimes

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28 If no toilet facility what do you use?

a) Neighbour's
b) Bush
c) Any other, (specify)_____

29 Where do you get water for use at school?

a) Stream
b) Bore hole
c) Tap
d) Any other, (specify)_____

30 Have you ever given urine samples for schistosoma examinations?

a) No
b) Yes

31 When you went to the hospital, were you given any health education on Bilharzia and treatment?

a) Yes
b) No
c) Not applicable

32a. Did you put the information into practice?

a) Yes
b) No

32b. Give reasons for your answers

_____

_____

_____

SECTION D: ATTITUDE **FOR OFFICE USE ONLY**

33. What do you believe is the traditional cause of Bilharzia in your area?

_____

_____

_____

34. When you were diagnosed having Bilharzia did you drink the prescribed medicine by the health care provider?

a) Yes
b) No

35. In your own opinion is Bilharzia a serious disease?

a) Yes
b) No

36. If the answer to question 34 is "Yes" why do you think it is a serious disease?

_____

_____

37. Do you think that you can contribute to the prevention of Bilharzia in your area?

a) Yes
b) No

38. If "Yes" to question 36 give reasons_____

_____

_____

39. Are you interested in preventing Bilharzia in your area? **FOR OFFICE USE ONLY**

a) Yes

b) No

40. If the answer is "Yes" to question 38 why?

_____

_____

41. If the answer is "No" why?

_____

_____

THANK YOU FOR YOUR COOPERATION AND PARTICIPATING IN THE STUDY

APPENDIX II: WORK SCHEDULE

ACTIVITY	RESPONSIBLE PERSON	WEEKS	TIME DATES	PERSON DAYS REQUIRED
Research Proposal Development	Principal investigator	8 weeks	5.05.08-30.06.08	60 days
Finalize Research Proposal	Principal Investigator	4 weeks	01/07/08 to 31/07/08	30 days
Clearance from Research Ethics Committee	Principal investigator	3 weeks	01/08/08 to 21/08/08	21 days
Formulation Of Data Collection Tool	Principal Investigator	3 weeks	1/08/08 to 21/08/08	21 days
Pilot Study	Principal Investigator	3 weeks	1/08/08 to 21/08/08	21 days
Data Collection Tool Amendments	Principal Investigator	3 weeks	1/08/08 to 21/08/08	21 days
Data collection	Principal Investigator	4 weeks	01/09/08 to 30/09/08	30 days
Data analysis	Principal Investigator	4 weeks	18/10/08 to 18/11/08	30 days
Report writing	Principal Investigator	4 weeks	20/11/08 to 20/12/08	30 days
Finalize report and dissemination of findings	Principal investigator	6 weeks	26/12/08 to 31/01/09	42 days
Monitoring and Evaluation	Principal investigator	41 weeks	05/01/09	287 days

APPENDIX III: GANTT CHART 2008-2009

TASK TO BE PERFORMED	RESPONSIBLE PERSON	MAY 2008	JUN 2008	JULY 2008	AUG 2008	SEP 2008	OCT 2008	NOV 2008	DEC 2008	JAN 2009
Research Proposal Development	Principal Investigator									
Finalize Research Proposal	Principal Investigator									
Clearance From Research Ethics	Principal Investigator									
Formulation Of Data Collection Tool	Principal Investigator									
Pilot Study	Principal Investigator									
Data Collection	Principal Investigator									
Data Analysis	Principal Investigator									
Report Writing	Principal Investigator									
Submitting draft report to PBN	Principal Investigator									

Finalize Report and Dissemination Of Findings	Principal Investigator									
Monitor and evaluation	Principal Investigator									

APPENDIX IV: BUDGET

UNIVERSITY OF ZAMBIA

SCHOOL OF MEDICINE

POST BASIC NURSING FOURTH YEAR STUDENTS 2008

RESEARCH BUDGET

ITEM	UNIT	UNIT COST	TOTAL COST
STATIONARY			
Real of paper	5	35,000	175,000
Pens (Box)	1	20,000	20,000
Rubber	4	1,000	4,000
Note books (Each)	4	5,000	20,000
Tipex (Box)	3	10,000	30,000
Stapler	1	80,000	80,000
Perforator	1	150,000	150,000
Scientific calculator	1	150,000	150,000
Flip charts	3	50,000	150,000
Markers	12	5,000	60,000
Staples (Box)	1	10,000	10,000
Box files (Each)	2	30,000	60,000
Small folders	10	2,000	20,000
Field bag	1	250,000	250,000
Folder clips	10	1,500	15,000

ITEM	UNIT	UNIT COST	TOTAL COST
Paper Glue	1	15,000	15,000
Bostick	2	15,000	30,000
Disks (CD-ROM)	10	3,000	30,000
Memory stick 2GB	1	250,000	250,000
Diary	1	80,000	80,000
Manila paper	5	1,000	5,000
		SUBTOTAL	**K1,454.000**
SECRETARIAL SERVICES			
Questionnaire typing	10 pages	3,000	30,000
Check list typing	10 pages	3,000	30,000
Research proposal typing and binding	1	350,000	350,000
Research report writing	1x 60 pages	3,000	180,000
Questionnaire printing	10 x 50 (500 pages)	3,000	1,500,000
Check list printing	10 x 50 (500 pages)	3,000	1,500,000
Binding of research reports	6 copies	50,000	300,000
Research report photocopying	6 x 60 (360 pages)	3,000	1,080,000
		SUBTOTAL	**K 4,790,000**
PERSONNEL			
Transport allowance during research activities	20 days	30,000 x 2	1,200,000

ITEM	UNIT	UNIT COST	TOTAL COST
Transport to and from out reach areas	2	150,000	300,000
Snacks for respondents	65	5,000	325,000
INFORMATION DISSEMINATION			
Hall hire for dissemination	1	250,000	250,000
LCD hire for dissemination	1	150,000	150,000
Refreshments	20	5,000	100,000
		SUBTOTAL	**K 2,325,000**
		TOTAL	**K 8,569,000**
		CONTIGENCY BY 10%	**K 856,900**
		GRAND TOTAL	K 9, 425, 900

JUSTIFICATION FOR THE BUDGET

Field expenses

The author needed lunch allowance and some transport money as he was expected to spend a lot of time at the health centre and going round the basic schools to gather the necessary information for the study. There was need also to give the respondents some snacks during the interview and collection of specimen for the study because of the expected long duration of the exercise.

Therefore, it was necessary for the research to have a field work allowance for transport and lunch allowances.

Stationary

Stationary was required to carry out the study. Different stationary items were required to successfully finish the project as reflected in the budget plan.

Secretarial Services

The author needed money to pay for secretarial services which included typing and printing of the research proposal, photocopying of the questionnaire and binding of the final research report.

Contingency Fund

Contingent fund is 10 percent of the total amount of the budget. It is necessary always to plan and cost for un-foreseen expenses which might be incurred during the study.

The University of Zambia
School of medicine,
Post Basic Nursing Department,
P.O Box 50110,
LUSAKA.

31st July, 2008.

29/08/08

The District Director of Health
Mansa District Health Management Team
P.O Box 720371
MANSA

UFS: The Head of Department,
Post Basic Nursing Dept,
School of Medicine,
LUSAKA.

Dear Sir/madam,

RE: REQUEST FOR PERMISSION TO UNDERTAKE A STUDY IN MANSA DISTRICT

I am a fourth (4th) year student pursuing a Bachelor of Science in Nursing (BSc NRS) degree at the Department of Post Basic Nursing in the School of Medicine at the University of Zambia.

During the fourth year of study, it is a requirement that I conduct a research project as partial fulfillment for the award of Bachelor of Science Degree in Nursing. My topic of study is to ***"Determine the prevalence of urinary schistosomiasis among school going children in Basic Schools of Mansa District aged between 7 and 18years".*** Iam therefore asking for permission to conduct structured interviews to school going pupils of Mansa District and to obtain urine samples for laboratory analysis from them. I intend to undertake this exercise on 50 pupils from 5 randomly selected Basic Schools in the District starting September to October, 2008.

Thanking you in advance.

Yours faithfully,

Francis C. Champo.

The University of Zambia

School of medicine,

Post Basic Nursing Department

P.O Box 50110,

LUSAKA.

31st July, 2008.

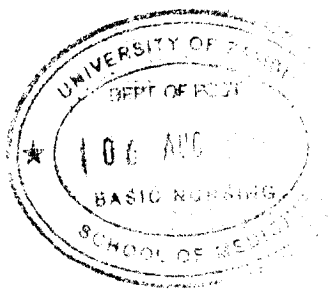
The District Education Officer,
Lusaka District Education Office,
P.O Box
LUSAKA.

UFS. The Head of Department,

Post Basic Nursing Dept

School of Medicine

LUSAKA.



Dear Sir/madam,

RE: REQUEST FOR PERMISSION TO UNDERTAKE A PILOT STUDY IN LUSAKA DISTRICT

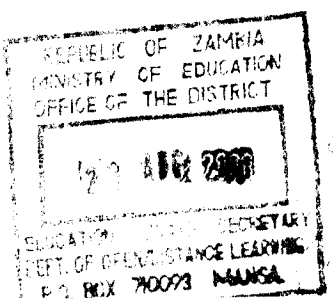
I am a fourth (4th) year student pursuing a Bachelor of Science in Nursing (BSc NRS) degree at the Department of Post Basic Nursing in the School of Medicine at the University of Zambia.

During the fourth year of study, it is a requirement that I conduct a research project as partial fulfillment for the award of Bachelor of Science Degree in Nursing. My topic of study is to *"Determine the prevalence of urinary schistosomiasis among school going children in Basic Schools of Ifansa District aged between 7 and 16years"*, I am therefore, asking for permission to conduct a pilot study on school going pupils of Lusaka District and to obtain urine samples for laboratory analyse from them, before a major study to be conducted in September, 2008.

Thanking you in advance.

Yours faithfully,

Francis C. Champo.



Supported