URINARY SCHISTOSOMIASIS:
KNOWLEDGE, ATTITUDE AND PRACTICES AMONG PRIMARYSCHOOL CHILDREN IN MTERA DAM AREA, MPWAPWA DISTRICT

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Master of Science in Tropical Diseases Control Dissertation

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KNOWLEDGE, ATTITUDE AND PRACTICES AMONG SCHOOL CHILDREN IN MTERA DAM AREA, MPWAPWA DISTRICT

By

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A dissertationSubmitted in (partial) Fulfillment of the Requirements for the Degree of Masters of Science in Tropical Disease Control of the Muhimbili University of Health and Allied Sciences

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CERTIFICATION

The undersigned certify that they have read and hereby recommend for Examination of the thesis/dissertation entitled *Urinary Schistosomiasis Knowledge, Attitude and Practise among Primary School children in Mtera dam area, Mpwapwa District,* in fulfillment of the requirements for the degree of Master of Science in Tropical Diseases Control of Muhimbili University of Health and Allied Sciences.

……

Dr Billy Ngasala(Supervisor)

Date…….

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I Jane Michael Kitalile, declares that this dissertation is my own work and it has not been presented and will not be presented to any other University for similar or any other degree award.

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Lastly Iam grateful to my friends and colleague for their moral support and prayers during my studies.

DEDICATION

For **Paula**mypreciousdaughter and friend. You are truly a gift from above,may this work inspire you to work hard and achieve more in your life. Wherever you will be, remember that mama LOVES YOU A LOT.

ABSTRACT

Introduction and background

Knowledge, attitude and preventive practices of risk groups for urinary schistosomiasis are important aspects for control of the disease. However, knowledge,attitude and practices (KAP) of urinary schistosomiasis are poorly understood among primary school children which in turn increases the prevalence of the disease in endemic areas despite of MDA that takes place regulary.

Objective: The aim of the study was to determine the knowledge, attitudes and practices (KAP) of school children towards urinary schistosomiasis in Mtera damarea, Mpwapwa District.

Methods: A cross sectional study was conducted in June 2011 among primary school children in Mtera ward in Mpwapwa District Dodoma.A multi stage simple random sampling techniques was conducted to select the names of four villages, four primary schools and 400 names of pupils who participated in the study. Structured questionares were used to collect information on knowledge ,attitude and preventive practices of urinary schistosomiasis.

Results: In the study, 360(90%) of the respondents reported to have ever heard about urinary schistosomiasis and the common source of information was School 144(36%). 237(59.5%) of the respondents associated water contact behavior with urinary schistosomiasis transmission and about 200(50%) quotedhaematuria as the major the symptom of the disease.

About 45(11.25%) of the respondents reported to have ever urinated blood in urine (haematuria), and for those with history of haematuria there were no difference between the males and females .

The control measures mentioned by 152(38%) pupils were in line with those recommended by WHO urinary schistosomiasis control strategies.

Conclusion

In conclusion, the study has identified a medium level of knowledge concerning urinary schistosomiasis transmission among primary school children in Mtera ward.This fair level of knowledge about urinary schistosomiasis need tobe addressed through intensive health education that should focus on the cause and means of transmission as well as the risk behaviours associated with the acquisition of the disease. There is a need for improved health education focusing on the transmission, preventive and control strategies of urinary schistosomiasis among primary school children in an area. Regular Praziquantel uptake coupled with proper health education will help to lower the prevalence of the disease in an area.

LIST OF ACRONYMS

DMO…….. District Medical Officer

DAS……District Adminstrative Officer

KAP…… ..Knowledge, Attitude and Practice

MoHSW ……Ministry of Health and Social Welfare

MUHAS…….Muhimbili University of Health and Allied Sciences.

NTD ……..Neglected Tropical Diseases

MSc TDC…….. Master of Science in Tropical Diseases Control

MSc PE…… Master of Science in Parasitology and Entomolgy

RMO……. Regional Medical Officer

SPSS……. Statistical Package for Social Sciences

SCI…… .Schistosomiasis Control Initiatives

VEO……..Village Executive Officer

WEO……Ward Executive Officer

WHO……World Health Organisation

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CHAPTER ONE

1.0 INTRODUCTION

1.1 Background information

Schistosomiasis is a group of diseases caused by parasitic trematode worms of schistosomes that live in the abdominalveins and vessical plexus of their vertebrate definitive hosts (WHO, 1993). There are five species of Schistosoma known to infect humans. *S. mansoni, S. mekongi, S. intercalatum*and *S.japonicum* that cause intestinal Schistosomiasis and *S. haematobium* that causes Urinary Schistosomiasis. The female produceseggs which are excreted in the feaces or urine. Upon contact with water the egg hatches and releases the miracidium which searches for the specific intermediate host freshwater snail.The*Bulinus truncatus*, *Biomphalaria spp* and *Oncomelania spp* are intermediate hosts for *S. haematobium, S. mansoni and S. japonicum* respectively.Within the snail intermediate host, the miracidium passes through developmental stages, leaving the snail as cercariae (free-swimming larval forms of the parasite).

All schistosoma infections to human follow direct contact with fresh water that harbours cercariae. On contact with infested water, the cercariaepenetrates the skin of human and on reaching the blood stream they lose their birfucated tail and become schistosomule, which is taken in the blood stream via the lungs to the liver and transforminto young wormswhich eventually reside in their associated destinations

depending on the species. *S.haematobium* resides in the vessical plexus of the bladder while *S.japonicum* and *S.mansoni*reside in the mesenteric plexus of the intestine (Ross,*et al.,* 2002). The prominence of infection is attributed to poor environmental sanitation and inadequate access to safe tap water, the conditions which lead to continued exposure to the causal parasites and thus high rates of re-infection (Catherine, *et al.*, 2003).

Urinary schistosmiasis leads to a variety of clinical manifestation, haematuria being the major clinical sign. This condition is associated with blood in urine. Other features are Dysuria nad suprapubic pain. The disease if it goes untreated it can pose a great risk to bladder cancer. Other health impacts associated with the disease are risk of anemia, stunted growth to children and imparement of cognitive development in infected individuals.

According to WHO (2006), urinary schistosomiasis beingamong the neglected tropical diseases affect millions of people and is endemic in several parts of the world particularly in Sub Saharan Africa. It is estimated that more than 200 million people are infected worldwide with one of the major schistosomes species with more than 90% of the cases occurring in sub-Saharan Africa (Steinmann ,*et al.*, 2006). The disease caused the loss of 1.7 million Disability Adjusted Life Years (DALYs) worldwide in 2001 of which 82% were in Sub Saharan Africa (Catherine, *et al.,* 2003).

The WHO strategy against urinary schistosomiasis control is based on morbidity control through preventive chemotherapy of Praziquantel(WHO, 2002). The drug is the least

expensive, easiest to use and the most available schistosomicides since it is effective against all schistosome species and is well tolerated making it suitable for mass treatment. Mass treatment with Praziquantel is mainly targeted to primary school children who represent the most susceptible and infected age group in the population. During mass chemotherapy, pupils are treated with single dose of Praziquantel of 40 mg/kg with no regard to infection status. Treatment leads to reduction of egg output and thus reduction of intensity of infection three weeks after treatment.

Environmental changes thatresultfrom water development projects can facilitate the spread of schistosomiasis or the introduction of the diseases into previously non-endemic areas (Steinmann,*et al.*, 2006).The condition is also widely spread in areas where water development projects are constructed for economic activities (Mubi, 1990). According to Doumenge (1987), urinary schistosomiasisoccurs in all regions of Tanzania Mainland and Zanzibar. The prevalence rates are above 80% in areas along the coast making the disease a major public health concern in Tanzania. *S. haematobium and S. mansoni* infectionsoften occur together with other geohelminthesinfections (Kihamia, *et al.*, 1981, Lwambo, *et al.*, 1999). The highest prevalence has been noted among primary school children which is attributed much by their frequent water contact behavior (Ndyomugenyi ,*et al.*, 1997, Brooker ,*et al.*,2001).

Epidemiology and distribution of Urinary Schistosomiasis in Tanzania

The distribution of urinary chistosomiasis is mainly related to the distribution of the snail intermediate hosts species involved in the transmission of the disease (Lwambo,*et al.,* 1999, Brooker ,*et al.,* 2001, Stothard ,*et al.,* 2002). The main snail intermediate species of S. *haematobium* are *Bu. africanus, Bu. globosus and Bu. nasutus* (Webbe & Msangi, 1958, McCullough, *et al.,* 1972, Zumstein, *et al.,* 1983, Marti, *et al.,* 1985).In Tanzania, the pattern of *S. mansoni* and *S. haematobium* is also related to the availability of large water-bodies.

Urinary schistosomiasis is common in many parts but focally distributed within regions and districts (Kihamia, *et al.,* 1978, Brooker ,*et al.,* 2001, Stothard ,*et al.,* 2002). The disease is concentrated in areas along Lake Victoria with the prevalence of 67% among school aged children (in the hinterland furthest from the lakeshore, and lowest along the lakeshore) and the Coastal zone of the Indian Ocean with the prevalence of 54% (Lwambo, *et al.,* 1999, Nyandindi, *et al.,*2010). However, high prevalence rate have been also noted in the mainland where there are no large water bodies (Rugemalira, *et al.,* 1985).

A National School Based Survey conducted by the National Schistosomiasis School Control Programme (NSSCP) (2004) in all regions of Tanzania mainland, showed that the presence of blood in urine (haematuria) was reported high among boys than girls of

the same age profiles (Nyandindi, *et al.*,2010). This is because of the boys' behaviors: swimming, fishing, bathing and playing in water bodies.

1.3.0 Statement of the problem

There is little information about knowledge, attitude and practice among primary primaryschool children – the most susceptible age group – in relation to risk behaviours in areas where Mass Drug Administration of Praziquantel takes place. While immense efforts have been made to control morbidity due urinary schistosomiasis among primary school children in Mpwapwa District, results indicates that the prevalence resume its rate after the MDA. This observation suggests that MDA alone is important but not sufficient approach to control the disease. It was, therefore, considered that knowing the knowledge, attitude and practice of the group at risk could improve planning, implementing, monitoring and evaluation of Urinary Schistosomiasis interventions in the area.

1.4.0Rationale of the study

Findings on the knowledge, attitude and practice of primary school children reported in this dissertation provide the necesary information; which if added to MDA will help to maintain the low level of the prevalence of the disease among primary school children in Mtera dam area. The inclusion of the findings into the intervention approaches will help reducing the risk of transmission of the disease among primary school children.

1.5 Research questions

1. What is the association between water contact behaviours and urinary schistosmiasis transmission)

2. What are the risk factors that enhance the transmission of urinary schistosomiasis

3. What is the level knowledge on the root cause and mode of transmission associated with urinary schistosomiasis transmission?

1.5.0 Objectives

1.5.1 Broad Objective

To assess theknowledge, attitude and practices among primary school children towards Urinary Schistosomiasis in Mtera area.

1.5.2 Specific Objectives

1. To determine the knowledge, attitude and practice among primary school children towards urinary schistosomiasis in Mtera area.

2. To establish the risk factors associated with urinary schistosomiasis infection in Mtera area.

3. To explore domestic and economic activities that may predispose the pupils from acquiring urinary schistosmiasis.

CHAPTER TWO

2.0 LITERATURE REVIEW

Steinmann ,*et al*., (2006) observed a high prevalence of urinary schistosmiasis in areas where water development projects are constructed. Man-made dams have been created to provide water for domestic use, irrigation, hydroelectric power production and industrial use. It is estimated that more than 200 million people in close proximity to the constructed water bodies are at risk of urinary schistosomiasis since they are more exposed to infested water while searching water for their domestic use (Steinmann ,*et al.*, 2006).People around these water projects have been found to suffermuchfromSchistosomiasis especially school children who are more exposed to infested water due to their behaviors of swimming in infested water (Ronaldo, *et al.*, 2006).

According to Colley (2001), the global control strategy for urinary schistosomiasis has targeted primary school children with aims to reach all school-aged children at risk of morbidity from schistosomiasis and soil-transmitted helminths .This is because the prevalence of the disease seems to be higher in primary school aged children compared to other members of the Community. The WHO (2006) criterion for Mass Drug treatment is a primary school prevalence of ≥50% of infection .

The WHO(2006) control strategy for Urinary schistosomiasis states that the major control plans of urinary schistosomiasis are provision of Praziquantel to primary school

children, provision of safe tap water to the whole community and health education. Knowing the knowledge,attitude and practice of the disease in any community will provide necessary information on how to provide health education and achieve the purpose of controlling Urinary schistosomiasis in endemic areas.

A study conducted in Brazil on the analysis of the impact of Schistosomiasis Control Programme from 1976 to 2003 indicated a large parasitic burden of the disease in the country (Ronaldo ,*et al* .,2003). The prevalence of the infection was high in primary school children (62%) and fishermen (54%) who are more exposed to infested waters due to their occupation. From 1976, about 4 million carriers were detected and massive treatment was intensively carried out, where by about 2 million cases were treated (Ronaldo, *et al*, 2003).

A study conducted in Nigeria on urinary schistosomiasis revealed a prevalence of 79.4% among primary school children which indicate that Schistomiasis is endemic in many parts of the country (Catherine , *et al.*, 2007). The study took place in selected community primary schools around the major water source like rivers and streams. The male children were more affected than their female counterparts. The explanation for this observation was, in part, the boys' higher water contact behaviors particularly fishing as well as bathing and swimming in cercarial infested water.

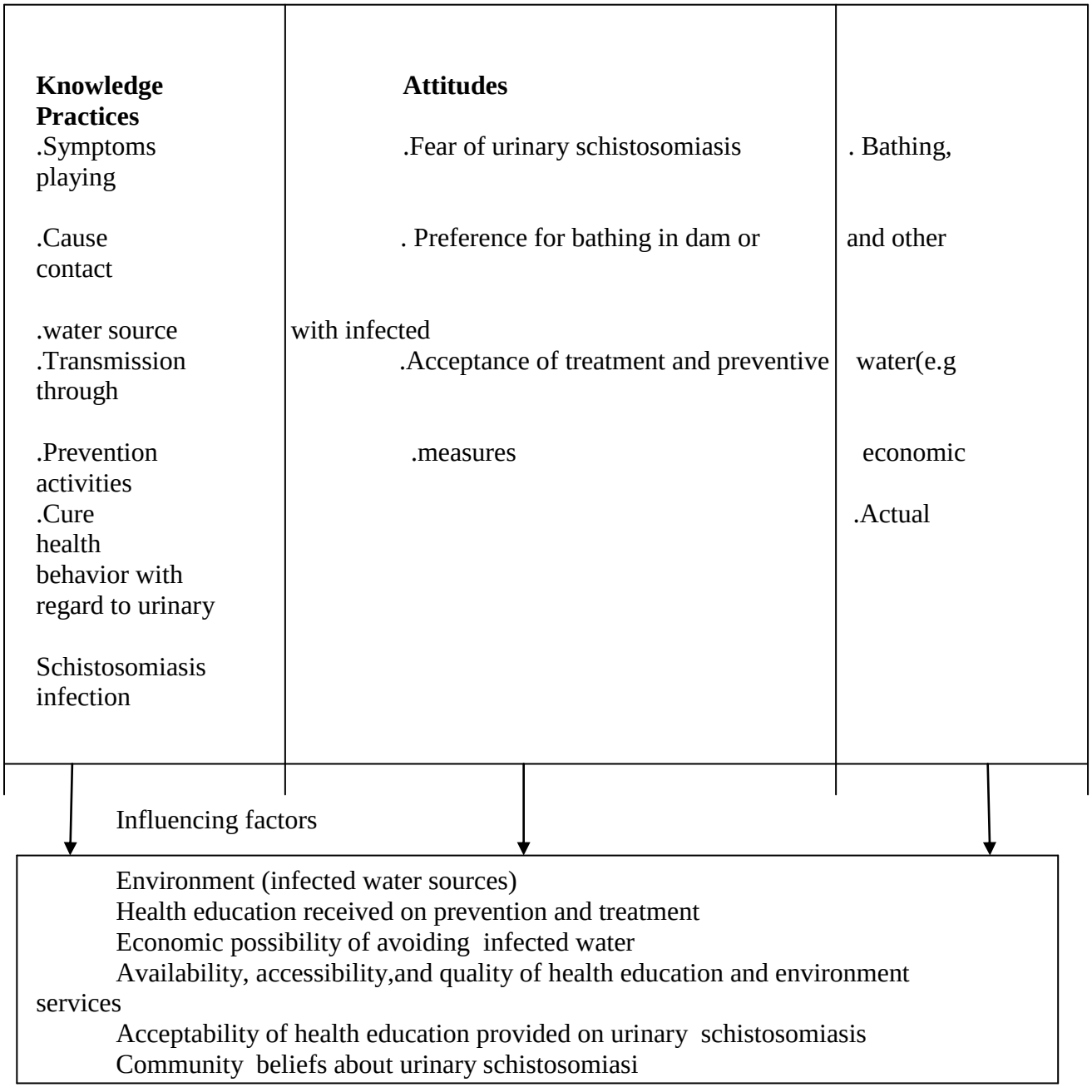
In Tanzania, urinary schistosomiasis has been noted to be endemic in water development projects such as Nyumba ya Mungu (Ndyomugenyi, *et al*, 1992,Brooker *et al.*,2001, Stothard et *al*., 2002) the prevalence being high among primary school-aged children who report having haematuria (blood in urine). Among primary schoolagedchildren, schistosomiasishasa detrimental impact onphysical, cognitive and intellectual growth as well as causingnutritional deficiencies (Partnership for Child Development, 1999).

A study conducted in Mwanza on prevalence and KAP on Urinary schistosomiasis among primary school children has revealed a higher prevalence of 64.5% (Mazigo *et al*, 2010) with 39.5% of the children with proper knowledge on the transmission of the disease. About 34.5% of the primary school children mentioned the control measures of the disease that were in line with those of WHO (2006), that is, provision of safe tap water, Mass Drug Adminstration and health education.

Unfortunately, most of the studies reviewed focused more on the prevalence of urinary schistosomiasis paying less attention on the target group's knowledge, attitude and practice towards the disease. Certainly, knowing the level of knowledge, attitude and practice is important in adopting control measure and intervention towards the disease. This will create awareness among the risk group and thus help in behavioral changes that will reduce the risk of exposure towards the causative agent of the disease.

2.1.0 CONCEPTUAL FRAMEWORK

Knowledge, Attitude and Practice with regard to urinary schistosomiasis



CHAPTER THREE

3.0 MATERIALAND METHODOLOGY

3.1Description of the study area

Mtera dam isa man made reservoir that was created in 1975. The dam receives water from the Great Ruaha river close to the main road between Iringa and Dodoma. The basin has a surface area of 620 m^2 at full capacity it is 8.5 meters deep and 690 meters above the sealevel. The reservoir stores about 125 million cubic meters of water.

Its basin lies within the rift valley on a high mountain range on the east of Mpwapwa District. The area is semi arid with 450 mm of rainfall annually. The temperature ranges from 20^0C to 35^0 C. The rainy season is between November and April.

The area surrounding the reservoir is sparsely populated with 415 per 1000 of people and several economic activities takes place in the area. Fishering is the common economic activity that takes place in the area followed by rice cultivation and pastoralism.

In Mtera dam area, Mass Adminstration of Praziquantel takes place twice per year, on April and November. The activity takes place after every six months and it includes all primary school children in an area.

3.2.0 Study design

A cross sectional study with multi stage simple random sampling technique was conducted in June 2011.The study had only one part of filling the questionares and handle them back to the research assistants.

3.3.0 Study population

The study population included primary school children of standard four and seven and the age category was 7-21.This was due to the fact that school children in standards four up to seven were more exposed to infested water due to their behavior of swimming in ponds and other water bodies, also most of them were exposed during fishing or cultivating in farms.School children who were absent during the study were not included in the study, also for those who were present but were not ready to participate in the study were also excluded. During the study, I observed some of the male pupils were swimming in the dam.

3.4.0 Eligibility criteria

Inclusion criteria: All primary school children from standard four to standard seven regardless of the sex and who were willing to participate in the study at Mtera ward.

Exclusion criteria: Pupils who were sick or those who didn't attend school were not included in the study.

3.5.0 Study variable

Dependent variables: Knowledge(knowing the source of infection, mode of transmission, risk factors for acquiring the infection, prevention and control strategies), Attitude, Practise, **Independent variables:**social demographic characteristics of the Primary School children(age, sex, level of education), source of water, urination behaviours, water source visitation, praziquantel uptake.

3.6.0 Sample size estimation.

Four out of ten Primary Schools were randomly sampled in which a minimum number of 405 were required to be sampled but only 400 pupils were ended up being sampled since the rest were in their mid year holiday.

$n=(1.96/w)^2 p(1-p)$

Where n is the sample size(Minimum sample size of pupils)

W margin of error on p(5%) 0.05

The level of KAP of urinary schistosomiasisin Dodoma region is 80%among primary school children.

$n=(1.96 /0.05)^2$ x.8 x (1-0.80)

n=245 pupils

A stage wise random sampling ,there the calculated variance inflation factor (f) which is

245(f)=245x1.5=368

n=368 adding for 10% of missing data,drop out or non response the sample size will then be

368+36.8=405

N=405

3.7.0 Sampling procedures

In order toobtain the sample for the study, a multi stage simple random sampling was conducted. A list of villages was obtained from the ward, where by twelve villages were identified.The names of the villages were Nyabu,Migoli,Bubu, Kisigo,Mtera ,Kisima, Msangambuya, Manzase, Chibwegele,Chungu, Bugene and Mtitu . I took a piece of A4 paper and divided it into twelve equal pieces. The names of the villages were written in each small piece of paper where by each paper was folded and then put together in a box. The box was shaken and one piece of paper was picked from the box at random and a name of the village was identified and noted. Then the piece of paper was folded again replaced back to the box and was shaken again and the name of the second village was selected. The procedures was repeated until four villages were obtained.The villages selected were Mtera, Kisima, Chungu and Chibwegele. The same procedure was used to select the names of primary schools and the pupils who participated in the study.

3.8.0 Recruitment and Training of Research assistants

Research assistants were trained for three days, the first day was a class session and the two days was for pretesting of research tools. Consideration was given to those with

medical field background, good communication skills and a previous participation in school health programmes. Two nurses from the village Dispensary were trained for data collection. They were responsible for filling the questionares for standard four pupils , but for those pupils who were in standard seven filledin the questionares themselves.

3.9.0 Data collection procedures

Data collection was conducted by two trained research assistants who were the nurses at the

village dispensary. The process was preceded by administration of Swahili version questionares

to pupils of standard seven and for those of standard four the questionares were filled by the

research assistants. During data collection, the research team was accompanied by the teachers of

the respective primary schools.

As a Principal investigator, I had a thoroughly check up to the research assistants to ensure that

they collected data correctly and accurately. This was accomplished through spot check up in

the course of data gathering, filling of questionares , correctness , completeness and storage of

filled questionares.

3.10.0 Administering of questionnaires

Before the start of the study , questionnaires focusing onprimary school children knowledge, attitudes and practices on urinary schistosomiasis were developed. The questionares were prepared in English and then translated in Kiswahili language to make it convenient to the target group since it is the language that is used for teaching at primary school level . Pre- testing of the questionnaires were carried out for ascertaining consistency andappropriateness of languageusing school children from Kigogo, Darajani and Gilman Rutihindaprimary schools in Dar es Salaam. These schools are close to Msimbazi river in Kinondoni Municipal , a previous study reported a high prevalence of 51.5% of urinary schistosomiasis among school children in Dar es Salaam (Ndyomugenyi *et al*,1992). The survey collected demographic data, including age and sex and assessed the pupil's knowledge of urinary schistosomiasis transmission, signs and symptoms as well as treatment, prevention and control.

In Mtera area, the pupils who were in standard seven weregiven questionares to fill in themselves and asked whether they consider urinary schistosomiasis harmful.The Swahili version questionnaire was filled in by the pupils.

3.11.0 Ethical considerations.

The ethical clearanceform was obtained from the MUHASResearch and publication ethical

review board . The conset to conduct this study was sought at various levels .Permission to

conduct the study in Mpwapwa District was sought from the RMO of Dodoma region, who

wrote a letter of introduction to DED, DAS and DMO of Mpwapwa District. Then DAS wrote

a letter to the WEO of Mtera ward for introduction and as a permit to conduct the research in

the area. The WEO introduced the research team to the VEO of each village which in turn

introduced the research team to the headteachers of both primary schools to which the study

was conducted. At the level of pupils, teachers were given informed conset form which has

various details that were elaborated to the pupils. Since most of primary school children are

under 18 years, the informed consent form is filled by the teacher on behalf of them except for

those who were above 18 years. The informed conset was not filled by the parents because they

were at home at the time the study was undertaken , and also teachers are regarded as the pupils

guardians while they are at school.There were five refusals and they were not included in the

study.

3.12.0 Confidentiality

All the information provided by the pupil remained confidential and was shared only by the study team. In all classes the researcher ensured that the information provided and the questionnaires were kept safely. Willingness to participate was highly respected and any pupil who was not ready to participate in the study was free to withdraw him/herself.

3.13.0 Data management

Filled in questionares were collected and stored in the box and placed in a

safe room that was empty to avoid damage ready to be transported to Dar es Salaam for data

entry and analysis.Data entry was done by the University Computer analysts and the researcher.

Before entry, data were coded, classified and tabulated . Data were entered

into the computer by a principal investigator and SPSS version 16.0 was used for analysis. Data

set was printed out and visually checked to adjust for missing information , outliersand for

inconsistency check up before analysis.

3.14.0 Statistical analysis

Data was analysed by Statistical Package for Social Sciences(SPSS) Version 16.0. Frequency tables and cross tabulations was computed and appropriate statistical associations was made for the study variables. The **Z test** was used to compare the mean values of age and sex in one or more groups. The **chi square** test was used to compare for categorical variables and the association between water contact behaviours and urinary schistosomiasis transmission in which p value less or equal to 0.005 was considered for significant. The confidence interval was 95%.

Knowledge was measured with score , where by there were 10 points to score. A score from 1-3 was considered to be low, 4-6 medium and 7-10 as high knowledge. Percentage of score was calculated from 10 points of the total score.

CHAPTER FOUR

4.0Results

4.1 .0Social Demographic characteristics of the sample

The sample size estimated was 405. The study involved atotal of 400 pupils from four primary schools.A total of 400 primary school children in the area participated in the study and filled in the questionares. Of those sampled, 242(60.5%) were females while 158(39.5%) were males.Out of those studied, 5 refused to participate in the study and there fore were not included in the study. In the Schools sampled, a large proportion of pupils were from Mtera dam Primary School 158(39.7%) while the lowest 60(15.1%) were from Chibwegele Primary School. The mean age of the study population was 10.8years for males and 10.6 years for females.

Table 1.

Characteristics of the sample of 400 school children from Mtera dam area.

Age(years)	Females	Males	Total
8-11	70	41	111
12-15	109	96	205
16-18 61	14	75	
19+	279		
Total	**242**	**158**	**400**

Table 2

Distribution of pupils according to their Schools(n=400).

Name of School	Frequency	Percentage(%)	Cum Frequency(%)
Chungu	77	19.1	19.1
Chibwegele	60	15.1	34.2
Kisima	105	26.1	60.3
Mtera dam 158	39.7	100	
Total	**400**	**100**	**100**

4.2.0 Knowledge about urinary schistosomiasis infection

About 400 primary school children from 8 to 20 years were interviewed , about 360(90%) of the pupils have ever heard about urinary schistosomiasis where as 40(10%) have never heard of the disease.

However330(82.5%) of the pupils knew how the disease is transmitted where as 70 (17.5%) didn't know how man acquires infection towards urinary schistosomiasis. For those who reported to know the mode of transmission,295(73.7%) pupils mentioned parasite(cercariae) penetration to the skin to be the common mode of acquiring the infection.

Generally the level of knowledge of pupils concerning urinary schistosomiasis was intermediate meaning that most pupils scored about 50% of the questions asked. The total score was 10 points . The categories were 1-3 low knowledge, 4-6 medium knowledge and 7-10 high knowledge. The categories followed proper mentioning of the transmission methods ,symptoms of the disease , treatment and control measures. The symptoms for urinary schistosomiasis are haematuria, dysuria, suprapubic pain and abdominal pain , the modes of transmission includes contact of infested water while the control measures includes avoiding urination in water bodies, provision of safe tap water, and provision of Praziquantel. For those who mentioned the mode of transmission, symptoms of urinary schistosmiasis, treatment and control measures were ranked to have high knowledge, those who mentioned three were ranked to have medium knowledge and for those who mentioned less than two symptoms were ranked to have low knowledge.

In this case, about 102(42.2%) of females pupils had a higher score level of knowledge compared to the male pupils 59(37.3%). Of the sources of information mentioned by the pupils , school health programme was the common source where pupils got the informations about the transmission and control of the disease, followed by mass media 120(30%)(tv,radio,magazines and posters).

Table 3.

Knowledge of transmission of urinary schistosomiasis by age and sex n=400

Sex	**Level of knowledge**			**Total**
	Low	**Medium**	**High**	
	n(%)	**n(%)**	**n(%)**	
Males	45(28.4)	54(34.2)	59(37.3)	158
Females	57(23.5)	83(34.3)	102(42.2)	242
Age category				
8-11	29(26.1)	34(306)	48(43.2)	111
12-15	47(23)	62(30.2)	96(46.8)	205
15-18	24(32.)	39(52)	12(16)	75
18+	2(22.2)	2(55.17)	5 (13.7)	9
Total	**102(25)**	**137(34.3)**	**161(40.25)**	**400**

Table 4.Primary source of information for 400 primary school children in Mtera ward.

Source of information about urinary schistosomiasis	Fequencies	Percent(%) 95%CI
School	144	36 32.2-44.5
Home	34	8.5 4.7-10.5
Mass media(radio,tv,magazines)	120	30 19.2-31.6
Health center	90	22.5 16.3-28.9
Others(specify)	12	3 2.2-9.5

4.3.0 Knowledge on the modes transmission and risk factors associated with of urinary schistosomiasis.

When asked about the modes of transmission of the disease for those who have ever heard about urinary schistosomiasis, about 310(90%) knew that man acquires infection by coming into contact with infested . However about 237(59.5%) mentioned swimming in cercariae infested water as the mode of transmission of the disease,

60(15%) mentioned playing in infested water as one of the route of transmission of the disease while 256(64%) mentioned cultivation in paddy and rice fields as among the modes of transmission of the disease. Cercariae skin penetration was mentioned by 295(73.7%) of the pupils as the source of infection to human.

About 217(54.2%) mentioned that swimming in infested water as among the risk factors associated with the transmission of the disease.

Cultivation in paddy and rice fields was mentioned by 256(64%) as one of the risk factors in urinary schistosomiasis transmission. However , urination in water bodies was mentioned by 330(82.5%) as the risk factors in the transmission of the disease.

Table 5.

Knowledge and perceptions about schistosomiasis ,results based on 400 primary school children in Mtera dam area, Mpwapwa.

	Frequencies	Percent(%)
Knowledge on the cause of Schistosmiasis		
Swimming in infested water	237	59.5
Drinking dirty water	39	9.7
Shaking hands	54	13.5
Playing in infested water	60	15
Don't know	10	2.5
Knowledge about signs and symptoms of Schistosomiasis		
Haematuria	200	50
Dysuria	67	16.7
Suprapubic pain	91	22.5
Frequent thirst	10	2.5
Abdominal pain	22	5.5
Don't know	10	2.5
Perceived cause of urinaryschistosomiasis		
Parasites(cercariae)	310	77.6
Bacteria	13	3.25
Viruses	17	4.3
Don't know	60	15
Knowledge about areas one can get infected		
Rivers	39	9.8
Lakes	84	21
Dam	157	39.2
Rice fields	26	6.5
Water collection areas	91	22

Table 6.

Knowledgeon therisk factors associated with the transmissionof urinary schistosomiasis

***Cercariae skin penetration*Total**

Sex	Yes	%	No	%	
Male	107	67.7	51	32.3	158
Female	188	77.754	22.3	242	
Total					

Urination in water bodies

Sex	Yes	%	No	%	
Male	126	79.7	32	20.3	158
Female	204	84.3	38	15.7	242
Total					

Swimming in infested water

Sex	Yes	%	No	%	
Male	90	56.9	68	43.1	158
Female	127	52.5115	47.5	242	
Total					

Cultivating in rice fields/paddys

Sex	Yes	%	No	%	
Male	109	68.98	49	31.01	158
Female	147	60.7 95	39.2	242	

Fishing in ponds and dam

Sex	Yes	%	No	%	
Male	87	55.0671	44.9	158	
Female	150	61.9892	38.01	242	

4.4 Pupils with history of haematuria

About 45(11.25%) of the respondents reported to have ever urinated blood in urine. Among those with history of haematuria, 23(14.5%) were males while 22(9.1%) were females(X^2=0.064).

Table 7.

School children with history of haematuria

Sex	**Yes**	**NoTotal**	**X^2df**		
Males	*23(14.5%%)*	*11285.5%()*	*158*	*0.003*	*3*
Females	22(9.1%)	203(90.9%)	242	0.020	2
Total	**45355400**	**0.064**	**0.04**		

4.5.0 Knowledge on the prevention and control measures of urinary schistosomiasis

In general the knowledge on the prevention and control of the disease was intermediate. About 152(38%) pupils mentioned avoiding bathing in stagnant water as one of the control measures adopted to reduce the transmission of the disease in an area followed by use of toilets 92(23%). However 77(19.25%) mentioned the use of praziquantel as among the control measures of the disease, provision of safe tap water 62(15.5%) and provision of health education17(4.25%).

Table 8

Knowledge on the prevention and control measures about urinary schistosomiasis n=400

	Frequency		**Total**
	Males	**Females**	
Avoid bathing in stagnant water	54(34.2%)	98(40.5%)	152
Use of praziquantel	24(15.2%)	53(21.9%)	77
Use of toilets	45(28.5%)	47(19.4%)	92
Provision of safe tap water	30(18.9%)	32(13.2%)	62
Health education	5(3.16%)	12(4.9%)	17
Total	**158**	**242**	**400**

CHAPTER FIVE

5.0 DISCUSSION

5.1Discussion of the Results

The cross section study that was conducted in June 2011 among 400 primary school children in Mtera ward has demonstrated an intermediate level of knowledge of urinary schistosomiasis.This includes the atielogy, modes of transmission, signs and symptoms and prevention and control of the disease.

The result showed that majority of the school children have ever heard about urinary schistosomiasis and the most important source of information was school. Results were similar to a report from Brazil where school was reported as a main source of information about urinary schistosomiasis(Uchuo *et al.*,2000). Very few school children mentioned health center as the source of information.

Other respondents acknowledged that information about urinary schistosmiasis was conveyed to them through family members(home). This indicated that community may act as a good intermediaries to deliver health education messages to children.

In this study a proportion of the respondents did make the correct association between water contact behavior and urinary schistosomiasis transmission. Majority of the pupils mentioned urinating in water bodies as the major risk factor associated with the transmission of the disease. Other risk factors mentioned by the respondents were ,swimming in water bodies, cultivation in paddy/rice fields and fishing in the dam and ponds.

The finding from the study indicated that majority of the respondents mentioned swimming in cercariae infested water as the common mode of transmission of the disease. Observation regarding signs and symptoms of urinary schistosmiasis showed that about 50% of the respondents mentioned haematuria as the major sign of urinary schistosomiasis. Majority of the symptoms mentioned by the respondents were associated with urinary schistosomiasis(suprapubic pain, dysuria).

The study has revealed that majority of the respondents knew the areas where the transmission of urinary schistosomiasis could take place. About 157(39.2%) of the respondents mentioned the dam as the possible area where one can acquire an infection from. The rest of the respondents mentioned other water bodies such as lakes, rivers and water collection sites to be the possible area for urinary schistosomiasis transmission.

Several of the control measures described by the participants were similar to those that are recommended by the WHO for prevention and control of the disease. Since the transmission of the disease is associated with water contact, majority of the respondents suggested that avoiding water contact from the dam, lakes, and ponds can prevent one from acquiring the infection. Also provision of safe tap water can reduce water bodies contact frequency and thus prevent the spread of the disease.

Provision of Praziquantel was also mentioned by the respondents as among the preventive and control measures of urinary schistosomiasis. Mass drug administration of Praziquantel to primary school children takes place after every six months in all regions of Tanzania as one of its stategy to control urinary schistosomiasis.

CHAPTER SIX

6.1CONCLUSION AND RECOMMENDATIONS

In conclusion the study has identified an intermediate level of knowledge, attitude and practice on the transimission of urinary schistosomiasis among primary school children in Mtera ward.

This medium level of knowledge about urinary schistosomiasis will need to be addressed with intensive health education both at school and community level. Such health education should focus on the cause and modes of transmission as well as the health impacts associated with urinary schistosomiasis infection. The role of MDA should be addressed so that all school children should participate during administration of the drugs since it will help to cure the disease for those with the infection and thus reduce the transmission of the disease to others .

6.2 Recommendations

.Sensitisation of the pupils to attend health education classes in the schools will create awareness among them and thus avoid risk behaviuors that may predispose them from acquiring the infection.

.Community participation in provide health education to children while at home.

.Frequent mass drug admisntration of Praziquantel to reduce the transmission of the disease.

6.3 Limitations

Inability to attain the minimum required sample size was the major limitations of the study. Some pupils were reluctant to participate in the study.

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APPENDICES;

Appendix 2a: Consent form(English version)

MUHIMBILI UNIVERSITY OF HEALTH AND ALLIED SCIENCES

DIRECTORATE OF RESEARCH AND PUBLICATION

INFORMED CONSET FORM

ID NO…….

Conset to participate in an Interview.

Greetings! Iam ……, a Postgraduate student from MUHAS and Iam working on this research project with the objective of determing the knowledge,attitude aand practice towards Urinary schistosomiasis infection in primary school children in Mtera area , Mpwapwa District.

Purpose of the study.

The purpose of the study is to collect information about Urinary Schistosomiasis KAP among Primary School children in Mtera area, Mpwapwa and the findings from this study will be of great importance to the investigator since they will be used to write a dissertation which is a partial fullment of Master of Science in Tropical Diseases Control for academic year 2010/2011.

What participation involves

If you will be willing to participate in this research you will be required to answer the questions asked from the questionare and provide fresh urine.

Confidentiality

All the information provided will be handled with privacy and unauthorized persons will not be permited to access them.

Risks

There are no risks associated with this study

Rights to withdraw or participate

Participation in this study is a choice, no one will force you to participate. If you are not willing then you can quit any time you wish to do so. Refusal or withdrawal from the study will have no negative impacts on you unless otherwise untitled.

Benefits

Participating in this study will have both direct and indirect benefits. The information provided about the situation of the disease will be addressed to the relevant Ministry and other stakeholders so that they can contribute towards providing necessary help to the District. Also if you have any problem concerning Schistososmiasis then you may ask the researcher and you will be advised what to do. If you have Urinary Schistosmiasis ,you will be refered to the Health Facility for treatment.

Who to contact:

If you have any question, suggestion or opinion about this study then contact the **Principal Investigator Jane Michael Kitalile**, Muhimbili University of Allied Health Sciences, P.O Box 65015, Dar es Salaam. If you ecver have a question about your rights as the participant then you may call Prof Aboud, Director of Research and publications.

Signature……..

Are you willing to participate?

Participant agrees…….

Participant does not agree……

I……. have read / listened the contents in this form and my questions have been answered. Iam willing to participate in this study.

Signature of participant……..

Signature of research assistant…….

Date……. Month……..Year…….

Appendix 2b **: Informed Conset(Swahili version)**

CHUO CHA SAYANSI ZA TIBA YA AFYA MUHIMBILI

KURUGENZI YA UTAFITI NA MACHAPISHO

FOMU YA RIDHAA

Nambari ya utambulisho ……..

RIDHAA YA USHIRIKI KATIKA UTAFITI

Salamu! Ninaitwa…….. ni mwanafunzi wa shahada ya pili ya uzamili katika Chuo Kikuu cha Sayansi za Tiba na Afya Muhimbili . Ninafanya utafiti kuhusu maambukizi ya ugonjwa wa kichocho katika shule yako ikiwa ni sehemu ya masomo. Utafiti huu unafanyika katika Wilaya ya Mpwapwa mkoa wa Dodoma.

Umuhimu wa utafiti

Matokeo ya utafiti yatasaidia kupata takwimu juu ya maambukizi ya ugonjwa wa kichocho pamoja na viashiria vyake. Pia itasaidia kujua chanzo cha maambukizi na namna ya kukabiliana na vyanzo hivyo ili kupunguza maambukizi mapya katika jamii yako.

Ushiriki

Mtu anaruhusiwa kushiriki katika utafiti huu kwa hiyari yake mwenyewe.

Usiri

Taarifa zote zitakazotolewa zitafanywa siri na zitajulikana na wahusika tu .Pia jina lako halihitajiki isipokuwa namba ya dodoso lako ndiyo itakayoingizwa kwenye kompyuta.

Je kuna hatari yoyote katika kushiriki?

Sitazamii kuwepo uwezekano wa kutokea ajali yoyote kwa wewe kushiriki katika zoezi hili.

Haki ya kujitoa

Mshiriki ana haki ya kujitoa endapo hataridhika na utafiti huu. Kushiriki ni hiyari na endapo mtu akiona kuwa kushiriki kwake hakuna tija yuko huru kujitoa wakati wowote.

Faida kwa mshiriki

Kukubali kushiriki katika utafiti huu kunaweza kukakupatia faida kwani kwa kufanya hivyo ikibainika kuwa umepata maambukizi ya kichocho, taarifa zako zitapelekwa katika kituo cha afya na utaandikishwa kwa ajili ya kupatiwa tiba. Pia matokeo ya utafiti huu yatatusaidia kujua hali halisi ya tatizo la kichocho katika eneo lako na hivyo kutafuta njia mbadala za kukabiliana na tatizo hilo.

Mawasiliano

Endapo una swali , maoni, dukuduku ama nyongeza, unashauriwa kuwasiliana mani kwa anwani zifuatazo

Jane Michael Kitalile,

Chuo Kikuu cha Sayansi za Tiba na Afya Muhimbili,

Sanduku la barua 65015,

Dar es Salaam.

Ama andika kwa Mkurugenzi wa Utafiti na Machapisho

Prof Aboud

Sanduku la barua 65001,

Dar es Salaam.

Sahihi…….

Je unakubali kuwa mshiriki katika utafiti huu?

Ndiyo ninakubali kushiriki……

Appendix3a: **Questionnaires(English version)**

Questionare for pupils to determine the knowledge,attitude and practice towards Urinary schistosomiasis infection among Primary School children around the Mtera dam in Dodoma Region.

A; Demographic characteristics

1.Questionare number ……..

2. Name of Village……..

3. Name of School……

4. Sex a)Male b)Female

5. Age…….

6.Class……

Circle the appropriate answer/answers

A; KNOWLEDGE ABOUT URINARY SCHISTOSOMIASIS

7. Do you know the disease called Schistosomiasis?

a)Yes b) No

8. If yes, where did you get the information about urinary schistosomiasis?

a)School,

b)Home

c)Mass media(tv, radio, magazines)

d)Dispensary

e)Others

9. How is the disease transmitted

a)Drinking dirty water

b)Swimming in infested water

c)Shaking hands

d)Playing in infested water

e)Don’t know

10. What is the responsible micro organism/infective stage of the disease

a)Cercariae

b)Bacteria

c)Viruses

d)Don’t know

11.What are the signs/symptoms of the disease?

a) Haematuria(blood in urine)

b) Dysuria(painful micturition)

c) Abdominal pain

d).Suprapubic pain

e)Frequent thirst

f)Don’t know

12.Which water bodies/fields harbours the snails that are the hosts of the parasites?

a)Lake

b)River

c)Dam

d)Rice fields

e)Water collection areas

RISK FACTORS ASSOCIATED WITH URINARY SCHISTOSOMIASIS TRANSMISSION

13.Do you visist any water body or participate in any economic activity that pre disposes you into contact with water?
a)Yes b)No

14.If Yes which water body do you come into contact frequently?

a)Dam

b)Pond water

c)Paddy field water

d)River
e)Spring

f)Others

15.Do you urinate in water while swimming?

a) Yes b)No

16.Do you wear shoes while walking along the shores of the dam?

a)Yes b) No

17.What are the risk factors associated with urinary schistosomiasis transmission?

a)Urination in water bodies

b)Swimming in infested water

c)Cultivating in rice fields

d)Fishig in ponds and dams

e)Cercariae penetration

18.Do you have enough toilets at school?

a)Yes b)No

19. Where do you go for urination during the break time or whenever you feel to urinate?

a)At the School toilet

b)In the bush

c)I run at home

d)At the nearby water source

e)Others (specify)…….

20. Have you ever passed blood in urine?

a)Yes b) No

21 . Did you seek medical resolution

a)Yes b) No

D;Economic and domestic activities that enhance the transmission of the disease

22. Where do you get water for domestic use?

a) Piped water

b) River

c) Stream

d) Well

e) Dam

f) Others……

23. Doyou participate in any activities at home that expose you into contact with water

a) Yes b)No

24. What are those activities

a). Farming

b). Fishing

c). Washing clothes

d).Washing cars

e). Others…….

25.What do you think is the cause of blood in urine(haematuria)?

a) Menarche(menstrual blood flow)
b) Witchcraft
c) Urinary schistosomiasis infection
d) Others…….

26. What is the implication that you get if you find a person is passing out blood in urine?

a) Has urinary schistosmiasis

b) Menstrual blood

c) Bewitched

d) Don't know

TREATMENT, PREVENTION AND CONTROL OF URINARY SCHISTOSOMIASIS

27. Did you take Praziquantel in the last six months?
a)Yes b) No

28.What should be done in your area to prevent and contro urinary schistosomiasis

a)Mass drug administration of Praziquantel to all primary school children

b)Avoid swimming/bathing in stagnant water

c)Use of latrines

d)Provision of safe tap water

e)Health education

g)Improvement of health services

f)Others……

*Appendix 3b:***Questionares(Swahili version**)

DODOSO KWA WANAFUNZI WA SHULE ZA MSINGI KUHUSU UELEWA WA UGONJWA WA KICHOCHO NA ATHARI ZAKE.

1.Namba ya dodoso……..

2.Jina la kijiji……

3.Jina la shule……..

4.Jinsia Kike/ Kiume

5.Umri…….

6.Darasa la……..

A; UFAHAMU JUU YA UGONJWA WA KICHOCHO

Zungushia duara kwenye herufi ya jibu sahihi

7. **Je unafahamu ama kujua juu ugonjwa wa kichocho?**

a)Ndiyo b)Hapana.

8. Kama ndio unafahamu je ulipata wapi taarifa kuhusiana na ugonjwa huu?

a)Shuleni

b)Nyumbani

c)Vyombo vya habari(radio, runinga, magazeti)

d)Zahanati tya kijiji

e)Mengineyo taja……

9.Kama unafahamu, je ugonjwa huu unaambukizwaje?

a) Kunywa maji machafuyenye vijidudu
b) Kuogolea kwenye maji yaliyotuama

c) Kushikana mikono

d)Kuchezea maji yaliyotuama

e)Mengineyo(taja)

10.Je ni aina gani ya wadudu/vimelea wanaohusishwa na uambukizwaji wa ugonjwa wa kichocho?

a)Viminyoo vidogo vinavyotambulika kama cercariae kwa kitalaamu vinavyopatikana kwenye maji

b)Bacteria

c)Virusi

d)Sijui

11. Je ni zipi dalili za ugonjwa wa kichocho?

a) Kukojoa damu

b) Maumivu wakati wa kukojoa

c) Maumivu ya tumbo

d)Maumivu ya tumbo chini ya kitovu

e)Kupata kiu mara kwa mara

12.Je umewahi kukojoa damu?

a)Ndiyo b)Hapana

13.Kama ndiyo, je ulitafuta huduma za afya?

Ndiyo b) Hapana

14.Kama ulitafuta huduma za afya, ni wapi?

a)Zahanati ya kijiji

b)Mganga wa kienyeji

c)Nilinunua dawa kwenye duka la dawa

d)Mengineyo(taja)

15.Je ni vyanzo vipi vya maji vinavyokuwa na vimelea vya ugonjwa wa kichocho?

a)Ziwa

b)Mito

c)Bwawa

d)Mashamba ya mipunga

e)Madimbwi

B; TABIA HUSISHI NA HATARISHI KATIKA MAAMBUKIZI YA UGONJWA WA KICHOCHO

16.Je huwa unatembelea chanzo chochote cha maji au kushiriki kwenye shughuli zozote za kiuchumi zinazokufanya ukanyage maji?

a)Ndiyo b)Hapana

17.Kama jibu lako ni ndiyo, je ni vyanzo vipi vya maji

a)Bwawa

b)Dimbwi

c)Mashamba ya mpunga

d)Mito

e)Chemichemi
f)Mengineyo(taja)

18.Je ni shughuli zipi zinazokufanya utembelee vyanzo hivyo vya maji?

a)Kilimo

b)Uvuvi

c)Kufua

d)Kuchota maji kwa ajili ya matumizi ya nyumbani

e)Kuosha magari

f)Mengineyo(taja)

19.Je huwa unakojoa unapokuwa katika vyanzo hivyo vya maji?

a)Ndiyo b) Hapana

20.Je ni tabia zipi hatarishi zinazoweza kukufanya ukapata maambukizi ya ugonjwa wa kichocho?

a)Kukojoa kwenye chanzo cha maji

b)Kuogelea kwenye chanzo cha maji

c)Kulima kwenye mashamba

d)Kuvua samaki kwenye mabwawa au madimbwi

e)Kupenyeza kwa viminyoo/vimelea vinavyosababisha maambukizi ya kichocho kwenye ngozi ya mtu

21.Je mna vyoo vya kutosha hapo shuleni?

a)Ndiyo b) Hapana

22.Kama hapana, huwa unakwenda wapi unapobanwa na haja au wakati wa mapumziko?

a)Choo cha shule

b)Vichakani

c)Nakimbia nyumbani

d)Nakojoa kwenye chanzo cha maji kilicho karibu na shule

e)Mengineyo(taja)

23.Je unapata tafsiri gani unapoona mtu au wewe mwenyewe unakojoa damu?

a)Yuko katika siku za mwezi kwa wasichana

b)Amerogwa

c)Ana ugonjwa wa kichocho

d)Mengineyo

C; TIBA PAMOJA NA NJIA ZA KUZUIA MAAMBUKIZI YA UGONJWA WA KICHOCHO

24.Je umepata dawa ya minyoo aina ya Praziquantel kwa miezi sita iliyopita?

a)Ndiyo b)Hapana

25.Je unashauri nini kifanyike katika eneo lako ili kuzuia maambukizi ya ugonjwa wa kichocho?

a)Watoto wa shule wapatiwe dawa za Praziquantel kila baada ya miezi sita

b)Kuepuka kuogelea kwenye madimbwi na maji yaliyotama

c)Kutumia vyoo

d)Kuwapatia wananchi maji safi ya bomba

e)Kuboresha huduma za afya

f)Mengineyo(taja)