

MALARIA RELATED KNOWLEDGE AMONG PRIMARY SCHOOL STUDENTS IN JIMMA ZONE, OROMIA SOUTHWEST OF ETHIOPIA

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List of abbreviations

ACP.....	Advancing Community`s Practice
AOR.....	Adjusted odd ratio
CI.....	Confidence Interval
DDT.....	Dichlorodiphenyltrichloroethane
FMOH.....	Federal Ministry of Health
HEW.....	Health Extension workers
IRB.....	International Review Board
ITN.....	Insect side Treated Nets
JU.....	Jimma University
MOH	Ministry Of Health
MPH.....	Masters of Public Health
P. F.....	Plasmodium Falciparum
P. M.....	Plasmodium Malaria
P. O	Plasmodium Ovale
P. V.....	Plasmodium Vivax
RBM	Roll Back Malaria
SPSS.....	Statistical Package for Social Science
SSA	Sub-Saharan Africa
UN	United Nations
WHO.....	World Health Organization

Abstract

Back-ground: *School-age children have attracted relatively little attention as a group in need of special measures to protect them against malaria. However, increasing success in lowering the level of malaria transmission in many previously highly endemic areas will result in children acquiring immunity to malaria later in life than has been the case in the past. The assessment of knowledge of malaria among school students and its practice is necessary in order to institute appropriate malaria prevention and control activities.*

Objectives: *To assess malaria related knowledge among primary school students in Jimma zone, southwest of Ethiopia, 2017.*

Methods: *School based cross sectional study was conducted in three selected woredas of Jimma zone, south west Ethiopia from march, 1 to 26, 2017. The study has recruited 432 samples of school students in 6 selected schools from the three woredas. A multi stage sampling method followed by simple random sampling was carried out to select the study participants. The data were collected using pretested structured questionnaire adapted from related studies. Data was checked for completeness and then entered into Epi Data 3.1 software and exported into SPSS version 20 software for analysis. Descriptive statistics were used to describe findings. Bivariate and multivariable logistic regression analysis was used to determine associated factors with malaria related knowledge at P value less than 0.05.*

Result: *The mean score of students for knowledge related to malaria was (14.9SD ± 4.49).*

The major source of information was mass media 64.5%. Maternal education is significant predictors of knowledge of student towards malaria (AOR= 0.079, 95%CI; 0.018-0.359 p-value=0.001) Being female, living in urban, information about spray of DDT and sleeping under net were significant predictors of knowledge with (AOR= 2.92, 95%CI; 1.37-6.22),p-value= 0.01(AOR= 0.25, 95%CI, 0.12-0.52), p- value= 0.01 (AOR= 5.23, 95%CI; 1.51-18.08), p- value= 0.009, (AOR = 2.55, 95%CI, 1.03-6.29),p-value=0.01), respectively.

Conclusion: *In this study knowledge related to malaria was found to be high among the students. While, knowledge gap about the cause and transmission were also observed among the students. Malaria health education should be strengthened in the schools to advance malaria knowledge and more communication behavior of the students and health facilities should give attention for schools through equipping teachers with information about malaria prevention and control strategies so that such knowledge could be passed on to students.*

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CHAPTER ONE: INTRODUCTION

1.1 Background

Malaria is a life threatening disease and one of the major public health and socio-economic problems globally [1]. According to the World Health Organization (WHO) report, malaria was responsible for 198 million illnesses worldwide leading to about 584, 000 deaths in 2014. Africa carries the highest burden with 90% of all malaria deaths [1]. In 2013, an estimated 437, 000 African children died due to malaria before their fifth birthday [1]. Malaria also remains an important public health and socio-economic challenge in Ethiopia-an estimated 60% (about 50 million) of the population were at risk of contracting malaria in 2014 [2].

In 2013/2014, 2,627,182 laboratory confirmed malaria cases were reported in Ethiopia where Oromia Region was the third largest contributor with 474, 641 cases [3]. In the same year (2013/2014), malaria was the fifth cause of morbidity (5.3%) and the fifth leading cause of health facility admission (2.4%) in Ethiopia. Likewise, it was the seventh (2.5%) leading cause of health facility admission among children under five [4].

It continues to be a leading cause of morbidity and mortality in many tropical regions of the world, despite global efforts to eradicate the disease [5]. While the disease is easily preventable, curable and treatable, it remains a big health threat to many communities the world over, most especially in Sub-Saharan Africa [6, 7]. Disseminating malaria knowledge through schools appears to be an effective strategy to improving community knowledge of malaria transmission as schools provide the most effective and efficient way to reach large portions of the population, children of school going age have been targeted for malaria control in some endemic countries of Africa [8]. It targeted that 75% of students in these two-level schools should have knowledge of malaria prevention and treatment by 2012, and 85% should reach that by 2015. Finally by 2020, the awareness of malaria should be improved further and people should participate in malaria prevention, control and elimination more proactively [9]. It is noted that students can be important agents for change [10].

Health education through schools can help promote a community-wide understanding of malaria and the need for control and can create a demand for health services to provide universal access to affordable and appropriate treatment [11]. To be successful, many malaria control efforts require community participation including school students, which in turn depends on student's knowledge and awareness of the disease [12]. However, there is limited evidence to what extent primary school students have appropriate knowledge and information sharing practice with parents about malaria in our country. Therefore this study was assess the malaria related knowledge and awareness among students in schools in Jimma zone, southwest Ethiopia [6].

1.2 Statement of the problems

Malaria contributes to 9% of the global disease burden and it is estimated that approximately 60% of deaths caused by malaria occur in the poorest areas which account for 20% of the world's population [13, 14, and 15]. Highest number of the mortality and morbidity from malaria occurs in Africa, and South East Asia accounts for 10% of the malaria burden [16]. World Health Organization (WHO) reports that in the Africa region, which covers 22 countries, about 1 billion people (80% of the total population) are at risk of getting malaria [14]. In Ethiopia approximately 75% of the country's landmass and 68% of the population are at risk of malaria [17]. Studies from different countries suggest that experiences with malaria have shown that prevention is better and cheaper than cure; however the practice of malaria preventive measures has been related to the knowledge and belief of people and have been found to be low and difficult to implement when malaria risk is perceived to be low including school students [18, 19, 20]. Malaria disease was formerly widespread but was successfully eliminated from many countries with temperate climates in the mid-20th century [21]. Today, about 40% of the world's population especially those living in the world's poorest countries is at risk of malaria as the disease has become endemic in the tropical and sub-tropical regions of the world [22].

In Ethiopia to achieve impact on malaria morbidity and mortality, communities will have to access and use these services [23]. A review of household surveys from several sub-Saharan African countries noted that the proportion of youths who slept under a net the night before the survey was considerably lower than the proportion of households that possess a net [24].

Different literatures indicated malaria related knowledge of students was affected by socio-demographic, economic, institutional and behavioral factors. As to the knowledge of the investigators, there was no previous study done in the study area concerning the level of knowledge and local risk factors associated with it therefore, the aim of this study is to give insight on the level of knowledge and local factors associated with it which can be used by program planners and other stakeholders to give evidence based decisions.

Chapter two: Literature review

2.1 Prevalence of malaria

2.1.1 Global situation

Globally, malaria affects the health and wealth of more than three billion people and causes more than a million deaths annually [25,26]. High burden of malaria is the cause and result of poor socioeconomic conditions resulting in vicious cycle of the impact [27, 28]. Pregnant women and children under 5 years of age are the most vulnerable groups.

In adults recurrent bouts of fever as the result of re-infection and super infection reduce labor productivity [29]; direct and indirect economic costs of malaria have been estimated to be high [30,31]. It also predisposes people, especially infants and young children to other diseases [32]. Malaria impairs school performance and cognitive abilities that continues even after recovery [33, 34]. Furthermore, the complications it causes to pregnant women, resulting in miscarriage, maternal deaths due to hemorrhage and anemia, and subsequent sequels from low birth weight and congenital infections of the newborn, growth and mental retardations are some of the burdens malaria poses on human beings [35, 36].

The global malaria eradication program during 1950s and 1960s suffered serious setbacks and the disease increased slowly in areas where it had been reduced to low level [37]. In an effort to combat the growing threat of malaria, the Roll Back Malaria (RBM) partnership was launched in 1998, with the goal to reduce the burden of malaria by half up to 2010 and halving again by 2015 [38]. The United Nations (UN) had also declared the Decade to Roll Back Malaria (2001–2010) in developing countries.

2.1.2 Malaria on African context

Malaria has continued to be a major threat to the world's community posing its huge toll of morbidity and mortality in Sub-Saharan Africa (SSA) [1-5]. And of the disease's burden in SSA, the lion's share is levied on children [39].

In Nigeria a study conducted among secondary school students 89% mentioned mosquitoes as the causative agent of the disease others said it is caused by the hot sun, bad weather, cold weather and the rain. Forty five percent use chloroquine for treatment, 29% use Panadol/ Paracetamol while 14% use traditional herbs [23].

In 2012, globally there were an estimated 300-500 million malaria cases and 1.5–3 million malaria related deaths; of which 91% of them reside in Africa, mostly south of the Sahara [40].

Mortality and morbidity related to Malaria deters development of economic systems in many sub-Saharan countries accounts for approximately 40 percent of public health expenditures in some countries in Africa and causes an annual loss of \$12 billion, or 1.3 percent of the continent's gross domestic product. Furthermore, high malaria rates place huge burdens on health care systems at all levels, as nurses and doctors spend a disproportionate amount of time attending to malaria patients, and scarce Ministry of Health (MOH) resources are poured into treating patients that contract this preventable and controllable disease [41,42].

A study conducted in Malawi Primary School student showed, that there is a need for school-based interventions for malaria control since schools provide a natural access point for school-going children and such school-based interventions have been shown to be effective in reducing malaria morbidity and mortality. However, there is no clear relationship was observed between health status and cognitive and educational outcomes of students [43].

A study conducted among school adolescents in a coastal community of Nigeria revealed that, most respondents were aware that the vector transmits the malaria parasite through biting. Fewer respondents would prevent malaria attacks by clearing the vegetation in the per-domestic environment filling up potholes opening up drainage, using insecticide-treated nets or using Antimalaril drugs. Less than one-tenth would use various other methods such as not accepting unscreened blood, while only obtained the information from their teachers [44].

Study conducted in Kenya School-age children has attracted relatively little attention as a group in need of special measures to protect them against malaria. However, increasing success in lowering the level of malaria transmission in many previously highly endemic areas will result in children acquiring immunity to malaria later in life than has been the case in the past. Thus, it can be anticipated that in the coming years there will be an increase in the incidence of both uncomplicated and severe malaria in school age children in many previously highly endemic areas. In this review, which focuses primarily on Africa, recent data on the prevalence of malaria parasitaemia and on the incidence of clinical malaria in African school-age children are presented and evidence that malaria adversely effects school performance is reviewed. Long-lasting insecticide treated bed nets (LLIN) are an effective method of malaria control but several studies have shown that school-age children use LLINs less frequently than other population groups. Antimalaril drugs are being used in different ways to control malaria in school-age children including screening and treatment and intermittent preventive treatment. Some studies of

chemoprevention in school-age children have shown reductions in anemia and improved school performance but this has not been the case in all trials and more research is needed to identify the situations in which chemoprevention is likely to be most effective and, in these situations, which type of intervention should be used. In the longer term, malaria vaccines may have an important role in protecting this important section of the community from malaria. Regardless of the control approach selected, it is important this is incorporated into the overall programme of measures being undertaken to enhance the health of African school-age children [45].

The Study conducted in Tanzania bag mayo district More than half of the school children had knowledge on malaria as a disease and its transmission and of the respondents reported that going to the hospital was their immediate care-seeking behavior once they felt malaria symptoms, while the opted for self-medication. With regard to malaria prevention and control of the respondents reported using bed nets as their main malaria prevention strategy, while less number of the students preferred the use of medicine, mostly artemether lumefantrine, as prophylaxis. Narratives obtained were able to explain clearly the rationale behind different options children took to treat and to protect themselves against malaria [46].

2.1.3 Ethiopian circumstances

In Ethiopia, malaria is one of the most important public health problems, with more than three-quarters of the landmass (altitude <2000 m) of the country is either malarious or potentially malarious, and an estimated 68% (>50 million people) of the total population resides in areas at risk of malaria infections. Annually, half a million microscopically confirmed cases of malaria are reported to the Federal Ministry of Health (FMOH) from basic health services.

However, the actual number of malaria cases in the country is estimated to be more than 5 million each year. According to the 2007/2008 report of the (FMOH), malaria was the leading cause of outpatient visit accounting for 12% of cases and the second cause of (10%) admission next only to admissions for delivery [47].

Plasmodium falciparum and *P.vivax* are the dominant malaria parasites distributed all over Ethiopia and account for about 60% and 40% of malaria cases, respectively [48]. Malaria is one of the leading causes of illness and death among young children. Many children under the age of five year in malaria endemic areas die of cerebral malaria, low birth weight, respiratory distress, hypoglycemia, severe anemia or repeated convulsions [49].

Approximately 4-5 million cases of malaria are reported annually in Ethiopia and the disease is prevalent in 75% of the country, putting over 50 million people at risk [50]. Malaria continues to pose a serious threat in Oromia. Three quarters of the region, 242 of 261 Woredas and 3932 of 6107 kebeles, are considered malarious, accounting for over 17 million persons at risk of infection. In this region, there is 1.5 to 2 million clinical cases reported per year, with accounting for 20-35% of outpatient consultations, and 16% of hospital admissions. At a rate of 18-30%, malaria is the leading cause of hospital deaths [51]. Study conducted among primary school students in Jimma south west of Ethiopia reported that the major source of information was radio. Nearly students communicate with their family about malaria and the major areas of communication were concerning symptoms and prevention and control methods [52].

2.2.1. Factors affecting knowledge of students about malaria

As stated in several research articles, malaria related knowledge of students was affected by many factors such as socio-demographic, economic, institutional and behavioral factors. In the society where there are media such as radio, TV and newspaper the knowledge about malaria is high. Study conducted in Zambia showed that possession of those media is positively associated with knowledge about malaria and its prevention measures [53]. Study conducted in Cameroon found that students whose mothers attended primary education were more knowledgeable as compared to students whose mothers are unable to read and write. According to the study from Cameroon the student those who use sleeping net were well informed about malaria that indicates knowledge about malaria [54]. Generally, lack of opportunity to communication Medias like radio, TV, newspaper, magazine and others can determine the knowledge of school age students.

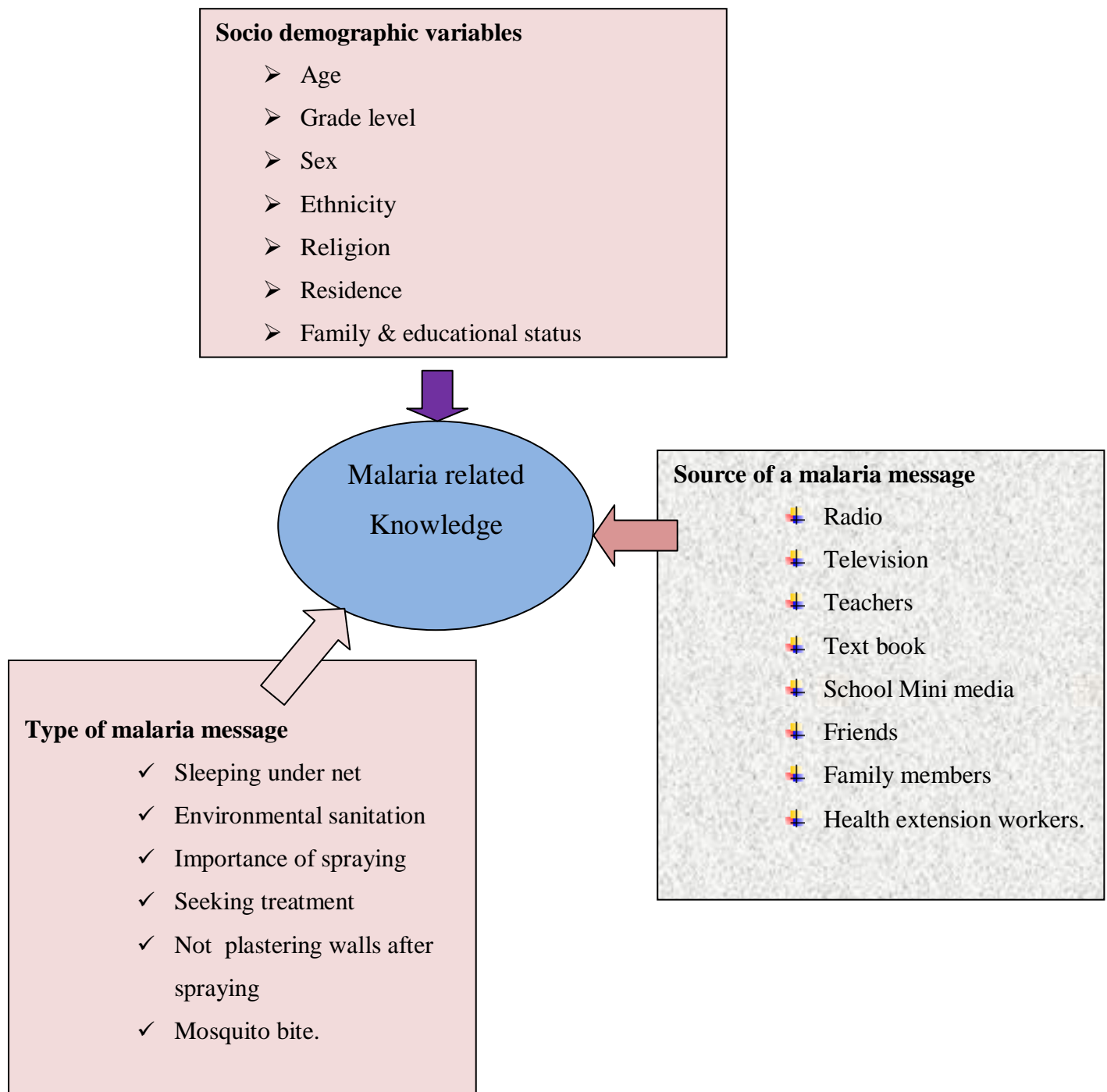


Figure 1: Conceptual framework developed after reviewing different literatures [15, 52, and 54].

2.3 Significance of the study

This study was found out the level of malaria related knowledge among primary school students and knowledge gap among them. This identification of gaps in the area of knowledge related to malaria and associated factors among primary school students will guide policy makers to give emphasis towards this deadly infectious disease and development of programs that play a key role in preventing and controlling malaria infections.

This study may provide information for the concerned body about malaria to strengthen its prevention and control program and enable them to provide better services against the risk of malaria in the school and entire community in general. Finally, it can be used as reference material for further studies in this area.

CHAPTER 3: OBJECTIVES

3.1 General objective

To Assess Malaria Related Knowledge among Primary School Students in Jimma Zone, Southwest Ethiopia, 2017.

3.2 specific objectives

- To determine the level of knowledge on malaria among primary school students
- To identify socio-demographic factors related with malaria knowledge among primary school students

CHAPTER 4: METHODS AND MATERIALS

4.1 Study area and Period

The study was conducted in three selected districts of Jimma zone namely (Kersa, mana, and Gomma). Jimma is one of the zones in the Oromia regional state, located 350 km far from Addis Ababa capital city of Ethiopia. The Zone is divided in to 21 districts. Kersa, Mana, and Gomma are among those districts which are located 17km, 18km, and 45km surrounding to Jimma, respectively. There are 76, 72 and 65 primary schools in the three woredas with a total of 62586 second cycle (grade six to eight) students, respectively. The study was carried out from March 1-26, 2017 in those selected woredas.



Fig1. Map of the study area, Source: <http://www.ocha-eth.org/Maps/Oromia>, 2002

4.2 Study Design

An institution based cross sectional study was employed.

4.3 Population

4.3.1 Source Population

All primary school second cycle students who were enrolled in 2016 in six schools from malarious area of three districts (Gomma, Kersa and Mana) were used as a source population.

4.3.2 Study population

Selected primary school second cycle students in the six schools from three districts (Gomma, Kersa, and Manna) were the study population.

4.4 Exclusion and inclusion criteria

4.4.1 Inclusion criteria:

Students who were registered and attending in the selected school during the study period were included in the study.

4.4.2 Exclusion criteria:

Those students who were unable to communicate or unable to fill the questionnaire at the time of data collection were excluded from the study and students who were not in the selected grade range were excluded. In addition, absent/disabilities were also not included in the study.

4.5 Variables

4.5.1 Outcome/ dependent variables

- Level of Knowledge related to malaria.

4.5.1 Independent variables

- Age, grade level, sex, ethnicity, religion, residence & family educational status

4.5.2 Source of malaria related information/ message

- Radio, TV, Teachers Text book, School Mini media, Friends, Family member's health extension workers.

4.5.3 Type of information heard

- Sleeping under net, Environmental sanitation, importance of spraying, seeking treatment, not plastering walls after spraying, and mosquito bite.

4.6 Sample Size Determination

The sample size was calculated using single population proportion formula.

$$n = \frac{\left(Z_{1-\alpha/2}\right)^2 P(1-P)}{d^2} = \frac{(1.96)^2 * 0.85(1-0.85)}{(0.05)^2} = \underline{196}$$

Where, n =the required sample size

Z =standard score corresponding to 95% confidence interval= 1.96

P = the proportion of primary school students with good knowledge related to malaria in Jimma zone is 85% [15].

D =the margin of error (precision) 5% with the following assumptions.

By applying 2 as a value for multiplication for design effect, the sample size becomes **392** and by considering 10 % non-respondent rates the final sample size was **432**.

4.7 Sampling Technique

Multi-stage sampling procedure was used to select study participants. First from 21 districts of Jimma zone, by using purposive sampling method, three districts namely; Kersa, Gomma and Manna were selected then 6 schools were selected randomly 2 from each woreda. Lottery method was used to select one class for each grade. To prepare sampling frame for each selected (second cycle) primary schools, complete lists of grade six to eight students were obtained and then respondents were selected by using simple random sampling technique from each grade using a list of students. Sample size was distributed proportionally to each school according to the total number of students in each grade: 32% of 432(138), 35% of 432(151), 33% of 432(143) drawn from Kersa, Gomma and Manna districts, respectively.

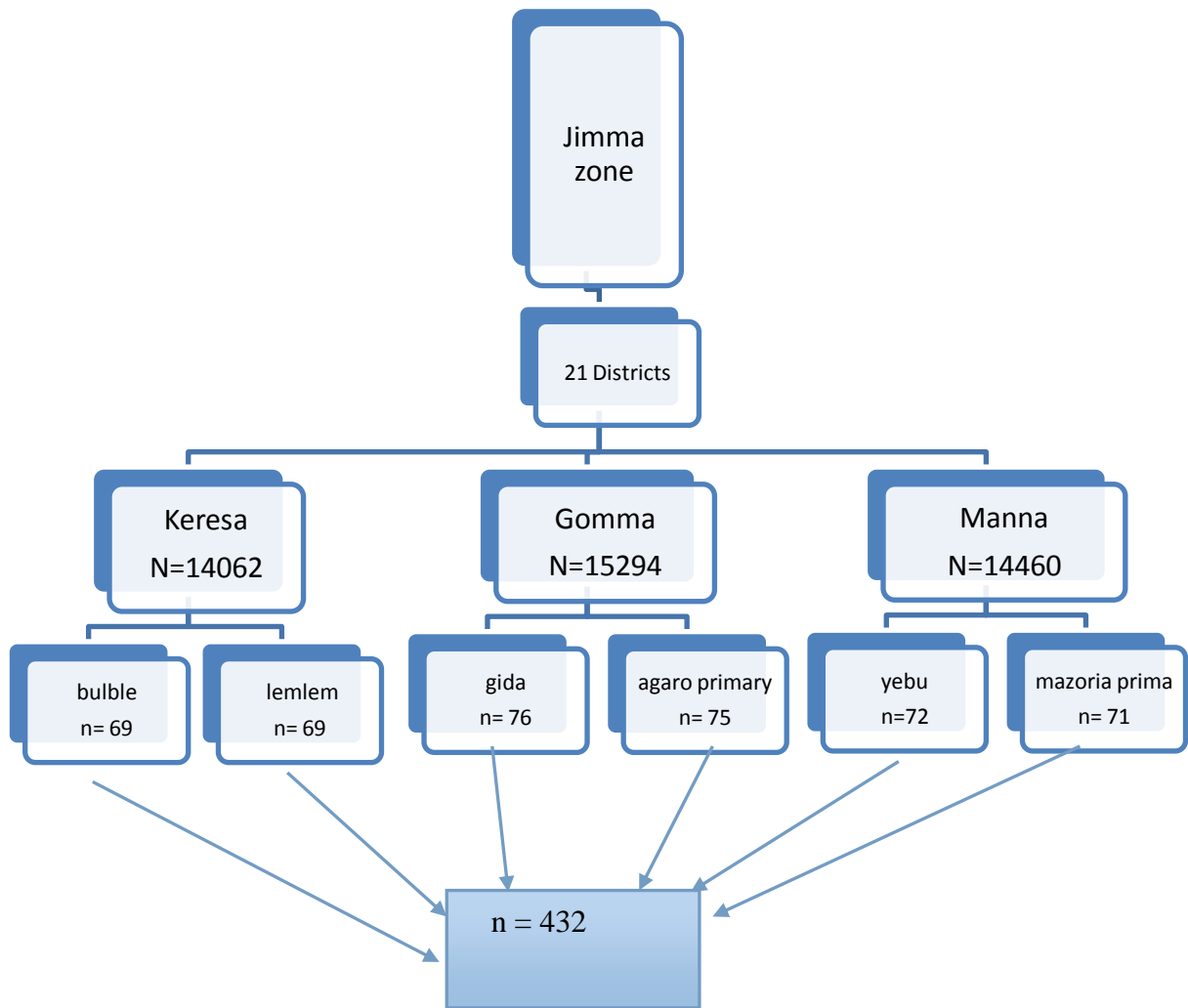


Figure 1: schematic presentation of sampling technique to select students in selected districts of Jimma zone, 2017.

4.8 Data Collection

Data were collected by self-administered structured questionnaire adapted from different literatures [15, 52, and 57]. The questionnaire had three subparts socio demographic, source of information related to malaria and types of malaria messages. The questionnaire were prepared in English then translated to Afan Oromo and back translated to English again to ensure its consistency. The data were collected by six trained diploma nurses and one B.sc. nurse as a supervisor.

4.9. Data Quality Assurance

Before actual data collection, the instruments were submitted to the advisors to check for the construct validity and pretest was conducted on 5% of the sample size which is not included in the actual research and the respondents were contacted for cross check if there is any difficulty in answering the questions in the study area at the time of data collection. Internal consistency was checked and Cranach's alpha of 0.7 and above was taken for actual data collection. Training was given for all data collectors and supervisors on the objective of the research and data collection procedure and on the rights of the respondents to assure the quality of the data. The collected data were checked for completeness and consistency by the principal investigator and supervisor on daily basis.

4.10. Operational Definition

Malaria related Knowledge: Those respondents who scored at and above the mean score were classified as having high knowledge and those who scored below the mean score were classified as having low knowledge on malaria [58].

4.11 Data Analysis

The collected data were checked for its completeness manually, edited, cleaned, coded and then entered to Epi-Data version 3.1 and exported to SPSS version 20.0 for analysis. Descriptive statistics including, proportion, percentage, mean and standard deviation were used to describe data on malaria related knowledge. A bivariate logistic regression analysis was done to see the association between explanatory and outcome variables. Then multivariate logistic regression analysis was used by selecting only variables with p value < 0.25 in bivariate analysis. Odds ratio with 95 % CI was used to measure strength between dependent and independent variables. P value <0.05 was used as cut off point of significantly associated variables.

4.12 Ethical Considerations:

Ethical clearance and approval to conduct this research was obtained from ethical review committee of Jimma University Institute of Health (JUIH). Permission to conduct the study was also requested from administrative of the schools after explaining the objective of the study. Prior to administering the questionnaires, the aims and objectives of the study were clearly explained to the participants and oral consent was obtained. Confidentiality and anonymity was ensured throughout the execution of the study.

4.13 Plans for Dissemination:

The result of this study will be presented to Jimma University as part of MPH thesis and disseminated to JU Institute of Public Health, department of Health Education and Behavioral science, summarized report to Jimma zone health Department, to the targeted health facilities, schools from where data is collected and Non-governmental organizations working on health sector in the study area. Further effort will be made to publish it on national or international scientific journals.

Chapter Five: Results

5.1 Socio demographic characteristics of the respondents

Out of 432 students sampled, data were obtained from 422 with response rate of 97%. Of 422 students interviewed 208 (49.3%) were male. Concerning the marital status of the respondents, 408 (96.7%) of the students were single. Three hundred fifty six (84.4%) of the respondents were Muslim followed by Orthodox 42(10%). Ethnically, 351 (83.2%) were Oromo followed by 36(8.5%) Amhara. Out of the total respondents 248(58.8%) of the students were rural.

Two hundred one (47.6%) of respondents fathers were can't read and write, 72(17.1%) of the fathers can only read and write. Two hundred thirty four (55.5%) of the mothers of respondents can't read and write, 80(19.0%) only read and write (table 1).

Table 1. Socio demographic characteristics of the respondents

Variables		Frequency	Percent
Age	10-15	330	78.2
	16-21	92	21.8
Sex	Male	208	49.3
	Female	214	50.7
Grade level	6 th	143	33.9
	7 th	144	34.1
	8 th	135	32.0
Marital status	Single	408	96.7
	Married	14	3.3
Religion	Muslim	356	84.4
	Orthodox	42	10.0
	Protestant	21	5.60
Ethnicity	Oromo	351	83.2
	Amhara	36	8.5
	Dawuro	9	2.1
	Yem	4	0.9
	Others	22	5.2
Residence	Rural	248	58.8
	Urban	174	41.
Fathers education	Cannot read and write	201	47.6
	Only read and write	72	17.1
	Primary education	46	10.9
	Secondary education	103	24.4
Mothers education	Cannot read and write	234	55.5
	Only read and write	80	19
	Primary education	53	12.6
	Secondary education	55	13.0

5.2 Exposure to recall and source of malaria messages

The study showed that 225 (53.3%) of the students heard message about malaria during the past one year .Electronic media, namely TV and radio were the main source of message for those who reported receiving the message; TV 176(41.7%) in opposition to radio119 (37.7%). However, other sources of information such as school mini media, teachers, text book, health workers extension family and peer/friends were limited source of information.

Among those who reported receiving the message of them were heard from 133(31.5%) were heard about sleeping under mosquito net while 162 (38.4%) of them had heard of about environmental sanitation, 155(36.7%) of the respondents were heard about the importance of spraying message. However, students had less exposure, perhaps less able to recall, other malaria prevention messages such as seeking treatment for fever and not plastering walls after spraying (table 2).

Table 2.Exposure to source of malaria messages? (n=422)

variables	Frequency	Percentage
Television	176	41.7
Health extension workers	135	32.0
Teachers	119	28.2
Radio	119	28.2
Text book	118	28.0
Family	88	20.9
School mini media	64	15.2
Friends	38	9.0

Message recalled	Frequency	Percentage
Environmental sanitation	162	38.4
Importance of spraying message	155	36.7
Sleeping under net	133	31.5
Seeking treatment for fever	88	20.9
Not plastering walls after spraying	84	19.9

5.3 Knowledge related to malaria

The majority (91.7%) of the students heard or know about an illness of malaria while 358 (84.8%) of the respondents reported malaria transmitted through mosquito bite. And 64(15.6%) of the respondents associated malaria with transmitted through stagnant water in the environment. Students differed greatly on their knowledge of malaria sign and symptoms. Majority of them mentioned fever 355(84.1%) while feeling cold 323 (76.5%), headache 356(84.4), loss of appetite 323(76.5%), body weak 318(75.4%), body ache 300(71.1%), nausea 271(64.2%) and pale eye 260(61.6%) mentioned. Other sign and symptoms like dizziness and diarrhea was less often mentioned by the student.

Concerning methods of prevention, majority of the students (92.9%) stated that mosquito replant prevents malaria and (79.4%) stated that cleaning the environment prevents malaria. Moreover, large percentage of the students, 306(72.5%), mentioned that sleeping under mosquito net prevents malaria and 297(70.4%) stated that Spray house with insecticide is protecting themselves agnest malaria .While 1/3rd of the students mentioned fill in puddles/stagnant water is protecting them against malaria.

In relation to susceptible groups, for malaria there were good awareness as 361(85.0%) and 303(71.8%) students, were mentioned that under five children and pregnant women respectively as highly exposed groups to malaria infection (table 3).

Table 3 Knowledge related to malaria among students, in selected districts of Jimma zone south west Ethiopia, 2017.

Variables		Frequency	Percentage
Have you ever heard of or know an illness called malaria	yes	387	91.7
	no	35	8.3
Malaria caused by the presence of stagnant water around the surrounding?	yes	182	43.1
	no	240	56.9
In appropriate use of ITN can protect malaria?	yes	268	63.5
	no	154	36.5

Malaria transmission through mosquito bite?	yes	358	84.8
	No	64	15.2
Fever is the sign and symptom of malaria?	yes	355	84.1
	no	67	15.1
Feeling cold is the sign and symptom of malaria?	yes	323	76.5
	no	99	23.5
Headache is the sign and symptom of malaria?	yes	356	84.4
	no	66	15.6
Nausea and vomiting is the sign and symptom of malaria?	yes	271	64.2
	no	151	35.8
Diarrhea is the sign and symptom of malaria?	yes	212	50.2
	no	210	49.8
Dizziness is the sign and symptom of malaria?	yes	217	51.4
	no	205	48.6
Loss of appetite or refuse to eat is the sign and symptom of malaria?	yes	323	76.5
	no	99	23.5
Body ache and joint pain is the sign and symptom of malaria?	yes	300	71.1
	no	122	28.9
Pale eye is the sign and symptom of malaria?	yes	260	61.6
	no	162	38.4
Body weakness is the sign and symptom of malaria?	yes	318	75.4
	no	104	.624
Sleeping under mosquito net is protecting them from malaria?	yes	306	72.5
	no	116	27.5
Using mosquito replant is protecting themselves agnest malaria?	yes	392	92.9
	no	30	7.1
Spray house with insecticide is protecting themselves agnest malaria?	yes	297	70.4
	no	125	29.6
Cleaning house surroundings is protecting	yes	335	79.4

themselves agnest malaria?	no	87	20.6
Fill in puddles/stagnant water is protecting them agnest malaria?	yes	187	44.3
	no	235	55.7
Pregnant women are most likely to get serious case of malaria?	yes	361	85.5
	no	61	14.5
A child of under five years old is most likely to get serious case of malaria?	yes	303	71.8
	no	119	28.2

This study showed that about 141(46.7%) male students had good knowledge while 67(55.8%) of them had not knowledge. Concerning females 161(53.3%) were knowledgeable while 53(44.2% of them had not knowledgeable about malaria. Most of the students aged between 10 and 15 years (77.4%) had good knowledge about malaria. Most of the participants (96.7%) were singles and 88.6% were Muslims.

In bi-variable logistic regression residence, mothers education, grade level, sex, age, marital status, ethnicity, father education radio, family and sleeping under net were a candidate variable for multivariable analysis(table 4).

Table 4 Bi-variable logistic regression for socio-demographic and exposure for malaria related information (n=422)

Variables	Category	Knowledge status		COR (95% CI)	P-value
		High Knowledge	Low knowledge		
Sex	Male	141(46.7%)	67(55.8%)	1	
	Female	161(53.3%)	53(44.2%)	1.44 (0.94-2.21)	0.05
Grade level	6 th	96(31.8%)	47(39.2%)	1	
	7 th	101(33.4%)	43(35.8%)	1.15(0.69-1.89)	0.58
	8 th	105(34.8%)	30(25.3%)	1.71(1.00-2.93)	0.05
Age	10-15	232(76.8%)	98(81.7%)	1	
	16-21	70(23.2%)	22(18.3%)	0.74(0.44-1.27)	0.28
Marital status	Single	290(96.0%)	118(98.3%)	1	
	Married	12(4.0%)	2(2.0%)	2.44(0.54-	0.25

				11.08)	
Ethnicity	Oromo	245(81.1%)	106(88.3%)	1	
	Amhara	27(8.9%)	9(7.5%)	1.29(0.59-2.85)	0.52
	Other	30(11.3%)	5(4.8%)	0.14(0.02-1.40)	0.09
Residence	Rural	213(70.5%)	35(63.6%)	1	
	Urban	89(29.5%)	85(70.8%)	5.81(3.65-9.25)	0.00
Fathers education	Cannot read and write	177(58.6%)	24(20.0%)	1	
	only read and write	51(16.9%)	21(17.5%)	0.33(0.17-0.64)	0.00
	primary education	30(9.9%)	16(13.3%)	0.25(0.12-0.53)	0.00
	Secondary education	44(14.6%)	59(49.2%)	0.10(0.06-0.18)	0.001
Mothers education	cannot read and write and above	200(66.2%)	34(28.3%)	1	
	only read and write	58(19.2%)	22(18.3%)	0.45(0.24-0.83)	0.01
	primary education	25(8.3%)	28(23.3%)	0.15(0.08-0.29)	0.001
	Secondary education	19(6.3%)	36(30.0%)	0.09(0.05-0.17)	0.001
Sleeping under net	Yes	81(63.8%)	52(53.1%)	0.64(0.37-1.09)	0.11
	No	46(36.2%)	46(46.9%)	1	
Spraying walls with replant	Yes	75(59.1%)	62(63.3%)		0.01
	No	52(40.9%)	36(36.7%)	1	

5.4 Factors associated with knowledge related to malaria

In multivariate logistic analysis mothers' education level was significantly associated factor for knowledge of children related to malaria. Students whose mothers attended primary education were approximately 92% times less likely had good knowledge related to malaria than students whose mother was cannot read and write ($AOR= 0.079$, $95\%CI$; $0.018-0.359$ p -value= 0.001).

According sex female students are approximately three times more likely aware than male it was statistically significant at ($AOR= 2.92$, $95\%CI$; $1.37- 6.22$), p -value= 0.05). Students live in urban were approximately twenty five percent times less likely aware than those live in rural area statistically significant at ($AOR= 0.25$ $95\% CI$; $0.12-0.5$, p - value= 0.01). Regarding to the information about spray of DDT students five times more likely aware than that of not informed ($AOR= 5.23$, $95\%CI$; $1.51-18.08$), p - value= 0.001). Students who know about sleeping under net was approximately three times more likely than that of not sleeping under net it was statistically significant at ($AOR = 2.55$, $95\%CI$; $1.03-6.29$) p - value= 0.01) (table 5).

Table 5 Independent factors for high knowledge related to malaria in primary school students in Jimma zone, south-west Ethiopia.

Variable	Category	Knowledge status		CO(95% CI)	AOR(95%CI)
		High	Low		
sex	Male	141(46.7%)	67(55.8%)	1	1
	Female	161(53.3%)	53(44.2%)	1.44(0.94-2.21)	2.92(1.37-6.22)*
Residence	Rural	213(70.5%)	35(63.6%)	1	1
	Urban	89(29.5%)	85(70.8%)	1.50(.94-2.38)	0.25(0.12-0.52)*
Mothers education	cannot read and write and above	200(66.2%)	34(28.3%)	1	1
	Only read and write	58(19.2%)	22(18.3%)	0.93(.54-1.60)	1.45(0.36-5.93)
	primary education	25(8.3%)	28(23.3%)	5.24(1.23-22.42)	0.08(0.018-0.35)*
	Secondary education	19(6.3%)	36(30.0%)	0.48(0.164-1.39)	0.21(0.04- 1.18)
Spraying walls with replant	Yes	75(59.1%)	62(63.3%)	0.26(0.14-4.23)	5.23(1.51-18.08)*
	No	52(40.9%)	36(36.7%)	1	1
Sleeping under net	Yes	81(63.8%)	52(53.1%)	0.64(0.37-1.09)	2.55(1.03-6.29)*
	No	46(36.2%)	46(46.9%)		1

*had a p-value less than 0.05

CHAPTER SIX:

DISCUSSION

This chapter provides a brief discussion of the major findings from the study on the level of knowledge related to malaria were assessed among primary school students in Jimma zone south west Ethiopia. It was found that about 76.6% of students had better awareness about malaria.

Mass media were found to be important sources of knowledge related to malaria 176(41.7%) from TV and 119(28%) from radio. This is relatively higher compared to study conducted in similar area in 2014 (Malaria related knowledge and child to parent communication regarding prevention and control of malaria among primary school students in Jimma zone, south west Ethiopia) [55] this is due to improvement of mini media club in the school and also this study is In line with study in Nigeria and central India[59] while the finding of this study contrary with another studies in Nigeria and Tanzania where health workers and teachers were the major sources of malaria information respectively [58]. The possible reason for this inconsistency might be because of the difference in access of media among, lack of knowledge about malaria among teachers and lack of health education program at school.

In this study, assessments related to sex regarding knowledge related to malaria indicates females have more information about malaria than male because the result show significant association statistically ($P < 0.05$). This might be due to frequent contact of mothers with the school children.

This result is in agreement with the study conducted by Jimma zone south west Ethiopia which reports similar results with the current study [15]. In this study students participated those living in urban area have 2.5 times more likely have knowledge than those live in rural area this might also be related to lack of information concerning malaria via recent technologies such as minimedia, TV, Radio. This result is In line with the study conducted on similar area regarding the knowledge of school age students related to malaria [57].

Educational status of mothers shows variables which had statistically significant association with knowledge about malaria among the students. This can be explained in such a way that students whose mothers attended primary education were more knowledgeable as compared to students those whose mothers are unable to read and write. In this particular study significant

numbers of students whose mother attend their primary education were reported. This implies the mothers might provide adequate information for school age adult students regarding malaria. This result is in agreement with the previous studies reported in Cameroon in which student which live with their parents have knowledge on malaria. [54].This might be due to flow of information from parents to children.

According to report of the respondents those which use sleeping net were well informed about malaria showing statistically significant relations with knowledge about malaria. Those student who are informed about sleeping under bed net are 2 times more likely have knowledgeable than that of those not informed.

This result is in agreement with the study conducted in Cameroon in which revealed mosquito nets are great at preventing the bites of mosquitoes and this can reduce the number of people who fall sick because of malaria [54]

Limitation of the study

Since it is cross sectional study it may not establish temporal relationship and the finding of this study depend largely on the honesty of the participants.

6.2 Conclusion

This study found that knowledge about malaria among primary school secondary cycle students in Jimma zone was high. Mass media was the main source of malaria related information to the primary school students.

Based on this study, educational status of mothers, sex, residence, spraying walls with replant, and sleeping under net were factors associated with students' knowledge about malaria.

6.3. Recommendation

As mini media club is one source of knowledge about malaria to students, it should be supported and strengthened by schools. Zonal and district education sector should give emphasis to mothers educational status. For zonal and regional education bureaus malaria messages should be incorporated in science textbooks to create nationwide knowledge and finally, the policy makers should empower women education.

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JIMMA UNIVERSITY
COLLEGE OF PUBLIC HEALTH DEPARTMENT OF HEALTH EDUCATION AND
BEHAVIORAL SCIENCE.

Annex 1: Subject Information Sheet

My name is _____ I am here on behalf of Muluaem Gebre student of Jimma University College of public health department of health education and behavioral science. He is conducting a research on the assessment of Malaria Related Knowledge among Primary School Students in Jimma Zone, Southwest Ethiopia ‘You are selected by simple random sampling method to participate in this study. Your participation is purely based on your willingness .You have the right to choose not to take part in this study. If you choose to take part, you have the right to stop at any time. If you are willing to participate or refuse or decide to withdraw later, you will not be subjected to any ill-treatment. If you agree to participate in the study, you will be asked to answer some questions about yourself, and self-care practice. The interview with you will take about 20 minutes. The study will help u to know your knowledge related to malaria and the communication with your parents. It can also provide base line data for policy makers and other researchers for further improvements on malaria prevention and control. The information that you provide will be kept confidential by using only code numbers and locking the data. Do not give your name. No one will have access to the non-coded data except the principal investigator and the data will not be used for purposes other than the study. Your willingness and active participation is very important for the success of this study.

Address: Cell phone, 0913235097

Questionnaires ID _____

Woreda (district) _____ School name _____

Grade _____

Annex 2: Informed Consent Form

Based on the understanding of the information I gave you, are you willing to participate in this study? A) Yes B) No (1) if yes, I will continue and 2) if no I will skip to next participant after writing the reasons of refusal.

Respondent Signature _____ Date _____

Facilitator Name _____ Signature _____

Questionnaires number _____

Date of interview _____ Starting time _____ Completed _____

Result of interview A) Completed B) Not completed C) Partially completed D) Refused

Checked by Supervisor: Name _____ Signature _____

Address: Cell phone +251(0)913235097, Email: mulualemgebre7@gmail.com

Instruction: circle all the possible answers of the respondent from the choice provided.

Annex 3: Questionnaire (English version)

Part 1: Socio demographic/ economic condition

Part I: Respondents background			
101	What is your age?	_____ [completed years]	
102	Sex	Male 2. Female	
103	The students grade level	1. 6 th grade 2. 7 th grade 3. 8 th grade	
103	Marital status	1. Single 2. Married 3. Divorced 4. Widowed other(specify)_____	
104	Religion	1. Muslim 2. Orthodox 3. Protestant 4. Other [specify]_____	
105	Ethnicity	1. Oromo 2. Ahmara 3. Yem 4. Dawuro 5. Other [specify]_____	
106	Residence	1. Rural	2. Urban
107	Father's educational level	1. cannot read and write 2. only read and write 3. primary education 4. secondary education and above	
108	Mother's educational status	1. cannot read and write 2. only read and write	

		3.primary education 4. secondary education and above		
Part II: Exposure to recall and source of malaria messages				
201	Have you heard or see any malaria message during the past twelve month?	Yes No	If no, go to Q 301	
202	If yes to Q-201, From where did you heard or see?	1. From Radio? 2. From TV? 3.From Teachers? 4.From Text book? 5. From HEW? 6.From Family? 7.From School mini-media? 8. From Friends?	1.Yes 1.Yes 1.Yes 1.Yes 1.Yes 1.Yes 1.Yes 1.Yes	0. No 0. No 0. No 0. No 0. No 0. No 0. No 0. No
203	What malaria messages/information did you see or hear?	Sleeping under net? Environmental and sanitation activities? Importance of spraying? Seek treatment for fever? Not plastering walls after spraying?	1.Yes 1.Yes 1.Yes 1.Yes 1.Yes	0. No 0. No 0. No 0. No 0. No
Part III: Types of malaria information				
301	Have you ever heard of or know an illness called malaria/woba?	Yes No	If no don't fill the questioner	
302	What do you think is the cause for malaria?	Stagnant water? Mosquito bites?	1. Yes 1.Yes	0. No 0. No

	Knowledge related questions			
303	How is malaria transmitted from person to person?	Through mosquito bite?	1. Yes	0. No
304	Can you tell me the main signs or symptoms of malaria?	1. Fever? 2. Feeling cold? 3. Headache? 4. Nausea and Vomiting? 5. Diarrhea? 6. Dizziness? 7. Loss of appetite/refuse to eat/drink? 8. Body ache or joint pain? 9. Pale eyes? 10. Body weakness?	1. Yes 1. Yes 1. Yes 1. Yes 1. Yes 1. Yes 1. Yes 1. Yes 1. Yes 1. Yes	0. No 0. No 0. No 0. No 0. No 0. No 0. No 0. No 0. No 0. No
305	How can someone protect themselves against malaria?	Sleeping under a mosquito net every night protects malaria? Use mosquito repellent protects malaria? Spray house with insecticide protects malaria? Keep house surroundings clean protects malaria? Fill in puddles (stagnant water) protects malaria?	1. Yes 1. Yes 1. Yes 1. Yes 1. Yes	0. No 0. No 0. No 0. No 0. No
306	In your opinion, who is most			

	likely to get a <u>serious case</u> of “malaria”?	1.Pregnant women 2. A child of under5 years old	1. Yes 1.Yes	0. No 0. No
307	During the last 1-2years, have you received any message in your school?	Yes No	If no don't fill the questioner	
308	If yes, please tell me what did they tell you about malaria?	1. Sleeping under mosquitoes net every protect malaria at night? 2. Giving priority for pregnant women and children under five on LLIN use? 3Appropriate use of anti-malarial drugs? 4. Care during IRS? 5. How to wash ITN? 6. Seeking care for fever immediately? 7. Cleaning living area to prevent malaria?	1.Yes 1.Yes 1.Yes 1.Yes 1.Yes 1.Yes 1.yes	0. No 0. No 0. No 0. No 0. No 0. No 0. no
Data collector		Supervisor	Result of interview	
Name:		Name:	Completed Partially completed Refused Other [specify]	
Date:		Date: _____		
Signature:		Signature:		

Annex 4: Assurance of principal investigator

I the under signed masters of public health in Health education student of Jimma university agree to accept responsibility for the scientific and technical conduct of the research project and for provision of required progress reports as per terms and condition of faculty of public health and medical science of Jimma university in effect at the time of grant is forwarded as the result of this application.

Name of the student: Mulualem Gebre Alanche

Date _____

Signature _____

Approval of the first advisor

Name of the first advisor: Zewede Birhanu (PhD Associate Professor)

Date _____

Signature _____

Second advisor. Prof. Morankar Sudhakar

Date _____

Signature _____

Yuunivarsitii Jimmaatti

Institiyuutii Fayyaa, Muummee Barnoota Fayyaa fi Saayinsii Amalaa

Annex 5: Questioner oromia version

Miiltoo I: Unka odeeffannoo

Ani maqaan kiyya _____ . Obboo **Muluhaalem Gabree** kan jedhaman Yuunivarsiitii Jimmaatti barnoota isaanii Digirii 2^{ffaa} muummee Barnoota Fayyaa fi Saayinsii Amalaan barachaa kan jiran yommuu ta'u, hojii qorannoo beekumsa barattootni waa'ee dhukkuba busaa irratti qaban, fi koominikeeshinii ijoollee fi maatiin isaanii waa'ee dhukkuba busaa fi maloota ittisa isaa irratti qaban ilaalchisee (**To assess Malaria Related Knowledge Among Primary School Students In Jimma Zone, Southwest Ethiopia**) akka godina Jimmaatti hojjataa kan jiran yommuu tahu anis isaan waliin hojii kana keessatti hirmaachaan jira. Isinis qorannoo kana keessatti hirmaachuuf carraadhaan waan filatamtaniif hirmaannaan keessan guutummaatti fedhii keessan irraatti kan hundaa'eedha. Kanaaf hirmaachuudhaafis tahee dhiisuudhaaf mirga guutuu qabdu. Yoo hin barbaanne yeroo barbaaddanitti addaan kutuuf mirga qabdu. Haa ta'u malee bu'aan qorannoo kanaa fooyya'iinsa ittisaa fi to'annoo dhukkuba busaatiif gahee waan qabuuf hirmaannaaniifi fedhiin keessan milkaa'ina qorannoo kanaatiif baay'ee barbaachisaadha. Yoo fedha qabaattan gaaffiiwwan muraasa waa'ee kunuunsa isin ofii keessaniif gootan isinan gaafadha. Gaaffannoon kun hanga daqiiqaa 20 fudhachuu danda'a. Odeeffannoo isin naaf kennitan icciitiin isaa eegamaadha. Maqaan keessan hin barreeffamu akkasumas qorannoo kanaan ala dhimma birootiif hin oolu..

Lakk. Bilbilaa: 0913235097

Koodii gaaffii _____

Aanaa _____

Maqaa Mana Barumsaa _____ Kutaa _____

Miiltoo II: Unka odeeffannoo kennuuf waadaa seenuu

Odeeffannoo ana irraa argattan irratti hundaa'uudhaan, qorannoo kana irratti hirmaachuudhaaf fedha qabduu? A) Eyyee B)Lakki

Yoo **Eyyee** ta'e, itti fufna

Yoo **lakki** ta'e, gara nama kan birootti darbi (sababa didameef barreessi)_____

Mallattoo deebii kennaa _____Guyyaa _____

Maqaa Haala mijeessa_____ Mallattoo _____

Koodii lakkofsa gaaffii_____ Guyyaa gaafannoo _____

Yeroo itti jalqabe_____ Yeroo itti xumurame_____

Bu'aa gaafannoo A) Guutummaatti guutameera C) walakkaan guutameera

B) Guutummaatti hin xumuramne D) Didaa tahe/refusal/

Suppervaayizara mirkaneesse: Maqaa _____ Mallattoo_____

Teessoo:+251(0)913235097, Email: mulualemgebre7@gmail.com

Qajeelfama: Filannoowwan kennaman keessaa deebiiwwan gaafatamaan kenne hunda irratti mallattoo geengoo itti godhi.

Aanaa_____ Kutaa(Ammaa)_____

Mana barumsaa_____

Miiltoo III: Bargaaffii (Afan Oromo version)

Kutaa 1: Haala hawaas-dinagdee

I: Odeeffannoo bu'uuraa			
101	Umriin kee waggaa meeqa?	_____ [waggaa xumurte]	
102	Saala	Dhiira 2. Dhalaa	
103	Haala ga'iilaa	Hin heerumne/hin fuune Heerumte/fuudhe Walhiikan Abbaa manaa irraa du'e Kan biroo (ibsi)_____	
104	Amantii	Musliima Ortodoksii Pirootestaantii Kan biroo (ibsi)_____	
105	Sabummaa	Oromoo Amaaraa Yeem Daawuroo Kan biroo (ibsi)_____	
106	Bakka jireenyaa	Baadiyyaa Magaalaa	
107	Sadarkaa barnootaa kan abbaa keetii	1. dubbisuu fi barreessuu hin danda'u 2. dubbisuu fi barreessu qofa, barnoota idilee hin qabu 3. sadarkaa 1ffaa 4. sadarkaa 2ffaa fi isaa ol	
108	Sadarkaa barnootaa kan harmee/haadha keetii	1. dubbisuu fi barreessuu hin danda'u 2. dubbisuu fi barreessu qofa, barnoota idilee hin qabu 3. sadarkaa 1 ^{ffaa}	

		4. sadarkaa 2 ^{ffaa} fi isaa ol			
II: Ergaawwan waa'ee busaa dhaga'anii fi madda odeeffaannoo kanaa yaadachuu					
201	Ji'oottan kudha lamaan darban keessatti ergaa waa'ee dhukkuba busaa dhageessee ykn dubbistee beektaa?	1.Eyyee 2. Lakki	Yoo lakki jette Gaaffii 301 deemi		
202	Lakk. 201 Eyyee yoo tahe, eessaa dhageesse ykn argite?	1.Raadiyoo 2.Televiziyoon/TV/ 3.Barsiisota 4.Kitaaba barataa 5.Hojjattoota eksteenshinii fayyaa 6.Maatii 7.Miinii miidiyaa mana barumsaa 8.Hiriyoota	1.Eyye 1.Eyye 1.eyye 1.Eyye 1.eyye 1.eyye 1.eyye 1.eyye	0.Lakki 0.Lakki 0.lakki. 0.Lakki 0. lakki 0. lakki 0.lakki 0.lakki	
203	Ergaan waa'ee dhukkuba busaa ati dhageesse ykn argite maal jedha?	1. Saaphana siree jala ciisuu 2. Hojiiwwan naannoo ofii qulqulleessuu 3. Faayidaa biiffaa keemikaala farra bookee busaa 4.Jismii (qaama) gubaaf wal'aansa barbaaduu 5. Erga manni biifamee booda waangoo irratti waantota maxxansuu dhiisuu	1.Eyye 1.Eyye 1.eyye 1.eyye 1.eyye	0. Lakki 0.Lakki 0.lakki. 0. lakki 0. lakki	
III: Beekumsaan kan wal-qabate					
301	Dhukkuba busaa /woba/ kan jedhamu dhageessee beektaa?	Eyyee Lakki	Yoo lakki jette Gaaffii deemi		
302	Dhukkubni busaa maaliin namatti dhufa?	Bishaan ciisaa? Bookee busaan ciinanamuu?	1.Eyye 1.Eyye	0.Lakki 0.Lakki	

303	Dhukkubni busaa akkamiin namarraa namatti daddarbaa?	Bookee busaan ciinanamuun?	1.Eyye	0.Lakki
304	Mallattoolee dhukkuba busaa kanneen beekamoo ta'an natti himtaa?	<ol style="list-style-type: none"> 1. Jismii (qaama) gubaa? 2. Dhaamochiisuu/ qorrisiisuu/ 3. Mataa bowwoo? 4. Balaqqamsiisuu fi ol guuruu (ol-takuu)? 5. Garaa kaasaa? 6. Raatessuu? 7. Nyaataa fi dhugaatii jibbiisuu ? 8. dhukkubbii buusaawwanii? 9. Ija addeessuu? 10. Dadhabina qaamaa? 	<p>1.Eyye</p> <p>1.Eyye</p> <p>1.eyye</p> <p>1.Eyye</p> <p>1.eyye</p> <p>1.eyye</p> <p>1. eye</p> <p>1 eyye</p> <p>1.eyye</p>	<p>0. Lakki</p> <p>0. Lakki</p> <p>0.lakki.</p> <p>0. Lakki</p> <p>0. lakki</p> <p>0. lakki</p> <p>0.lakki</p> <p>0. lakki</p> <p>0. lakki</p> <p>0. lakki</p>
305	Akkamittiin namni tokko dhukkuba busaa irraa of ittisuu danda'a?	<ol style="list-style-type: none"> 1. Saaphana siree jala ciisuudhaan? 2. Qoricha farra bookee busaa mana keessatti biifuudhaan (repellent)? 3. Mana keemikaala farra bookee biifsisuun? 4. Qulqullina naannoo mana jireenyaa eeguun ? 5. Bishaan ciisaa naannoo dhangalaasuu? 	<p>1.Eyye</p> <p>1.Eyye</p> <p>1.eyye</p> <p>1.Eyye</p> <p>1.eyye</p>	<p>0. Lakki</p> <p>0. Lakki</p> <p>0 .lakki.</p> <p>0. Lakki</p> <p>0. lakki</p>

306	Akka yaada keetti, eenyutu dhukkuba busaa cimaa ta'een qabamuu mala? [filannoowwan jiran dubbisuuf, lamaaolfilachuunhindanda'amu	Dubartii ulfaa? Daa'imman waggaa 5 gadii?	1.Eyye 1.eyye	0.lak 0.Lakki
307	Waggoota 1-2 darban keessatti ergaa manabarumsaa keesssan keessati dhageessanii beektuu?	Eyyee lakki	Yoo-mittitaae gafichaa hingutini	
308	Yoo eyyee ta'e, waa'ee dhukkuba busaa maal akka isinitti himan natti himuu dandeessaa?	1.Halkan hundumaa saaphana siree jala ciisuu? 2.Yommuu saaphana siree? 3.fayyadamnu dursa dubartii ulfaa fi daa'imman waggaa 5 gadiitiif kennuu? 4.Qorichoota farra dhukkuba busaa sirnaan fayyadamuu Of- eeggaannoo yeroo manni biifamu godhamuu qabu 5.Akkaataa itti saaphana siree miiccan 6.Jismii (qaama) gubaadhaaf wal'aansa yaalaa dafanii barbaaddachuu 7.Qulqullina naannoo mana jireenyaa eeguu	1.Eyye 1.Eyye 1.eyye 1.Eyye 1.eyye 1.eyye 1.eyye	0. Lakki 0. Lakki 0.lakki. 0. Lakki 0. lakki 0. lakki 0.lakki
Ragaa funaanaa:		Suppervaayizara	Bu'aa gaafannoo	
Maqaa:		Maqaa:	Guutummaatti guutameera Walakkaan guutameera	
Guyyaa:		Guyyaa:	Didaa ta'e Kan biroo (ibsi)_____	
Mallattoo:		Mallattoo:		

