MASTER'S THESIS

COMPARISON OF THREE HEALTH EDUCATION METHODS IN INCREASING THE KNOWLEDGE ABOUT MALARIA

By:

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Comparison of Three Health Education Methods in Increasing the Knowledge About Malaria

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TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

ABSTRACT

This study was conducted in Adamitulu Woreda, Ethiopia, from September 1993 to January 1994. The general objective of the study was to determine the effectiveness and efficiency of three health education methods in increasing the knowledge of the community about the symptoms, cause, transmission, treatment and prevention of malaria. The baseline survey of the study population revealed that there is a profound lack of knowledge about malaria. 70% of the study population mentioned one or more symptoms of malaria; no one knew the cause of malaria; only 8% of the respondents responded that mosquitoes transmit malaria; 92% of them believed that malaria is not preventable; and 93.3% said that malaria has modern treatment. Three health education methods: drama, house-to-house conversation and school teaching, each supplemented with leaflets, were implemented in an effort to increase the awareness of the study community about malaria. After three months of intervention period, the post-test result showed that there was a significant increase in all the knowledge items about malaria. Finally, the most effective and the efficient health education method was found to be the house-to-house conversation.

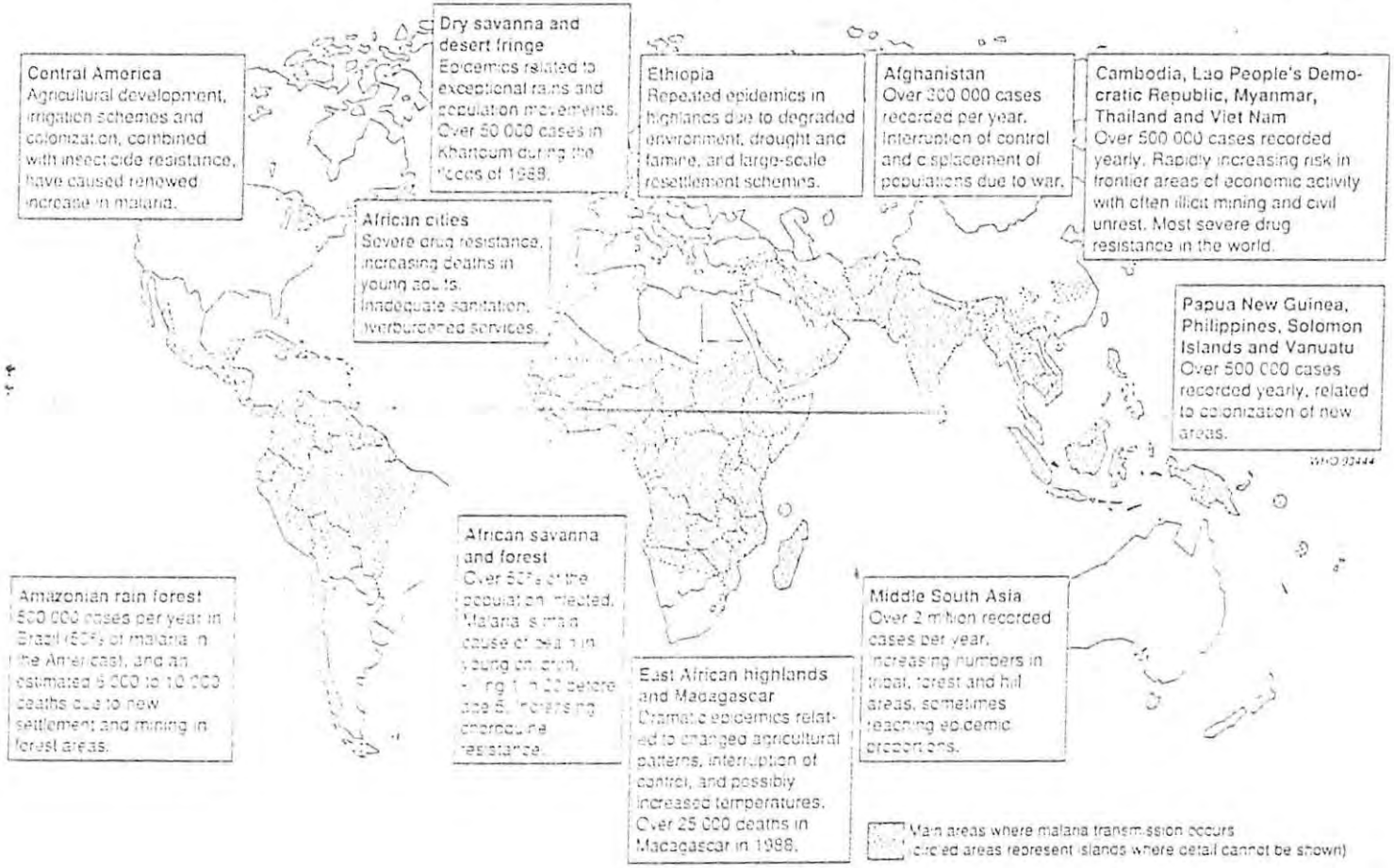
1. INTRODUCTION

Throughout history, malaria has always been one of the most serious obstacles to man's effort to develop agriculture, establish permanent settlements, or in any way modify the environment. It is no exaggeration to say that malaria has been responsible for much of the human suffering and misery accompanying the process of social and economic development. It has also largely "fuelled" the vicious cycle of poverty,ignorance and disease (1).

Malaria causes clinical illnesses, often very severe, in 300-500 million people and over one million people die from it every year. It threatens 2.2 billion persons, about 40% of the world's population, (see fogure 1) undermining the health and welfare of families, endangering the survival of children, debilitating the active population, and straining both countries' and individuals' scarce resources (2).

In Africa, malaria is responsible for about 10% of hospital admissions and 20-30% of out-patient consultations. Children are particularly at risk of contracting the disease, with it being one of the major childhood killers in rural tropical Africa, taking the lives of one out of 20 children before the age of five years. The disease causes anaemia in children and pregnant women and increases vulnerability to other diseases. Malaria is also a major cause of school absence. In young adults in Africa, malaria is still one of the common diseases, and it tends to strike at the time of year when agricultural work is at its highest. In 1987 the

Figure 1. Malaria distribution and problem areas



estimated annual direct and indirect cost of malaria in Africa was $800 million and this figure is expected to rise to more than US $1800 million by 1995 (3).

In Ethiopia there were 300,000 cases and 100,000 deaths reported in 1993, and among these, malaria is the cause of 10% of hospital deaths (4). It is one of the top ten diseases that cause mortality and morbidity in Ethiopia. About a quarter of the total area of Ethiopia is estimated to be malarious (see figure 2), and about two thirds of the inhabitants of the country are at risk of infection. The prevalence and incidence of malaria has greatly increased since the mid 1980s,and early 1990s. The annual incidence of malaria in 1989-90 was 21/1000 population based on the statics reported by the health services to the Ministry of Health MOH (5).

It is evident from the above statements that malaria is a major health problem globally, in the continent of Africa and in Ethiopia. Inspite of the fact that malaria is a disease that affects the world population, it can be be controlled if appropriate measures are taken against it.

The global program of malaria eradication coordinated by the World Health Organization (WHO) since 1957 has been successful in most of the countries in the temperate climatic zones of the globe (6). In the same article it was stated that the malarial eradication program failed in tropical countries because of serious technical, financial and social obstacles. In 1969, the World Health Organization recommended that, although eradication of

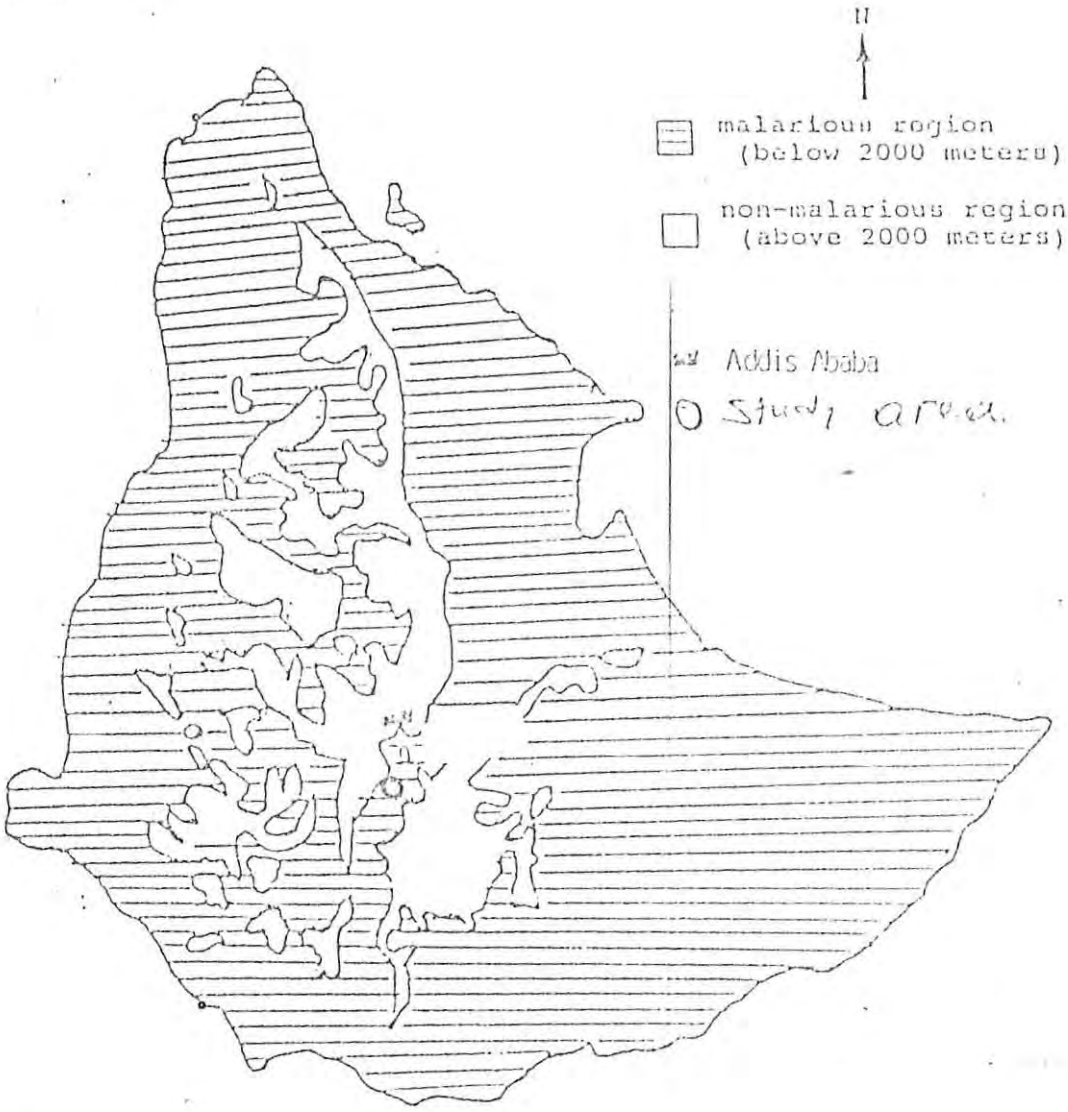


Figure II. Malarious and non-malarious regions of Ethiopia and location of the study area.

(adapted from Gebre Mariam 1988)

malaria should remain an ultimate goal in countries where eradication doesn't appear to be feasible, malaria control operations may form a transitional stage.

Since 1978, the concept of primary health care has been widely adopted. Malaria control within the orbit of primary health care aims first at the reduction of morbidity and mortality from malaria, although the decrease of the prevalence of this infection should also be an objective wherever possible (7).

Malaria control depends on a change of emphasis from highly prescriptive, centralized control programmes to flexible, cost effective, decentralized and sustainable programmes. Appropriate control measures that are aimed at reducing or preventing the disease in the community rather than being concentrated on reducing parasite rate in the population, as was too often the case in the past, must be taken. Malaria prevention largely depends not on the nature of the disease itself but on appropriate methods that are used to control it (8).

The four basic technical elements of the WHO global strategy for malaria control are:

1. To plan and implement selective and sustainable preventive measures, including vector control.
2. To provide early diagnosis and prompt treatment.
3. To detect early, control or prevent epidemics.
4. To strengthen local capacities in basic and applied research to permit and promote the regular assessment of a country's malaria situation, in particular the

ecological, social and economic determinants of the disease (9).

This research largely supports the 4th global strategy of the WHO, and the basis for it is that to know the ecological, social and economic determinants of malaria is very important in order to come up with the appropriate methods of control and prevention of the disease.

The knowledge, attitudes and practices of communities in relation to malarial infection, particularly its prevention and treatment, should be clearly understood before control action is initiated. This is essential since the emphasis of parasite management is and should be on people rather than on the disease (10).

It is not only the knowledge of health workers about malaria that matters, and not the availability of the effective drugs that determines the incidence and prevalence of malaria, but equally important is that the knowledge, attitudes and beliefs of communities about malaria reach a higher level since these have a significant effect on its treatment and prevention.

Traditionally, malaria control programmes have focused their efforts on controlling the parasite and/or vector, and have often overlooked the role that residents' beliefs, attitudes and behaviours can play a significant role in the transmission, treatment and control of disease (11). However, incorrect beliefs or inappropriate behaviours can interfere with or negate the effectiveness of control measures such as chemotherapy or residual

spraying .

In one of the studies done in Ethiopia it is was stated that a poor state of knowledge about malaria exists in spite of the fact that malaria control activities have been going on in the study area for the last two decades. This may be indicative of some inappropriate approaches by the service-givers, including poor communication with the communities. Malaria transmission and its prevention have to be explained in ways which are sensitive to the target population and without the use of scientific jargon (12). Health education is a prerequisite to the awakening of communities and their motivation to accept the interventions as part and parcel of routine life (13)

2. OBJECTIVES OF THE STUDY

General Objective:

- To determine an effective and efficient health education method for increasing the knowledge of community members about the cause, signs and symptoms, and treatment and prevention of malaria.

Specific Objectives:

- To determine the knowledge level of selected communities about the cause, transmission, signs and symptoms, treatment and prevention of malaria.
- To compare three health education methods in their effectiveness and efficiency in increasing the knowledge of the community about the cause, transmission, signs and symptoms, treatment and prevention of malaria.

3. STATEMENT OF PROBLEM

Malaria is the number one health problem in Adamitulu Woreda which is located in a central region of the great Rift Valley that crosses Ethiopia from north-west to south-east. The altitude of the woreda ranges from 1400m to 1900m above sea level, the average altitude being 1600m. This makes the climatic condition, and the temperature, most favourable for the transmission of malaria.

In 1992, malaria caused 43.3% of all cases seen in the health institutions of the woreda. Out of the estimated 2500 cases seen in the malaria control centre of the region in 1992, 95% of the

blood films taken were positive for malaria (14). 52% of the malaria patients were positive for Plasmodium falciparum and the remaining 48% were positive for Plasmodium vivax. The other types were not reported at all. So a major type of malaria seen in the woreda was Plasmodium falcipurum which is known to be the most common cause of death due to malaria, and it is the type of Plasmodium that produces resistant strains to common antimalarial drugs such as chloroquine.

The malaria control centre functioning in the woreda gives treatment though it is not always based on blood film results. Due to the high number of patients coming to the control centre, it is impossible to do blood films for all of them before treatment. The control centre has a shortage of manpower and reagents to check all the blood films. So it is a rule that blood films should only be done for high risk patients like those from the paediatric age group, pregnant women and critically sick patients. For those patients who are febrile and present with typical signs and symptoms of malaria, drugs are given without blood films being checked. This showed that the problem of the disease goes beyond the capacity of the control centre of the Woreda.

It is found that there are some foci of chloriquine resistant Plasmodium falcipurum malaria in some areas arround the Woreda (15).The low capacity of the malaria control center and the danger of the emergence of chloriquine resistance strains in the woreda makes very difficult to control the disease.The control activities of malaria should not be left only to the malaria control center,

the communities of the woreda should share the burden and activley participate in the control activities, which is not the case at present.

In order to encourage the community to participate in control activities, the beliefs, attitudes and behaviour of the community towards malaria need to be understood and then possibly changed. To do this, the level of awareness and the knowledge of the community about malaria should be increased. As it will be discussed later, the knowledge of the community about malaria is so low that it is difficult to expect any participation in the control of the disease at present. It was observed that not a single individual used any personal protection method and no single community member participates in any prevention activities of malaria.

4. LITERATURE REVIEW

Health education is not a final goal by itself, but it is the base and foundation in bringing about the desired improvement at individual and community levels. Knowledge about malaria transmission and prevention measures does have a significantly independent positive effect on usage of mosquito nets and chemoprophylaxis. As communities are generally very susceptible to malaria and also potentially effective communicators of malaria knowledge, they should be considered as a strategic target for health education programs in support of malaria control (16).

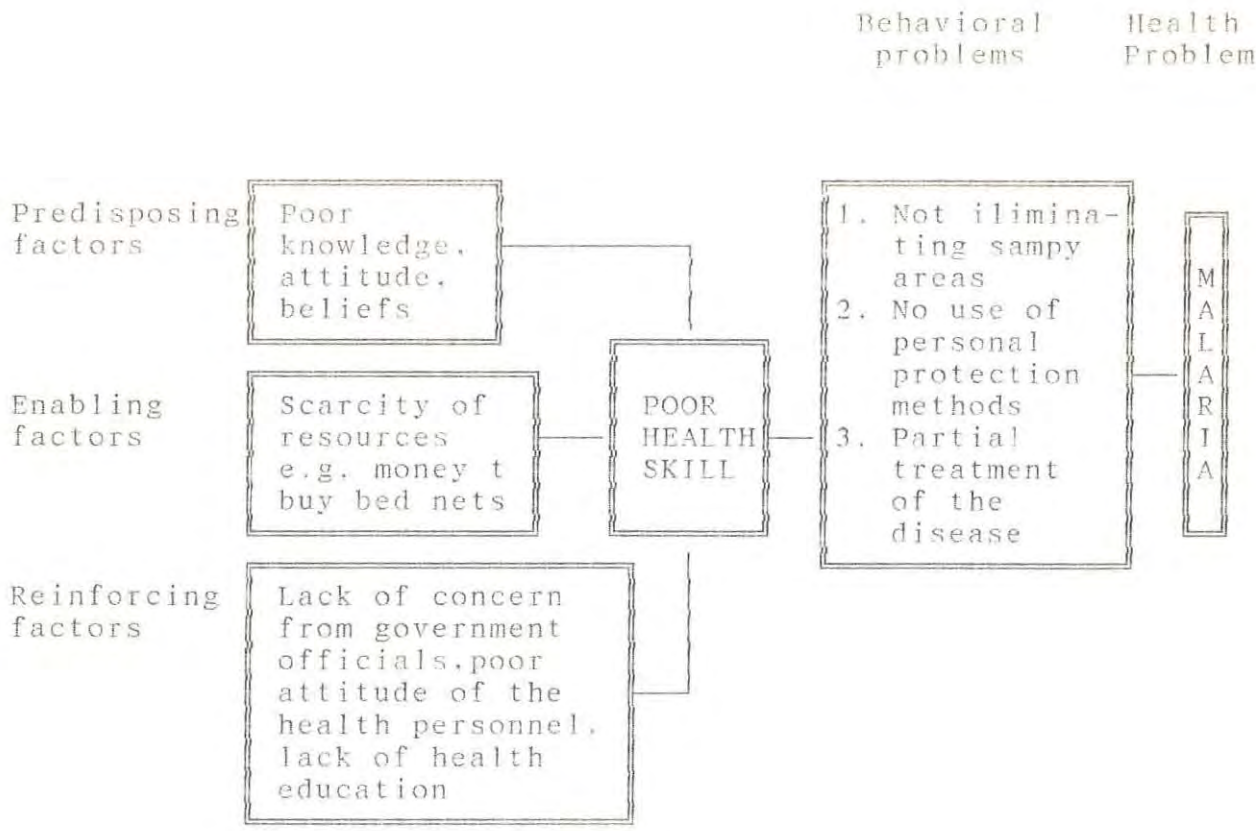
A study done in Nigeria (17) which used a simplified version of Green's antecedent model (see figure 3), was concerned with the demonstration of health education in the control of malaria, schistosomiasis, dranculculiasis and onchocerciases in rural secondary schools. The post-intervention finding revealed that there was a significant increase in the knowledge of the four diseases among those in the experimental group over those in the control group.

The Green antecedent model is based on the assumption that to increase the quality of health or decrease the prevalence of a disease, one must first identify those factors which contribute to the prevalence of the disease, and plan educational activities to affect those factors accordingly (18).

This model assumes that poor knowledge, attitude and beliefs are the predisposing factors that lead to poor health skills, which in turn bring about behavioral problems that end up in health problems such as malaria. The study concluded that, given opportunities, resources and health education, communities can make rational decisions affecting their health (19).

Unless knowledge of the community about the disease is increased, and contradictory beliefs and attitudes are changed, it is very difficult to bring about the desired effect on health problems such as malaria.

Figure 3. The Modified Green Antecedent Model applied to malaria.



(Adapted from H.E. Ekeh & F.D. Adeniyi, 1990)

In a study done in Thailand (20), it was found that the majority of the study population were poor in knowledge about malaria. Only about 16% of the respondents could relate malaria exclusively to mosquito bites. The rest of the respondents either had no idea or possessed rather vague notions of etiology, relating malaria to multiple causes including mosquito bites, climatic changes, and drinking water. It is quite astonishing that after two decades of malaria control programme, about 60% of the sample respondents were still clinging to these ideas (21). In the same study in Thailand, knowledge of how malaria spreads was similarly poor. About 50 percent of the respondents either did not have any idea or mentioned completely irrelevant means of spread such as personal contact (22).

In the above mentioned study, results indicated that in general, the majority were ignorant about malaria and malaria control measures. The researchers recommended that the malaria control programme should strengthen its health education activities,and that serious efforts be made to review the existing health education programme, particularly its content, approach and methods (23).

In a study done in rural communities of Tanzania it was found that knowledge about malaria was very low. It was recommended that information about malaria probably needs to be improved with better focused messages (24).

In another study done in Thailand it was found knowledge of malaria and malaria control was again equally low. The areas in which knowledge was markedly inadequate included breeding places and hunting times of anopheles, cause and spread of malaria, and the effect of DDT insecticide spray. In this study, it was stated that because self-help is an important feature of treatment of malaria, it is recommended that encouraging community participation in malaria control most likely also brings success in the area of malaria treatment and/or prophylaxis. To achieve the desired level of community participation in prevention and control of malaria a thorough health education program needs to be given. The study further stated that community participation in malaria treatment and prophylaxis programs should not be based only on the community health workers approach. Serious efforts should be made to also involve local health professionals, drug store venders, and dressers who have already been providing socially acceptable care for many illnesses including malaria (25).

In the above mentioned study, since knowledge about malaria and malaria control was so limited, it was recommended that the national malaria control program should strengthen and intensify the health education efforts, particularly in hyperendemic areas.

A study done in Nigeria assessed the effect of three types of intervention schemes on the scientific knowledge and attitudes of the rural community towards malaria, diarrhoea and dysentery, and intestinal worms. A survey done before the intervention showed that the knowledge and attitudes of the community towards these

diseases was very low. The three types of intervention schemes were pictures, card games and drama songs, story telling and discussion, and the combination of both. After the intervention it was found that these intervention techniques seemed to have a tremendous effect on knowledge and attitudes. Finally, the study concluded that an appreciable level of control of parasitic disease may be achieved by changing human attitudes through intensive and well sustained health education programs. It was also stated that health education must be tailored to suit the socio-cultural and economic circumstances of the target population (26).

Survey of the residents of the Pacific coast of Guatemala revealed a lack of knowledge and many misconceptions about the transmission and treatment of malaria. According to the surveyors this could adversely affect malaria control measures and anti-malarial therapy. Many residents believed that malaria could be acquired by bathing too frequently or by drinking unboiled water. The residents were found poorly informed about many aspects of malaria transmission and treatment (27).

In another study done in Gambia on the perception of knowledge of the causes of malaria and its treatment and prevention, it was discovered that knowledge of the respondents about the disease was very low (28). Questions on the causes of malaria showed that, overall, only 28% of the respondents knew malaria is transmitted by mosquitoes. Other causes given were eating too much in the rainy season. Rains, drinking too much fresh cow-milk in the rainy season or eating mangoes were other belived reasons. In addition

God is believed to be the general cause of happiness and misery of human life. 45% of the respondents used some form of local herbs to- wards the treatment of malaria. The knowledge of the respondents with regard to prevention was also found to be very low.

The most intersting thing about the above study is that 86% of the study population were bednet users. Yet they did not know about the cause, transmission, treatment and prevention of malaria. Though most people did not associate mosquitoes with the transi- mission of malaria, bednets have been used at least for a hundred years. mainly in the wet season, to prevent mosquitoes disturubing sleep. Perhaps it was also appreciated that bednets prevented fever.Nonethless the study showed that the level of knowledge about malaria has a direct effect on the effectivness of prevention methods.

In a study done in central Ethiopia, to assess the knowledge, attitudes, and practices with respect to malaria in six randomly selected rural communties, it was found that transmission of malaria is generally neglected by the study population. Only 23% believed malaria could be prevented but 85% of the respondents were able to recognize one or more of the common symptoms of malaria (29).

In the same study when the communities asked about whether malaria is a disease transmitted from one person to another, 73.7% responded affirmatively. But they gave various answers about the way of transmission of malarea. The majority, 64.3% thought

transmission of malaria occurred through bodily contact with the patient, 45.7% via the respiratory route. 21.7% by utensils, 5% by flies, breast milk or the mere sight of the patient and only 4.5% said the transmission is through mosquito bites. Only 23% of the respondents believed that malaria could be prevented.

In the above study it was concluded that special efforts should be made to make the community participate in controlling malaria. The society has to come forward to accept the methods of malaria control as its routine way of life and retain them on long term basis. This can be achieved when the society is fully awakened through intensive and long term health education. It was also stated that, it was not surprising, if people say malaria is not preventable, since they think that it is transmitted in ways that are culturally difficulty or impossible to avoid.

Finally the study recommended that the knowllege of the community should be upgraded with appropriate healht education method(s), which could be seen as a first step towards full commlunity participation in malaria control activities.

5. METHODOLOGY:

5.1. Type of Study:

This is an intervention (community trial) study in which effective and the efficient health education methods will be determined and recommended.The study was conducted in Adamitulu Woreda, Ethiopia, from September 1993 to January 1994.

5.2. Selection Criteria for the Study Populaiton:

For the purposes of this study, Adamitulu woreda was divided into three study areas taking Zway town as the centre of division: the woreda was divided into south, south-west and north-west study areas. (see figure 6)

All the communities are accessible by fourwheel drive and all commmunities are similar economically, socially and culturally as will be discussed in social and cultural charactrstics section. Likewise, the endemicity of malaria is approximately the same throughout the woreda, which could be explainsd by the faverable altitude of the Woreda for malarial distribution as established in statment of the problem section.

Assuming that urban dwellers' knowledge about malaria is better than those of rural communities, the latter were selected as study communities. For this purpose communities that live 5kms. and further from the main road were acceptable as study communi= ties.

5.3. Sampling Procedure:

The 62 communities in the woreda were first given number on the map (see figure 5). Then they were divided into three study areas,namely, north west (1-21), south-west (22-41), and south (42-62). From each study area four communities were selected randomly (see figure 4)

All the houses in the community were numbered. From each

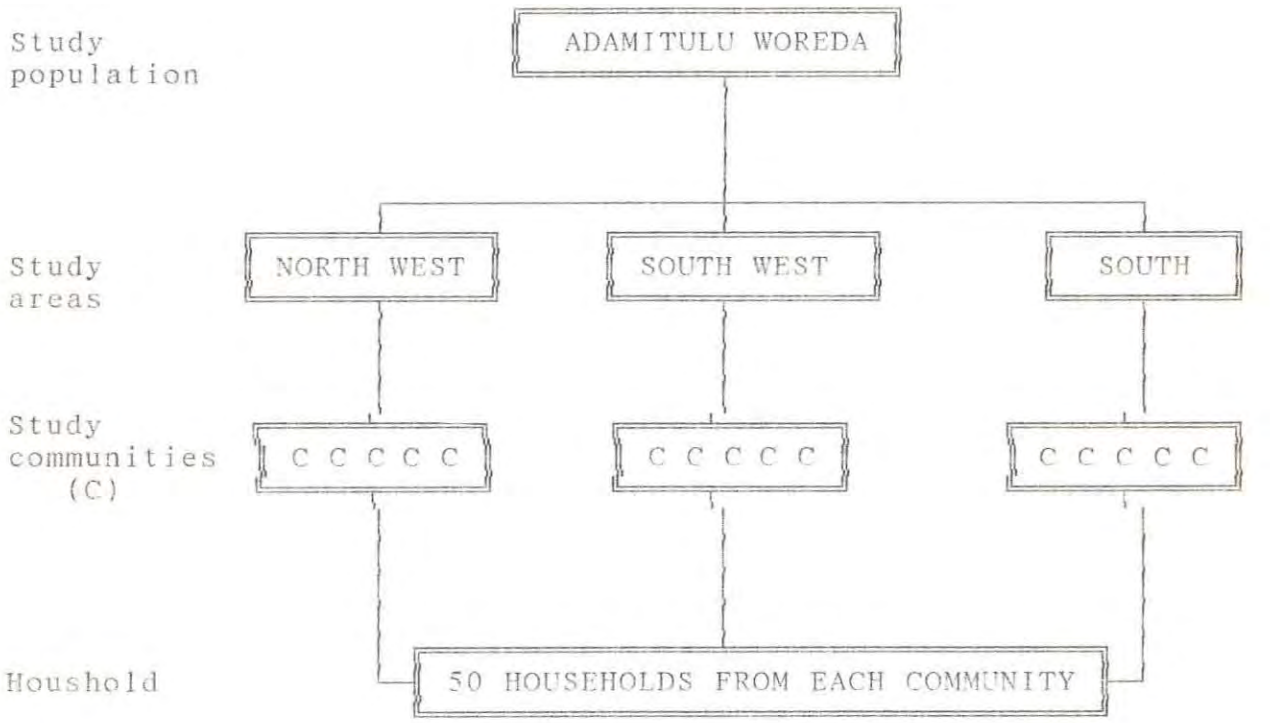
community fifty houses were selected. The houses were selected as follows:

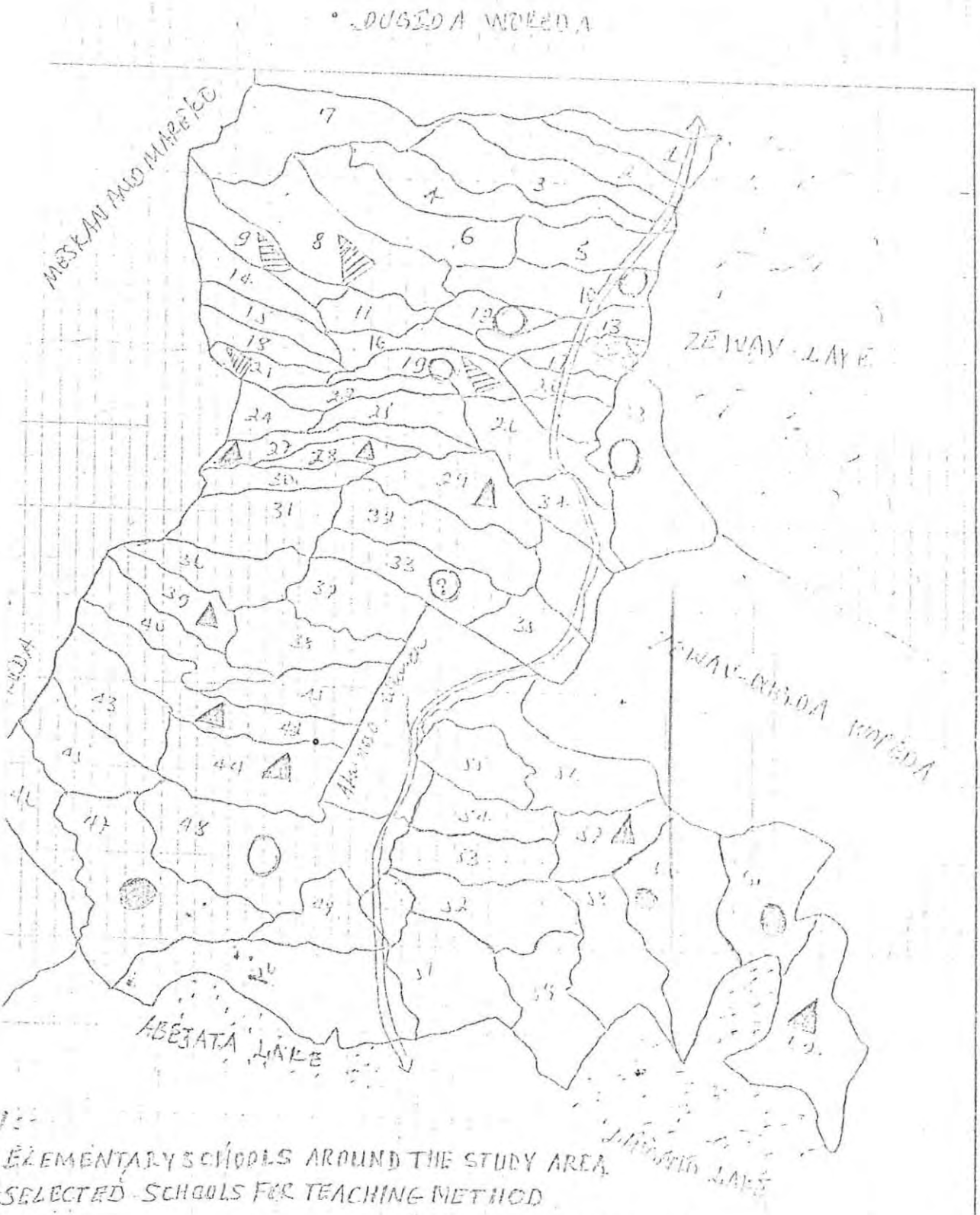
$$\text{nth-house} = \frac{\text{total number of houses in each community}}{\text{fifty}}$$

5.4. Sample size Calculation:

The prevalence of lack of general awareness about malaria was estimated to be 85% (21), assuming the absolute difference between the sample and the community to be (Δ 3%). Using the 95% confidence level, the sample size was calculated to be 554. Assuming that there may be dropouts or no response, around 10% was added which gave a population of 600 as a sample size.

Figure 4. Sampling Frame:





ELEMENTARY SCHOOLS AROUND THE STUDY AREA

SELECTED SCHOOLS FOR TEACHING METHOD

SELECTED COMMUNITIES FOR TEACHING METHED (SOUTH)

SELECTED COMMUNITIES FOR HOUSE TO HOUSE TEACHING (SOUTH WEST)

SELECTED COMMUNITIES FOR DRAMA METHOD (NORTH WEST)

ZWAY TOWN (CENTER OF DIVISION)

5.5. Baseline Survey, post-test, and Inclusion Criteria for the participants:

There is a total of 62 rural communities in the woreda, out of which 12 communities were selected randomly. These were then divided into three study groups, each group consisting of four study communities. In each of the selected study communities a baseline survey was conducted by means of a questionnaire. Before this a pre-test of the questionnaire was done outside the woreda in similar neighbouring communities. the questionnaire was then appropratley modified (see Appendix A).

The questionnaire consisted of closed and openended questions, first written in Englsih then translated to 'Oromiffa'. Two inter_viewers who are members of the community, both with complete 12th grades, were selected and trained.

Those to be interviewed had to be a resident of that area and head of the household, male or female. Sometimes the household heads were note at home, as they may have been at the market or out for farmig far away from their houses. In cases where waiting for them to come home was too time consuming. the housewives were interviewed. Otherwise the interviewer proceeded to the next house. If the head of the household was female and not at home, then the interviewer also proceeded to the next house.

In the school teaching method. the school attendance was found to be very low. There were only 130 students in total. 200 households were taken and a baseline survey was carried out in these households. It was expected that the post-test surver would

be carried out on these same households. But the low attendance rate of schools posed an obstacle against progressing as planned. because there was a fear that the small number students might not overlap the coverage of all the sampled houses. To avoid such a problem, the post-test was conducted directly by going into the houses of the parents of the 130 students. Thus there is a difference between the individuals that were questioned in the baseline and post-test survery. This was not considered a problem as it was assumed that there is no knowledge difference between the residents of the study area, whether they were included in the base line or post-intervention surveys.

5.6. Descriptions of the Health Education Methods:

5.6.1. Drama Method:

The drama method of health education was selected because people see their actual life in it. They laughed when the drama was performed, and when they looked at the actions of the drama performers and at what they say and so on. After the drama session the attendants usually said, "yes you showed us what we actually do in our day to day life." So this method was selected in anticipation of this obvious reason, and also it was assumed that within a short period of time a large number of people could be reached.

There were three individuals in the drama team, one female and two males. They were selected according to their previous acting experience and membership in the communities.

One drama was prepared for this purpose. It covered all portions of the teaching, i.e., about the cause, signs and symptoms, transmisiion, treatment and preventon of malaria. The drama was prepared in such a way that actors' knowledge in the drama team was first upgraded by giving them printed material to read which described the cause, signs and symptoms, transmission, prevention and treatment of malaria. After they read the material, there was a meeting of the team with the research co-ordinator and the principal investigator to assess what they understood from their reading. It was found that the individuals did not satisfactorily grasp the contents. So they were requested to read the material time and again and finally were found to have acquired

the knowledge. Then they were asked how this knowledge could be conveyed to the community in drama form. The purpose for doing this was that if the team members themselves came up with the drama, they could be part of it and perform from their innermost feeling. This helped them to come up with an interesting and meaningful drama. After some minor corrections and arrangements the drama was approved. The drama required four people. Due to cost problems the co-ordinator played one part as part of his responsibility. (The manuscripts of the dram are attached in the Appendix B).

There were 36 drama sessions during the intervention period. and each lasted about 45 minutes. There was a tota of 12 villages in the four communities so that each village had a chance to be exposed to the drama three times.

5.6.2. Health Education in the Schools:

A school health education method was selected because teachers are very important in the transmission of knowledge to the community. It is expected that the knowledge the students gain in schools will be transmitted to the community because students are part of the community. It is also assumed that what students learn in schools is accepted by the commuity as fact and truth.

Another important concept about this method is that if it proves effective and efficient, it can be recommended to be a part of the national educational policy. In malaria endemic areas, the method could be applied on a permanent basis. This principle could

also be applied to other endemic diseases in that, by having school health education programs focusing on them within the regular curriculum.

Three schools were selected and each director in the school was assigned as a teacher. This was because the director of the school has the power and the authority to manage the activities. In additon to this the Ministry of Educational Department of the woreda was asked to write a letter of co-operation to the schools concerned for legal purposes. The teachers were given a seminar on the purpose of the teaching, its contents, the method of teaching and reporting. Each school session lasted about 45 minutes.

The three schools selected (see figure 6),were all elementary schools (grade 1-6) because there is no high school in the areas where the study communities live. The shcools were selected by the fact that the south study area has more elementary shcools than the others.

The students were expected to teach their family (particularly their mother and father). They were instracted to do so. Then increase in the knowledge of the students' parents was assesed,in the post test, by interveiwing them if they are living in the sampled houses.

5.6.3. House-to-House Conversation:

House-to-house conversation as a health education method was selected because of the potentially increased time with the healht educator, and that the attendants are free to ask what ever they

felt. It is also easy for the health educator to detect the problems of the attendants because the latter's numbers were quite small.

An individual who had 25 years of exprience in malaria control program of the woreda and was a member of the community was selected for this purpose. He was given training on how to teach the purpose of the study, the contents of the teaching, the system of reporting,and how to go house to house. Each session with the attendants (head of the household, members of the family, guests, neighbours present, etc.) took about 45 minutes and the topics were were fully covered. If the teacher failed to get the head of household at home or nearby, he was supposed to teach the housewife with others present.Three sessions at different times, were conducted in each house throughout the intervention period. Fifty houses were covered every week by the health educater.

5.6.4. Leaflets:

Leaflets were used as a supplementary method with each of the intervention methods. Leaflets were selected because they are easily passed from one to the other,and since they were pictorial the participant could get a good opportunity to review what he or she learned during each session. The pictorial nature of the leaflets played a role of strenghening and reinforcing of the information that was transmitted by the other methods.

The leaflets specifically made for this investigation were, adapted from a poster used by the malaria control programme of the

woreda and were meant to explain the cause, transmission, treatment and preventionof malaria. They were mainly pictorial with some written clarification in 'Oromiffa' (see appendix C). They were distributed by the teachers and drama team after each eductional session was conducted. The leaflets were given only once to each attendant during the intervention period.

5.7. Method of scoring:

Scores were developed in such a way that if the respondent responded correctly to a specific question he or she scores one, otherwise zero. Then the scores were added to a total score for each item of knowledge (e.g. symptom, cause,transsmision, treatment, prevention of malaria). The total score then divided by the number of the knowledge items to get the mean score. finally the mean scores were compared for health education methods. The scoring was similarly performed both for the baseline survey and the post-test.

5.8. Operational Study Definitions:

Resident ▪ An individual who has lived in the study area for 6 months or more.

Effective ▪ The ability of the health education method to increase the knowledge of the community about malaria to any signifcant level.

Efficient ▪ Effective with minimun cost.

Cause ▪ An invisible creature (germ) that can not be seen with the naked eye and that causes malaria.

Transmission ▪ A process whereby the mosquito' transmits the cause of malaria from a patient to a healthy person while it sucks blood for its meal

Area ▪ Each study region (north west. south-west and south)

Household ▪ The collectoin of individuals who live in one house.

Head of Household ▪ An individual (either female or male) who heads the family.

Community ▪ One farmers' (peasants') association.

5.9. Variables:

The variables used in the studyarea are:

- Age
- Sex
- Religion
- Occupation
- Marriage
- Level of education
- Availability of radio
- Time of residency
- History of malarial attack
- Ethnicity

5.10 Social and Cultural Characteristics of the Study Community:

It is very important to know and understand the social and cultural characteristics of a community in order to plan health education strategies (30). For this reason the social and cultural characteristics of the study community will be presented briefly.

The study has conducted in the rural communities of Adamitulu woreda. The rural community is composed of one ethnic group, Oromo. Within this ethnic group, there are two tribes (moieties), the local one here being called 'BALBALA',which is composed of 'UTA' and 'WAYYU', that have settled in the woreda (see figure 4). 'UTA' and 'WAYYU', are each further divided into five subgroups called 'GOSA's which are again subdivided into 'Warra's. (' Warra' is an equivalent'Oromiffa' word for family).

The total population of the various rural communities in the woreda is estimated to be around 56,143, out of which there are 7,607 households; 7,275 male-headed households and 332 female-headed households. There are a total of 29,491 males and 26,652 females. (31).

Religiously almost all the two tribes are Moslems. They speak the same language, 'Oromiffa', and economically they are rely on agriculture (both farming and cattle rearing).

Culturally all are similar in that polygamy is common, but marriage between members of the same 'GOSA' is forbidden.

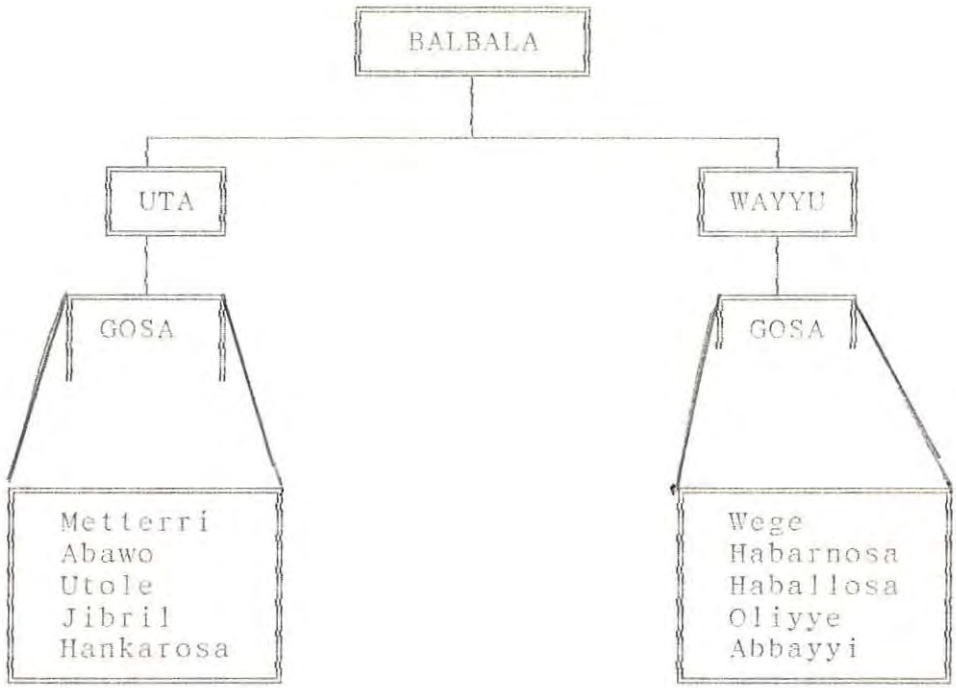
They all have the same form of self-help social organizations in the different 'GOSA's'. For example there is a social organization called 'WIJJO', in which women from any 'BALBALA' or 'GOSA' meet whenever any one or more woman member faces some problem. (e.g. When her family is unable to conduct a wedding ceremony for her daughter or son, when her family faces a financial problem to build a cottage, when her family suffers a mass death of his cattle and other similar major catastrophes). Then the 'WIJJO' member

women discuss the magnitude of each applicant's problem and the contribution of the 'WIJJO' is given to the one with the most serious problem. The contribuiton of 'WIJJO' is predetermined: one tin of butter and two Birr from each member. Likewise, the male heads of households have a similar social organization called 'SAMUGNATA', whereby each member contributes one head of cattle which is given to a member which they have discussed and decided has a serious problem.

Each 'GOSA' has other unique characteristics beside the blood line, that differentiates it from others. For example the members of 'Wege Gosa' are known by the fact that they do not eat the flesh of gray coloured oxen. They reason that one of their fore= fathers killed a donkey during the night ate the meat mistakenly thinking that it was one of his grey oxen. Later on.in the morning he recognized the fact and afterwards he warned his descendants not to eat the flesh of a grey ox. Likewise, the 'Haballosa Gosa' do not eat elbow bone meat, the 'Oliyye' do not drink fresh milk, and 'Utole' do not eat cattle liver (32).

Elders are the most respected members of the community, in that, community members do not go to law courts even for murder cases. Instead, the case is left to the elders to decide on and the decisition will be accepted by the murderer and the victim's family. The group of elders in charge of handling such cases is called 'CONTOMA' (33).

Figure 6. Blood Relatinships of the Study Communities



Source: Infromation from Local Elders (34).

6. RESULTS

Baseline characteristics of the study population are shown on table one. The baseline (see table 1) and the post-test characteristics of the study population are almost the same. In additon to the similarity of the characteristics, the study population was also simlar socially, economically and culturally (which is mentioned in social and cultural characteristics section). This showed that the study was conducted in a homogenous commuity.

Table 1. Baseline Characteristics of the Study Population of Adminitulu Woreda, September 1993.

Variable	N=593	Percent
Sex		
Male	305	51.4
Female	288	48.6
Age		
< 15	2	0.4
16 - 25	119	20.0
26 - 36	225	38.0
36 - 45	161	28.0
> 45	86	13.6
Religion		
Moslem	568	95.5
Occupation		
Housewife	263	44.3
Farmer	330	55.7
Marriage		
Married	541	91.2
Education		
Illiterate	473	79.7
Ethnicity		
Oromo	589	99.4
Availability of radio		
Not available	560	94.4
Time of residency		
Six months or more	592	99.5
Malarial attack		
Attacked	489	82.1

The baseline and the post-test level of knowledge is compared on table 2. Very low levels of knowledge were observed in all knowledge items at the beginning of the study except those of symptoms and treatment. Almost 100% of the respondents in the baseline survey, did not know the cause of malaria. They labelled the cause of malaria as ingestion of maize stem, drinking fresh milk, living in a dirty environment, contact with malarious patient, or sharing the same utensils with the patient.

They were taught that the cause of malaria is an invsibel creature which can not be seen with the naked eye (germ), but nobody responded with the correct cause of malaria even after the intervention. (See operational definition). But it was observed that the proportion of respondents who said that they did not know the cause decreased almost by 55% (See table 2). This likely showes that the teaching methods brought some change in the idea of causation of malaria.

A significant difference was observed after the intervention in the level of knowledge of the community about malaria, as demonstrated by the post-test.

Table 2. Comparison of Knowledge of the Study Population Between Baseline and Post-Test, Adamitulu Woreda, Jan. 1994.

Knowledge	Baseline (N=593) %	Post-test (N=529) %	Difference %	Odds ratio	P-value
Symptoms					
Shivering	69.6	87.0	17.4	.32(.23- .44)	H.S+
Headache	56.3	70.0	13.7	.53(.41- .68)	H.S
Fever	53.1	66.7	13.6	.56(.44- .73)	H.S
Chills	21.7	65.4	43.7	.37(.21- .67)	H.S
Vomiting	21.4	22.6	1.2	.93(.69-1.24)	0.6
Generallized					
Pain	3.2	8.1	4.9	.45(.25- .80)	H.S.
Sweating	0.8	11.9	11.1	.06(.02- .16)	H.S.
Cause					
I don't know	38.0	24.3	-13.7	2.05(1.57-2.68)	H.S.
Other than mosquito	37.0	20.6	-16.4	2.27(1.72- .3)	H.S.
Mosquito only	17.0	53.6	36.6	.18(.14- .24)	H.S.
Mosquito plus others	5.9	1.1	-4.8	4.68(1.97-11.64)	H.S.
Treatment					
Has medical treatment	93.9	98.8	4.9	.18(.07- .44)	H.S.
No treatment	1.6	0.18	-1.42	.01(1.2-189.7)	H.S.
I don't know	4.3	0.9	-3.4	4.81(1.74-14.36)	H.S.
Prevention					
Preventable	7.7	43.3	35.6	.11(0.08-0.16)	H.S.
Non preventable	12.3	14.5	2.2	.28(.58-1.18)	H.S.
I don't know	80.0	42.1	37.9	5.47(4.16-7.19)	H.S.
Transmission	n=177	n=358			
Mosquito only	9.0	72.3	63.3	0.04(0.02-0.07)	H.S.
Mosquito plus others	0.5	1.1	1.1	0.15(.01-1.23)	H.S
Other than mosquito	89.5	26.0	63.5	22.37(12.9-39)	H.S.
I don't know	1.0	0.0	-1.0	4.0 (.29-114.3)	0.18

+ H.S. (Highly significant)

The level of knowledge of the study communities about malaria was low before the interventions, and there were no significant differences in the levels of knowledge between the communities. (F=0.04, p>.9571).(See table 3).

The mean score was developed by adding all scores given to each item of knowledge and divided the some by five because there are five knowledge items (symptom, cause, transmission, treatment and prevention). The mean score for the drama method of the post=test, forexample, was calculated first by adding the scores for each item of knowledge, and the sume was found to be 1033.This sum, then was divided by five and the result was 206.8, which is taken as the mean score for that method. Then the mean score for the three health education methods was compared by ANOVA (see table 3).

After the intervention, the level of knowledge of the study communities was dramatically raised. This is shown by the increase in the mean score of each method of health education: though the difference in knowledge level between the study communities was insignificant (F=0.14, p>0.8679). There is no significant difference between the health education methods in increasing the level of awareness of the study communities (F=2.59, p>0.1161).

Table 3. Comparison of the Mean Score of the Level of Knowledge about Malaria, of the Study Population in the Baseline and Post-Test, and their Differences. Adamitulu Woreda, March 1994.

	Drama	House-To-House conversation	School teaching	F-value	P-value
Baseline	126.2	128.4	158.2	0.04	0.9571
Post-test	206.8	239.4	165.4	0.14	0.8679
Difference	80.6	111.0	7.2	2.59	0.1161

The comparison of the effectivity of the teaching methods is shown in table 4. A scoring method was used for comparison. A score was given in such a way that for each item of knowledge. if the respondent responded correctly one ok was given, otherwise the score is zero. Then the scores were added for a total score for each knowledge item. Again this was divided by the total number of respondents to give the mean score of each item of knowledge. The mean scores wee added and divided by the total number of knowledge items to determine the average mean score for each method of health education.

The average mean score was compared to the difference of the effectivity of the teaching methods. The ANOVA test showed that there was no significant difference (F-value = 0.14, P = 0.8677) between the health education methods in increasing the level of awareness of the community about malaria (see table 3). This showed that all the teaching methods were equally effective. Another important finding in Table 4 is that one teaching method is more effective in increasing the awreness of the respondents in one kind of knowledge item than the other, which is explained by the difference in mean scores of the health education methods.

For example, the house-to-house conversation method was better in increasing the level of knowledge of causation (mean score=0.6) than the drama and the school teaching method (both had mean scores of 0.5). Likewise, the school teaching method was better in increasing the level of knowledge about symptoms (mean score = 0.5) than the drama and the house-to-house methods (both have mean score

of 0.4). The drama was not more effective in increasing awareness in any category of knowledge by itself.

Though there was no statistical difference between the health education methods in increasing the knowledge of the community about malaria, in Table 4 by calculating mean score for each item knowledge, it was showen that one method is better than the other in increasing one item of knowledge, as allready discused. This also proves that some methods are socially accepted than the other even if thier effect is not statistically significant.

Table 4. Comparison of the Post-Test Mean Score Result Between the Health Education Methods in the Study Population, Adamitulu Woreda, Feb. 1994.

Knowledge	Drama n=199	%	House-to-House n=200	%	School n=130	%
Symptoms						
Fever	122	21.3	137	20.6	94	17.1
Headache	129	22.5	159	23.9	87	16.4
Vomiting	22	3.8	54	8.1	44	8.3
Shivering	164	28.9	172	25.9	129	24.3
Chills	111	19.4	123	18.8	112	21.1
Generalized pain	11	1.9	6	.9	26	4.9
Sweating	13	2.2	12	1.8	38	7.3
Total score	571	100.0	663	100.0	530	100.0
Mean score	0.4		0.4		0.5	
Cause						
Mosquito only	91	45.7	126	63.0	67	51.5
Mosquito plus others	0	0	0	0	0	0
Other than mosquito	0	0	0	0	0	0
I don' know	0	0	0	0	0	0
Total score	91	45.7	126	63.0	67	51.5
Mean score	0.5		0.6		0.5	
Disease has medical treatment	194	97.4	199	99.5	128	98.5
No treatment	0	0	0	0	0	0
I don't know	0	0	0	0	0	0
Total score	194	97.4	199	99.5	128	98.5
Mean score	0.9		0.9		0.9	
Prevention						
Preventable	87	43.7	91	45.5	51	39.5
Not preventable	0	0	0	0	0	0
I don't know	0	0	0	0	0	0
Total score	87	43.7	91	45.5	51	39.5
Mean score	0.4		0.5		0.4	
Transmission*	N=124		N=153		N=81	
Mosquito only	90	72.5	118	77.1	51	62.9
Mosquito & others	0	0	0	0	0	0
Other than mosquito	0	0	0	0	0	0
I don't know	0	0	0	0	0	0
Total score	90	72.5	118	77.1	51	62.9
Mean score	0.7		0.7		0.6	
Mean of means (average mean score)	0.58		0.62		0.58	

Table 5 shows the comparison of the efficiency of the teaching methods. The expenses associted with each method were added to clculate total cost. Then the total cost was divided by the number of attendants of that method, to get the per head expense.

$$\text{Efficiency} = \frac{\text{Total cost}}{\text{No. of attendants}}$$

The total number of attendants of the drama were 2188. Since each attendant had a chance to attend the drama three times. 2188 was divided by three to get the average number of attendants per session , which is 729. It was estimated that there were a total of 150 new attendants at each session in additon to a total of 729 repeat attendants. So the total number of attendants of all the three drama session was 1179 which is the sum of 729 and 450 (3*150).

The total number of attendants of the house-to-house method was 1196, according to the reports of the house-to-house health educator.

The total number of attendants of the school teaching method was 390. This is bacause 130 students were told to teach their fathers and mothers, that made the number of attendants double of the number of students (260). This makes up the total number of the attendants of the school teaching method.

Table 5. Comparison of the Efficiency of the Three Health Education Methods, Adamitulu Woreda. Feb. 1994.

Cost item Cost	Drama (Birr)	House-to-house (Birr)	School teaching (Birr)
Personnel			
Salary	1350	1350	1350
Training	200	200	200
Interviewers	1400	1400	1400
Equipment			
Stationery	325	325	325
Batteries	432	-	-
Cassette	65	-	-
Leaflets	750	375	375
Transport*	1000	500	500
Total cost	5522	4150	4150
Total number of attendants	1179	1196	390
Efficiency	4.80/person	3.55/person	10.65/person

* Transport cost includes cost for transportation of individuals, supervision and dreiver perdiem

The cost effectiveness (efficiency) then, was determined by dividing the total cost with the total number of attendants of each method. It was found that the house-to-house is the least expensive method of health education and that the school teaching was the most expensive (see the table).

7. DISCUSSION

90% of the respondents of this study said "yes! malaria is our major health problem!". Yet the communities' knowledge about the disease was found to be profoundly low. This study clearly shows this.

The knowledge items that were least understood by the respondents were relted to the cause, transmission and prevention of malaria. No one in the baseline survey new the cause of malaria. This even persisted after the intervention as was demonstrated by the post-test scores. Though the health education methods succeeded in increasing the level of awareness of community members in all the knowledge items, they failed to do so as far as the cause of malaria is concerned.

Causation was the area of knowledge that could not be easily influencded. This might be because it was difficult for illiterate people to understand the cause of malaria as an invisible creature (germ). Probably more time and effort is needed to teach the correct idea of the cause of malaria in such an un-enlightened community. It seems that it is very difficult to change the long

existing wrong attitudes and beliefs towards the cause of the disease within a (short) three month intervention period.

Cause is a very difficult concept to learn in such a backward community, because usually it is associated with some supernatural force. The community's belief towards cause is strongly linked with this religious concept. So it is very difficult to change it within such a short period of time. Probably the second most important reason why it was difficult to change cause was the way the teaching was presented to the community. For example in this study cause of malaria was thought as some invisible creature (germ), that cannot be seen by nacked eye (see operational definition). This could be very difficult to understand for such a community with wrong beliefs about the cause. So the best method of health education, in this case house-to-house, to change the idea of cause can be applied (see Table 4). Other simple operational definitions could also be tried so that the community can grasp the required concept easily.

Another very imnportant area of knowledge where the community is poor was the awareness about the transmission of malaria. In the baseline survey 90% of the respondents didnot know that malaria is transmited via mosquitoes. Out of the 9% that knew malaria is transmitted by mosquitoes, 25% did not know that the biting time of mosquitoes is at night only; 20% responded that mosquitoes bite during the night and daytime; 12% said only daytime, and 43% said that they do not know. The awareness about the biting time has a significant impact on prevention, because the effects of mosquito

nets cannot be achieved unless the users of the nets have knowledge of mosquitoes, both their roles as transmitters and their habits.

Knowledge about prevention was also very deficient. 92% of the study populaion initially didnot know that malaria could be prevented. Only 8% of the respondents said that malaria is preventable. But they suggested wrong methods of prevention, like avoiding ingestion of maize stem and sunheat, wearing clean clothes, drinking clean water, avoiding contact with a malrial patient, cleaning the houses, and keeping personal hygiene. The bases for teh wrong ideas of prevention methods might have emanated from the incorrect beliefs of the cause and transmission of malaria. It is true that eradication of mosquito breeding sites cannot be effectively done if the community's awareness about the disease is very low.

As was mentioned in the literature review, the WHO's and the national target is to control malaria. It is impossible to control such a complex disease when individuals have such very low levels of awareness.

Before the intervention, the areas of awareness about treatment and symptoms were good (see the baseline result in table 2). 70% of the respondents mentioned one or more symptoms of malaria and 93.3% knew that malaria has medical treatment. This can be explained by the availability of anti-malarial drugs in drug shops and market places. The awareness about symptoms could be explained by the fact that most of the respondents had one or more attack of malaria during their lifetime.

The short time period of the intervention, three months, probably might not have been enough to see a desired change in the level of awareness. But this study showed that using appropriate health education methods can increase the knowledge of communities about malaria, in particular, and any endemic disease in general. Health education is the cornerstone to increasing knowledge and correcting wrong beliefs and attitudes towards a disease. Changes in attitudes and beliefs can facilitate behavioural changes, which are the ultimate goals of health education.

As mentioned in the results section, all the methods are equally effective in increasing the leves of knowlede but some are better in one category of knowledge than the others. This suggests that using a combination of methods rather than a single method would bring about better results.

Using leaflets as a supplement to the three health education methods might have contributed to the effectiveness of the teaching methods. The school attendance rate was very low in all three selected elementary schools. Amazingly, there were 130 students in total. The grades that were present were from 1 to 3 only. though elementary schools are expected to teach up to grade 6. Even from grade 1 to 3 in some of the in some of the schools, there were only 10 to 15 studentsattending a class.

To investigate the reason why the school attendance was very low, two focus groups were formed. The parents of the students and community leaders were included: there were eight members in each grop. The discussion revealed that some parents did not send their children to schools because they want them to look after their cattle. Some said that they didnot see any benefits of attending school as most students from their villages did not get a job to improve their life after completing 12^{th} grade or even after graduating from colleges. So the members of the focus groups concluded by saying, "Why should our children spend their time for nothing!"

Some of the focus group members said that they have financial difficulities paying for registration fees which is less than 20 Birr per year. There is also a request of payment for stationery for their children which is beyond their financial capacities.

The interesting thing about the school attendance was that, only males attend schools. The reasons given by the focus group members were females should marry early or spend their time helping

their mothers and learning house keeping rather than wasting it at schools.

In order to see the fruitful result of the effect of health education in schools, the attitude of the community towards learning at schools should be changed so that more students could attend schools. It is well known that "Health For All By the Year 2000!" is a goal of WHO and member countries, including Ethiopia. With such a low levels of knowledge about a disease like malaria it is impossible to achieve the goal within the coming half a decade because it is very difficult to change human behaviour within such a short period of time.

Inspite of all the above constraints, the school teaching method was as equally effective as others. If the obstacles to shcool teaching method are solved the effect of the school teaching would have been far better than from what was observed in this research.

The cost of the school teaching method (see Table 5) was very expensive when compered with other methods. But it should be taken into consideration that the high cost of school teaching method was due to the low number of prticipants. If the number of participants of the school teaching method were high that could result in less cost of the method. This is due to the nature of this study, that is, not the community as a whole but only the students and their parents are allowed to participate. This limitation should be considered when one looks in to the cost of the school teaching method.

The house-to-house method is effective and the efficient method, but the question of its sustainability could be raised. Do all the communities could allow anyone to go into thir houses and teach them ? This depends on the culture of the community. Also in areas where the community lives in a scattered situation and with the problem of transportation to reach the community, it could be very difficult to apply this method permanently, this also make difficult the supervision of the health education.

Unless the behavioural changes are achieved through extensive and continuous health education, it is not feasible to think about community participation, which is also crucial in controling a disease like malaria. In order for the community to participate in control activities for malaria it should know and be convinced that the disease can be controlled and prevented if appropriate measures are taken.

8. CONCLUSION AND RECOMMENDATION

The malaria control program of the country should revise its health education strategies and try to educate the target population with appropriate methods. This study demonstrates that although the malaria control program has functioned for a long period of time in the area, community knowledge about the disease is still very low. This was also indicated by similar studies done earlier in the country.

The house-to-house approach is the most effective and most efficient health education method that can be considered by malaria

control programs. This is because the control programme could use its well trained and experienced personnel for this purpose and because it has the essential budget to run the program. This holds true generally for the Ministry of Health which has other health professionals that are well trained about malaria. and professionals at all levels can participate in the house-to-house education activities.

School health education about malaria should be incorporated in the curriculum of the Minstry of Education, which is not the case at present. In all malaria endemic areas, school health education should be given at all educational levels. The health education should also be given in schools in non-malarious areas because there is continuous movement of people from non endemic to endemic areas, and vice-versa. Teaching should also include other endemic diseases as well.

For any health education to be more effective, it should be given at the community level. If the role of the health sector in health education is considered there are different types of health professionals at different levels. CHAs (Community Health Agents) are the ones that function at the grassroot level. Since the CHAs come from their community, they know the language, the socio-cultural backgroung of the community and also they are accepted by the community. The curriculum that is prepared for CHAs should give more emphasis for health education. This holds true not only for CHAs but also for all health professionals.

Since most of the country's health problems are preventable,

if the community awareness about them is raised they could be easily controlled. For this reason the health policy should give more attention for health education methods to increase the knowledge of the people about a disease. The results of this study could be taken as an example to choose the best health education method. Probably further study should be encouraged. Health education should be given on a permanent basis in all health institutions, focused on major health problems. It is very important to change the attitude of health professionals towards health education. So the training of health professionals should give special attention in this respect.

It is ineffective to depend on health educaiton given through radios, televisions, newspapers and magazines, which was the case in the past and at present. The reason is that, much of the population is too poor to buy radios ad televisionn, and too illiterate to read magazines and newspapers. This study gives additional information about the choices of effective and efficient health education methods. However, further study is still recommended to see the effectiveness of other health educaion methods as well. Further study should be done to see whether the increased level of awareness by these health education methods could bring the desired change in the behaviour of the community, since the time period of this study was very short.

Another area that needs further study is the level of knowledge about malaria in other parts of the country with different socio-cultural characteristics. The knowlege difference

between the rural and urban communities should be determined so as to use appropriate methods of education for these different sectors.

The studies which are aimed at seeing the effectiveness of other prevention methods (such as use of mosquito bed nets and community participation to control malaria) should first do a baseline knowledge assessment of the disease, because it is the knowledge of the disease the community has that affects any control or preventive measures.

APPENDIX A

QUESTIONAIRRE

INTRODUCTION

We are members of both Addis Abeba University and Ministry of Health of Ethiopia. We came here to asses the magnitude of your knowledge about malaria and to take appropriate measures accordingly.

We are here to ask some questions about malaria. The information you give us is highly valuable and confidential. Therefore, feel free to respond to our questions. Thank you in advance for your co-operation.

1. Identification:

1.1. Woreda_____

1.2. Farmers' Association_____

1.3. House number_____

1.4. Sex:

_____1.4.1. Male

_____1.4.2. Female

1.5. Age:

_____1.5.1. Less than 15 years old

_____1.5.2. 16 to 25 years old

____1.5.3. 26 to 35 years old

____1.5.4. 36 to 45 years old

____1.5.5. Greater than 45 years old

1.6. Ethnicity:

____1.6.1. Oromo

____1.6.2. Gurage

____1.6.3. Others (specify)

1.7. Level of education:

____ 1.7.1. Illiterate

____ 1.7.2. Literate

____ 1.7.2.1. Basic education

____ 1.7.2.2. 1st to 6th grade

____ 1.7.2.3. 7th to 8th grade

____ 1.7.2.4. 9th to 12th grade

1.8. Occupation:

____ 1.8.1. Housewife

____ 1.8.2. Farmer

____ 1.8.3. Others (specify)

1.9. Marital status

____1.9.1. Married

____1.9.2. Single

____1.9.3. Divorced

____1.9.4. Widow(er)

1.10. Religion

____ 1.10.1.Christian

____1.10.1.1. Orthodox

____1.10.1.2. Mission

____ 1.10.2. Moslem

____ 1.10.3. Others(specify)

1.11. Availability of radio

____1.11.1. Available

____1.11.2. Not available

2. Questions:

2.1. Have you ever gone out of your residency?

____2.1.1 Yes ____2.1.2. No

If the respondent responded 'NO' to question number 2.1, go to question number 2.3.

2.2 If yes,please specify where you have gone.

____2.2.1. To neighbouring farmers' associations

____2.2.2. To market places which are far from my residencey

____2.2.3. To towns in the Woreda

____2.2.4. To towns out of the Woerda

2.3. For how long have you lived in your present residencey?

____2.3.1. For less than six months

____2.3.2. For more than six months

If the respondent responded 'for more than six months' to question number 2.3. go to question number 2.5.

2.4. If you have lived for less than six months in your present residencey. where was your previous residency?

____2.4.1. In peasant association

____2.4.2. In towns

____2.4.3. In city

2.5. Have you ever been attcked by malaria and got treatment.

____2.5.1. Yes ____2.5.1. No

If the respondent responded 'NO' to question number 2.5. go to question number 2.7.

2.6. If yes, please specify from where you got the treatment?

____2.6.1. From traditional healers

____2.6.2. From modern medical institutions

____2.6.3. From private drug vendors

2.7. What do you think are the sign and symptoms of ma aria ?

2.7.1. _____ 2.7.2. _____

2.7.3. _____ 2.7.4. _____

2.7.5. _____ 2.7.6. _____

2.7.7. _____ 2.7.8. _____

2.7.9. _____ 2.7.10._____

2.8. What do you think is (are) the cause(s) of malaria ?

2.8.1. _____ 2.8.2. _____

2.8.3. _____ 2.8.4. _____

2.8.5. _____ 2.8.6. _____

2.8.7. _____ 2.8.8. _____

2.8.9. _____ 2.8.10._____

2.9. Do you think that malaria is a disease that can be transmitted ?

____2.9.1. Yes ____2.9.2. No

____2.9.3. I do not know

If the respondent responded 'NO' or 'I do notknow ' to question number 2.9, go to question number 2.12.

2.10. If yes, please specify the method(s) of transmission.

2.10.1._____ 2.10.2._____

2.10.3._____ 2.10.4._____

2.10.5._____ 2.10.6._____

If the respondents responded to question number 2.10. that the method of transmission is only mosquito bite, ask question number 2.14, go to question number 2.18.

2.11. At what time do think that the mosquito bites?

_____2.11.1. Day and night

_____2.11.2. Day only

_____2.11.3. Night only

_____2.11.4. I do not know

2.12. Do you think that malaria is a disease that has treatment?

_____2.12.1. Yes _____2.12.2. No

_____2.12.3. I do not know

If the respondant responds 'NO' or 'I do not know' to question number 2.12, go to question number 2.14.

2.13. If yes, please specify the type(s) of treatment.

_____2.13.1. Traditional

_____2.13.2. Modern

_____2.13.3. Both

2.14. Do you think that malaria can be prevented?

_____2.14.1. Yes _____2.14.2. No

_____2.14.3. I do not know

If the respondent responded 'NO' or 'I do not know' to question number 2.14. go to question number 2.18.

2.15. If yes. please specify the method(s) of prevention.

2.15.1. _____ 2.15.2. _____

2.15.3. _____ 2.15.4. _____

2.15.5. _____ 2.15.6. _____

2.15.7. _____ 2.15.8. _____

2.16. Do you yourself use any particular method(s) of prevention?

_____2.16.1. Yes _____2.16.2. No

If the respondent responded 'NO' to question number 2.16. go to question number 2.18.

2.17. If yes, please specify the type(s) of prevention method you use

2.17.1. _____ 2.17.2. _____

2.17.3. _____ 2.17.4. _____

2.17.5. _____ 2.17.6. _____

2.18. Do you think that malaria is a major health problem in your area ?

_____2.18.1. Yes _____2.18.2. No

_____2.18.3. I do not know

SAY 'THANK YOU' TO THE RESPONDENT

APPENDIX B

SUMMARY OF THE CONTENTS OF THE TEACHING METHODS

The contents of all the three teaching methods are actually the same. That is, all concentrated on teaching the community about the cause, transmission, treatment and prevention of malaria.

The individuals who participated in all teaching methods were taught indepth on the subject of malaria for their full unerstanding. But they were instructed to teach the community in simple terms without using any scientific jargon, and by using the local language 'Oromiffa', sothat the community could understand the message easly.

The following summary of the content of the drama method is presented as a sample of the three teaching methods. (For anyone who is intersted, there is a video record of how all three methods of teaching were conducted in the field).

CHARACTERS:

1. Tesfaye Kena'a _____ as Dr. Gada (a physician)
2. Kufa Bariso _____ as Abafayiso (a husband)
3. Konjit Hashim _____ as Hadafayiso (a wife)
4. Bonsa Heyi _____ as Abagenemo (a neighbour)

SETTING

The stage is arranged in such a way that the setting for the drama is in front of Abafayiso's house. The way the performers were dressed was local, i.e. like the members of the community, except the phycian.

Part I

Objective: To show that some members of the cmmunity do not know the cause, transmission, treatment and prevention of malaria, except for some of its symptoms.

Summary

The time is about dusk and Abafayiso, as men in the community often do, goes to sit outdoors to take rest for some time. There, he complained that many a time when he sits out doors in the dark, mosquitoes siege and bite him. Then he leaves the place and enteres his house murmuring the complaining.

One next morning he rises up from bed and strives to go out for farming. But he is not able to. He told his wife that he has a headache, chills and fever. Shivering, he goes out and sleeps outdoors. The wife worriedly complains she does not know what to do. Meanwhile, the neighbour, Abagenemo, appears. He sees

Abafayiso sleeping and shivering. Filled with pity. Abagenemo sits beside him and asks what is happening. Abafayiso tells him the symptoms. The neighbour suspects malaria and asks Abafayiso whether he has ingested maize stem or drunk fresh milk. The patient replies. "not lately." Abagenemo insists that the patient has either ingested maize stem or drunk fresh milk because he believes that these cause malaria and gives him two chloriquine tablets. which he once got from the malaria control center.

Part II

Objective :- To teach the community that the right treatment is to go to health institution for diagnosis.

Summary

After much suffering at home. his wife proposes that her sick husband should go to the health center. He complains that it is no use going there and also that he has no money for transportation and for other costs like the purchse of medicine or further tests. She proposes selling one of their goats. He objects to that. She then asks him what is the sense of having goats if he dies and insists on selling a goat and him going to the health institution. Finally he agrees to go for a checkup at the health centre.

The physcian at the centre asks about the symptoms and takes blood smear of the patient, which proves postive for malaria. The physician advices the patient that he should come to the center and give a blood smear for dignosis at any time he feels the symptoms or otherwise he may die of malaria. He then gives him tablets to swallow. He also warns him to take the full dose without

interuption.

The patient, Abafayiso, goes and swallows the tablets for a day. His fever declines and he appears a bit better the second day. But the feeling of chills is still there so he goes outdoors to sit in the sunshine.

Abaganamo, the neighbour, comes again to vist his sick friend and finds him sleeping not doors. He asks Abafayiso how he is doing. Abafayiso replies that he went to the health centre and his illnes was diagnosed as malaria, and that he was given tablets to take and that he is now well. He also tells him that the right treatment any time one feels the symtoms is to go to the health centre and give blood smear for dignosis.

Abaganamo the tells Abafayiso that his two children are also suffering from malaria. The latter inquires about the symptoms on the children. Abaganamo replies. "Chills, thirst, fever, shivering, and the likes". Abafayiso says that the children are surely suffering from malaria and advises him to take them to the malaria control centre. Abaganamo complains that he has no time and money to take his children to the centre and asks Abafayiso to share the tablets that he got from the malaria control centre for himself as a repayment of the tablets he gave him previously.

Abafayiso says that he is now well and that he does not need the remaining tablets and orders his wife to bring them. The wife refuses, but she is forced to give out the tablets. Abaganamo takes them and goes away. The patient is only partially treated and hence after a day he again feels the symptoms. His wife

complains that this is due to the fact that the tablets were given to others and insists that he again go to the malaria control centre. He agrees and they go together, because culturally, she should be beside him to help.

Part III

Objective:- To teach the community about the cause, transmission, treatment and prevention of malaria.

Summary

Abafayiso appears before the physician and requests diagnosis. The physician inquires of him the histroy and is told that he is coming for the second time and did not take the full dose but shared it with some neighbours. The physician pities the patient and asks him whethr he is willing to learn about malaria. The patient accepts happily.

The physician then first asks the patient what causes malaria and the latter responds, "drinking fresh milk or ingestion of maize stem." He asks whether and how malaria is transmitted from person to person and the patient responds, "sleeping with a malaria patient." Asked whether malaria is preventable, he answers that it is impossible. Finally, the physician tells the patient that all he has is wrong.

Surprised, Abafayiso, inquires of the physician the reality. The physician then explains as follows.

"Malaria is caused by invisible living creatures which live in the the human body and feed on human blood. These creatures are

not visible to the naked eye and can only be seen through a magnifying instrument. Hence, once they get into a human body, they cause the disease. And this disease is transmitted from person to person by mosquitoes. These mosquitoes also feed on human blood. The mosquito first bites a patient, during the night time, sucks his blood, and with the blood it picks the disease-causing creatures. Then after some time, it again bites a healthy person and in doing so, it transmits the disease-causing creatures it first picked from the patient into the blood of the healthy person. The disease is then transmitted.

Hence, once one feels the symptoms, i.e., chills, fever, shivering, and the likes, he or she should go to health centre to give a blood smear for diagnosis. Then he or she should take the prescription in full dose.

On the other hand, malaria can be prevented in different ways. One way is by avoiding mosquitoes. These mosquitoes breed in swampy areas, ponds, and other places where there is stagnant water. So if these places are avoided, mosquitoes which transmit the disease are avoided. Other ways are by spraying DDT in houses and applying medicines that inhibit breeding of mosquitoes in areas where they breed. The other way is to protect oneself from mosquito bites by using mosquito net during night-time, putting screens on windows so that mosquitoes can not enter, and covering the whole body during night time."

After he taught the patient all these, the physician gives him the right medicine and advises him to take the prescription in full

dose and to come back soon if he is not cured.

Abafayiso, after listening to all that the physician told him, takes his tablets and goes home. He swallows the full dose and is cured. Then he calls his wife and Abaganamo. They come. He tells them that he has interesting information about malaria.

He then proceeds to teach them what the physician taught him. Abaganamo says that they had been foolishly living with an enemy which could have been controlled and suffering just because they did not know how to go about it. Abafayiso then says one has to take prescriptions from health instituions in full dose and that sharing tablets is not right.

Finally, they discuss and they are all convinced and pick up implements and eliminate mosquito breeding areas around their house. They agree to teach their communty to do the same so that they can control and prevent malaria. They disband. The drama ends and leaflets are distributed.

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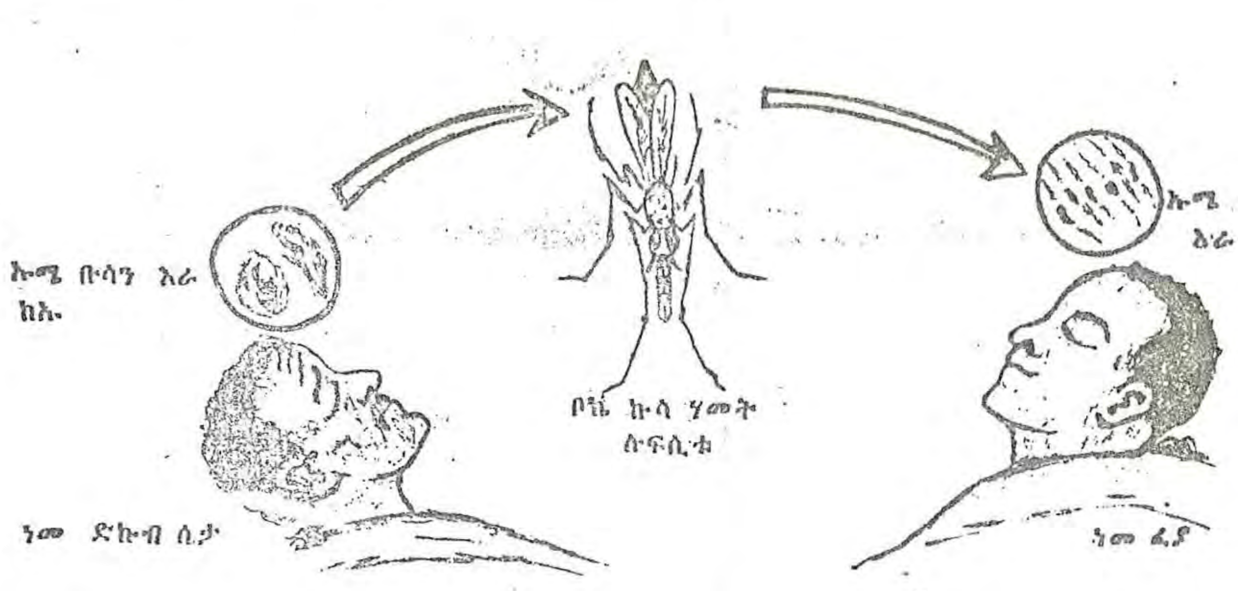

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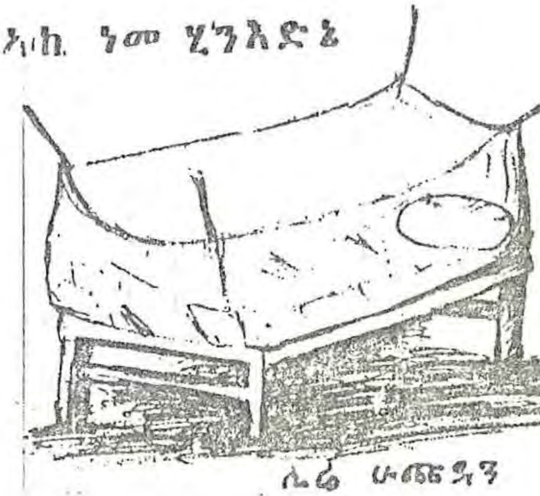

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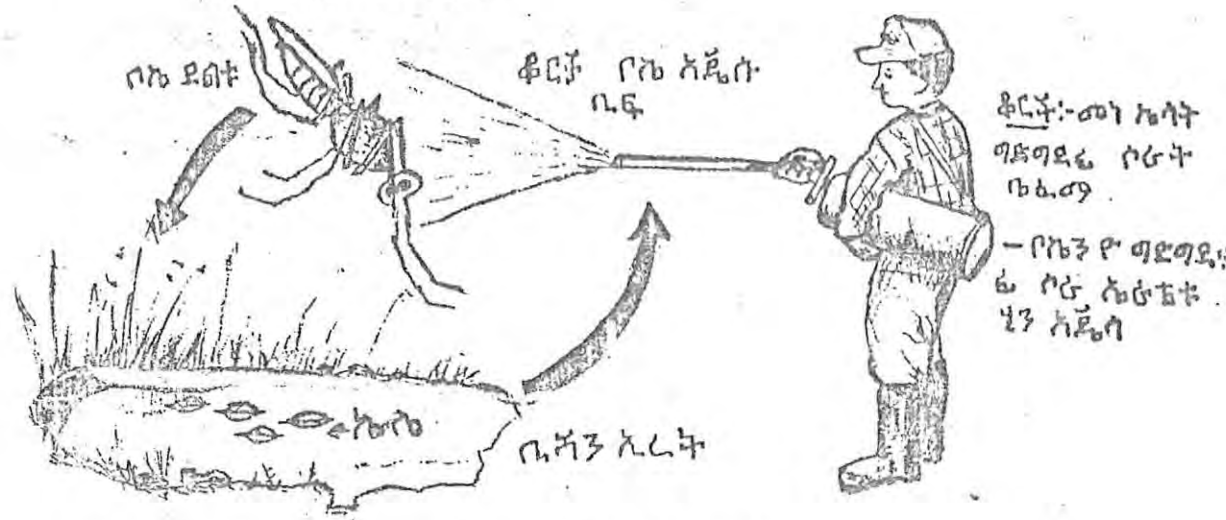

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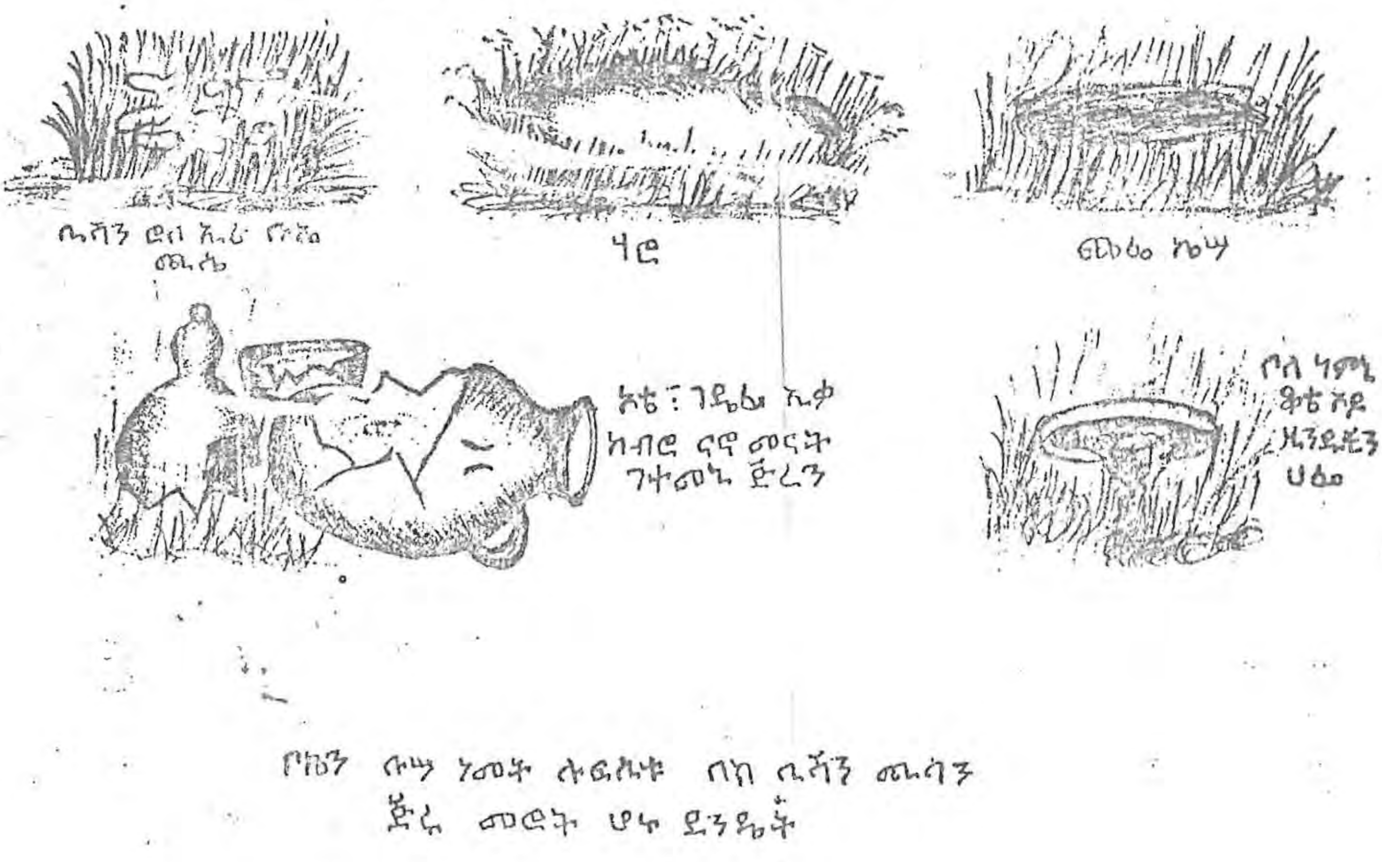

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DECLARATION

I, the undersigned, declare that this thesis is my work and that all sources of material used for this thesis have been duly acknowledged.

Name_____

Signature_____

Place_____

Date of submission_____

This thesis has been submitted for examination with my approval as university advisor.

Dr. David Zakus _____

Advisor