THE INFLUENCE OF SOCIO-CULTURAL FACTORS ON HEALTH SEEKING BEHAVIOUR: A STUDY OF MALARIA CONTROL IN SAMETA DIVISION, KISII DISTRICT

BY

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DECLARATION

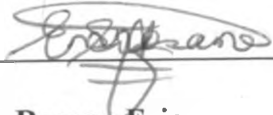I declare that this thesis is my own original work and has not been submitted for a degree in any other university.

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I certify that this thesis has been submitted to the University of Nairobi with my approval as university supervisors.

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For

Edna Nyanduko, for the love, care and understanding – a constant source of quiet strength.

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ABSTRACT

In Kenya, and specifically Kisii district, malaria is a major health and socio-economic problem as it accounts for over 40% of all morbidity and mortality cases. Hence to improve the quality of life in this area, there is need to reduce the incidences and prevalence of this disease. Against this background, this study examined the influence of socio-cultural factors on health seeking behaviour with respect to malaria control in Sameta division, Kisii district, Kenya. The study posited that people's culture, knowledge and attitude towards malaria as well as individual socio-cultural factors influence people's treatment and prevention of malaria.

The quantitative data used in this study were collected through an interview schedule with 119 heads of households with self-reporting cases of malaria .The respondents were randomly selected through a multi-stage sampling technique. Augmentative qualitative data were also obtained through informal interviews with some of the respondents and direct observation. The quantitative data were analyzed using SPSS computer package while qualitative data were transcribed and analyzed manually.

The study findings revealed that aetiological beliefs on malaria, which did not implicate the mosquito, had negative effects on malaria control. The study also found that local people had fair knowledge of existing modern malaria control technologies. However, there was inconsistent and low use mainly due to financial limitations, unavailability and inaccessibility of these technologies.

The study also found that local people believed in the efficacy of indigenous herbs and used them. Other findings showed that the choice of malaria therapy was influenced by individual attributes like age, gender and level of formal education.

This study therefore recommends the need for increased provision of health education for those with limited understanding of malaria. There is also need to harmonize the use of modern and traditional technologies in the prevention and treatment of malaria by improving their accessibility, availability and cost-effectiveness. In addition, the implementation and execution of malaria control programmes should incorporate individual attributes of the beneficiaries.

CHAPTER ONE

INTRODUCTION AND PROBLEM STATEMENT.

1.0 INTRODUCTION

Malaria is one of the most prevalent and deadly diseases in the world. Between 300 to 500 million malaria related clinical cases occur every year with over 1.2 to 1.7 million deaths world-wide (WHO, 1993). In Africa, the death toll from malaria is estimated to be between one and two million people per year mostly children under five years of age (Nevil, 1998). Pregnant women are also at high risk. In highly malaria prone areas for example, women are more likely to suffer clinical malaria during pregnancy than any other times (Brabin, 1991). With the widespread chloroquine resistant parasites, the number of people affected by malaria continues to rise. The estimated annual economic loss suffered due to inability to perform work, cost incurred in curing malaria and losses due to death is enormous (Ojiambo, 1986).

In Kenya, mortality due to malaria is high and it has even been reported that malaria is the principal determinant of death (K'oyugi, 1984). According to MOH (1993) report, malaria accounts for over 26% morbidity in Kenya, 6% mortality of all cases admitted to health institutions and it accounts for 30 – 50% of children death in highly endemic areas each year.

The high mortality and morbidity rates due to malaria contribute to low levels of both social and economic development of not only individual families but of the whole nation.

The fact that the conditions for the survival of the malaria causing mosquito are often more conducive in rural than urban areas, the disease therefore affects the agricultural worker more profoundly than the urban worker. This affects food production, which is a very important sector in nation building. Also ill health impairs the ability to learn (K'oyugi, 1984).

Though a preventable and curable disease, malaria has continued to be a major health problem globally necessitating many countries to wholly or partially incorporate malaria control programmes into health establishments. However, most of these malaria control programmes have neglected the socio-cultural and ecological conditions of the affected communities. Instead they have concentrated too much on malaria as a disease, the mosquito and the parasite (Grammicia, 1981). This negation of socio-cultural factors of the affected communities has rendered most malaria control programmes ineffective (Abdullah, 1984).

To make malaria control programmes more effective and hence reduce mortality and morbidity as well as the social and economic losses due to malaria in many parts of the world, the World Health Organization recognises the need to initiate a wide range of flexible community based efforts. This is essentially by incorporating people's socio-cultural factors (WHO, 1992). To achieve this goal, the following factors were taken into consideration:

(1) To provide early diagnosis and prompt treatment of malaria.

(2) To plan and implement selective and preventive measures on malaria.

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(3) To reassess a country's malaria situation in particular the ecological, social and economic determinants of the disease.

In Kenya and specifically Kisii District, which lies in a stable malaria transmission zone (MOH 1992), malaria accounts for over 40% of both mortality and morbidity rates of all disease incidences (Kenya, 1997). This makes malaria a major health and socio-economic problem in the district. Further, with the current increase of malaria parasite resistance to available anti-malarial drugs, there is need to seek alternative and effective malaria control strategies in this district.

1.1 STATEMENT OF THE PROBLEM

Malaria is a behavioural as well as medical problem. Social and cultural factors must be understood and incorporated into the design and implementation of malarial infections control programmes. A top down approach alone that proposes a single universal control programme for all communities will not work. This is because malaria occurs under different conditions and patterns of malaria transmission also vary with environmental and ecological systems. Therefore community-based strategies must be employed recognising that individuals are already making decisions for themselves regarding malaria prevention and treatment and only programs that are consistent with their interests will ultimately be sustainable.

In most parts of the world, malaria control strategies entail vector control strategies and parasite control strategies. However due to little attention paid to the social, cultural and economic factors of man, most of these control strategies have failed (Wangombe, *et al*

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1993). Most of these control strategies have been noted to concentrate too much on the biological features of the parasite while negating the socio-cultural environment of man which influences his health seeking behaviour (Kasaje, 1986;Gome and Litsios, 1993). Thus it is important first to determine local priorities, knowledge and attitudes towards malaria control programmes because they are neither known nor uniform across various communities affected by malaria. Due to this, this study aims to find out the influence of socio-cultural factors on the health seeking behaviour of the people of Sameta division in Kisii district, in the case of malaria control. To attain this, this study was guided by the following questions:

1. What are the people's knowledge about and attitudes towards malaria?
2. Do individual socio-cultural factors such as gender, age and level of formal education influence the choice of malaria therapy?
3. Do socio-cultural factors influence people's health seeking behaviour in the case of malaria control?

1.2   OBJECTIVES

The main objective of this study was to examine the influence of socio-cultural factors on health seeking behaviour with regard to malaria control in Sameta division of Kisii district.

Specific objectives:

1. To find out and document peoples knowledge about and attitudes towards malaria.
2. To establish whether and how individual socio-cultural factors such as age, gender and level of formal education determine the choice of malaria therapy.

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3. To investigate whether the shared knowledge and attitude based on both traditional and modern health care system, which is linked to recognition of malaria symptoms of and prescribed course of action influence people on the prevention and treatment of malaria.

1.3   JUSTIFICATION OF THE STUDY

As articulated in Sessional Paper No. 10 of 1965 and successive development plans since independence, health is one of the fundamental basic human needs and is an essential prerequisite for economic and social development.   Therefore there is a need to restructure the health strategies to attain the goal of good health for all. An understanding of socio-cultural factors which influence health seeking behaviour in the case of malaria and its implications can provide information which can be used by the policy makers to design appropriate policies which will be in line with actual needs of the people.

Secondly, malaria is among the leading diseases in many parts of developing countries causing high morbidity and mortality rates as well as deterring socio-economic development. But it has been observed recently that there has been a crippling decline in the attention devoted to malaria control by international, national and philanthropic agencies despite the continuous rise of malaria incidences (Bruce-Chatt, 1980). Therefore this study hopes to contribute positively to the fight of malaria by identifying the socio-cultural factors that motivate or discourage people in malaria control efforts.

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Third, it has been noted by WHO (1980) that malaria control programmes based on biomedical principles alone are bound to fail. The biomedical paradigms do not always take into account the socio-cultural and psychological factors that either enhances or hinder-malaria control efforts. Hence it is imperative for social scientists to engage in a research associated with the importance of human behaviour. This study is therefore justified to contribute to this end as it appreciates such effort.

Fourth, this study is also in line with the objective of the regional malaria control strategy for the Africa region adopted at the Interregional Malaria conference held at WHO-AFRO in Brazzaville in October 1991, which resolved:

> *To reduce mortality and severe morbidity from malaria,*
> *particularly among children and pregnant women through*
> *the progressive improvement and strengthening of local*
> *and national capabilities, to provide earlier diagnosis and*
> *prompt treatment for malaria and sustainable preventive*
> *measures.*

Through this study, data was obtained on how individual socio-cultural factors such as age, gender, level of formal education and the socio-cultural factors influence people in the choice of malaria therapy, prevention and treatment. This is essential because data on individual variable will help identify the target group for intervention in the case of malaria control strategies and the socio-cultural variable will suggest the appropriate health strategies for malaria control intervention.

CHAPTER TWO

LITERATURE REVIEW AND THEORETICAL FRAMEWORK

1.0 INTRODUCTION

This chapter reviews relevant literature on the social aspect of malaria. The review is done while cognisant of the fact that systematic studies on beliefs about malaria, prevention, treatment and in general those cultural, social and psychological factors that might enhance or restrict efforts for its control are limited in a particular community. The review is organised into the following sections:

2.1   Malaria epidemiology in Kenya

2.2   Malaria as a socio-economic and medical problem

2.3   Malaria control strategies

2.4   Socio-cultural factors and malaria control

2.1 MALARIA EPIDEMIOLOGY IN KENYA

Malaria is one of the leading parasitic diseases causing high rates of morbidity and mortality in developing countries (Munguti, 1998). In 1995, for example, malaria was the leading cause of morbidity in Kenya accounting for 29% of all new diagnoses in almost all health facilities, thus making it an important public concern.

Malaria is transmitted by the female anopheles mosquito. The disease occurs when mosquito infected with the plasmodium parasite bites susceptible human beings. For the parasite lifecycle to be sustained and malaria transmission to occur, it is necessary that an infected human and a susceptible one be accessible to the infective mosquito.

According to Ongore (1985) there are four different malaria parasites namely: *Plasmodium falciparum, Plasmodium malariae, Plasmodium vivax* and *Plasmodium ovale*. Of these malaria parasites, *Plasmodium falciparum* is the most dangerous as many parasites clot together in the blood capillaries and block oxygen and blood to vital body organs of human beings. In Kenya, this is the most common type of malaria.

Despite the widespread knowledge gains regarding malaria and the association of mosquitoes with the disease, lay people also link malaria to several other causes (Agyepong, 1992; Mwenesi, *et al*, 1995; Munguti, 1998). In Ghana, "Asra", a disease with similar symptoms as malaria is believed to be a result of prolonged contact with heat (Agyepong, 1992). Similarly, cerebral malaria is regarded as resulting from several causes in addition to mosquitoes. In Kilifi on the Kenya Coast, Mwenesi, *et al* (1995) have reported that mothers regard cerebral malaria to be a result of invasion of spirits that enter the brain to affect the victim.

These beliefs on malaria aetiology (Mwenesi, *et al*, 1995; Agyepong, 1992) may limit the acceptance of measures aimed at the treatment and prevention of the disease (Munguti, 1998). Therefore it is important to understand a particular community's socio-cultural beliefs or perceptions on disease causation and synthesise them with the biomedical practices. This is essential because incorporation of the socio-cultural metaphors and analogues and maximising the congruence between popular health concepts and

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biomedical facts will help in facilitating the adoption of new health behaviour in a particular community.

Clinically, malaria infections manifest with a wide range of symptoms. The first manifestation can be vogue bouts of fever, body aches, slight dizziness and general feeling of malaise, shaking chills followed by rapid headache, high fever and profuse sweating. Other common indications include gastro-intestinal symptoms like frequent blood stained stool, diarrhoea and muscle cramps (Mpora, 1990).

Malaria may be diagnosed in several ways. These include clinical diagnoses, where presenting symptoms suggest malaria, therapeutic diagnosis, where patients' complaints respond to malaria treatment, and laboratory diagnosis, where malaria parasites are seen in bloodstains after tests have been done. The laboratory tests are however, the surest way of making diagnosis but it is not practical in high malarious areas because of lack of facilities (Owaga, 1981).

The treatment of malaria is achieved by giving the patient essential anti-malaria drugs like *Malaratab, Chloroquine* and *Metakelfin*. However, social and cultural forces shape both the distribution and use of these essential drugs. According to Geest (1990), essential drugs mostly undergo cultural reinterpretation when they are fitted into locally existing frame of understanding; they move from one context of meaning to another. In this case, pharmaceuticals, which are mostly developed according to scientific paradigms, are separated from their biomedical context and integrated into cultural specific mode of

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understanding with pre-existing concepts of treatment that forms a basis for the cognitive appropriation of the drug. Therefore it is important to note that when an essential drug is "freed" from the control of professional health workers, through the process of commodization, it is essential to understand a particular community's popular belief that mostly guide self medication on essential drugs.

In a study by Hardon in Geest (1990), in two poor quarters of metro-Manila, Philippines, it was observed that people were often directed by the idea that medicine must often "suit" them (in local terms be "hijang). In this case she found out that people believed that a drug, which is good for one person, could be wrong to another. So if people come into conclusion that a particular medicine is not good for them, they will refuse to take it, even if the drug "seems essential" from biomedical point of view. For the same reason they may decide to take medicine which is "wrong" according to the doctor.

Despite the fact that most essential drugs are understood in local terms, those terms are also constantly being revised. This has two major implications for any essential drug programme in the treatment of malaria. First, if education about drug use is to be relevant to lay people in a particular community, it needs to be tailored to local conceptions and practices that are embedded in their socio-cultural environment. Second, providing information about essential drugs is appropriate because people are always open to new ideas. In most cases people are always observing, experimenting and seeking information from any source available to them. Any information got will greatly determine the use of these essential drugs in treating malaria.

Most epidemiological studies on malaria have mostly concentrated on the prevalence and incidence of the disease in a particular region (MOH, 1992). These negates two other important factors in any epidemiological studies namely: the environmental factors which can either be physical or social and characteristics of the human host like age, sex, occupation and level of formal education (Coe, 1978). These latter factors are not only important in epidemiological studies of malaria but also in malaria control programmes in a particular community as they play a big role in people's health seeking behaviour (Munguti, 1998). Therefore for any malaria control programme to be successful in a particular community it is important to take into account environmental factors like socio-cultural beliefs and human characteristics like age, sex and level of formal education in implementing such malaria control programmes.

In Kenya, malaria is endemic with varying degrees of endemicity both geographically and ecologically. This variation in endemicity influences the choice of malaria intervention programmes in many parts of the country. Endemicity refers to the degree of natural malaria transmission within an area. The degree of endemicity is measured by the rate of spleen enlargement in children between the age of two and nine years. In this case the spleen enlargement is 75% and over in haloendemic areas, 50%-70% in hyperendemic areas, 10-45% in mesoendemic areas and less than 10% in hypondemic areas (Abdullah, 1984).

Patterns of endemicity in Kenya (see figure 1) can be described in terms of stable (haloendemic and hyperendemic) unstable (Mesoendemic and hypondemic), epidemic

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and free malaria zones (Okeyo, 1994). Stable malaria occurs where transmission rates are continuously high throughout the year (that is perennial transmission). Stable malaria areas do, however, have seasonal fluctuation in morbidity and mortality patterns. These variations are most apparent in the hyperendemic areas (Ongore, 1985).

Stable malaria in Kenya occurs in most parts of coast province, Nyanza province and western province. Transmission is high with an average of one infective bite/person /week throughout the year. In these situations the burden of mortality and morbidity falls on infants under five years. Infants, born in such areas acquire some degree of passive immunity from their mothers, which help protect them against malaria illness in their first few months. Most adults and older children develop antibodies to malaria and can maintain high level of clinical immunity except under special circumstances such as pregnancy or following surgical operations where some degree of immunity is lost (MOH, 1992).

Malaria prevalence in stable areas is 50-75% and is the major cause of morbidity accounting for more than 30% of out patient attendance. Of these, 6% are admitted and 4% of them eventually die (MOH, 1992). Based on these figures it is clear that the majority of malaria burden is in these areas where transmission is stable.

Unstable malaria occurs in areas of new endemicity where clinical manifestations appear seasonally during periods of transmission. People of all age groups may suffer severe clinical attacks. Unstable malaria can present itself with intermittent transmission, which

may be biannual or variably epidemic. Areas in Kenya with seasonal unstable malaria include parts of eastern province (Machakos, Embu, Kitui) and Rift valley (Marigat and Ngurumani). These eco-zones have been extended in recent years by population movement and small-scale irrigation projects. In this zone, malaria accounts for 40% of child morbidity (MOH, 1992).

High unstable malaria is found in most of the arid and semi-arid areas in the Rift valley province, where clinical malaria accounts for more than 40% of out- patient cases. Malaria in these areas is highly unpredictable (MOH, 1992).

Epidemic malaria occurs in highland areas bordering endemic zones. Since 1988, there has been a series of highland epidemics after some three decades of quiescence. These areas are usually high yielding agricultural zones, with high population densities and as a result the impact of the epidemic has been dramatic. In these zones, clinical malaria is responsible for 45-50% of out patient cases and for 45% of in-patient cases during epidemics (MOH, 1992). The malaria free zones generally include all areas that lie in altitudes above 1600m above sea level. These include Nairobi and mount Kenya and its surroundings.

In Kenya however, the pattern of malaria endemicity in recent years has drastically changed. This change in endemicity is attributed to the development of drug resistance to malaria parasites and to many cultural, social and environmental factors like population trends, urbanization, political and economic pressure and global warming (Okeyo, 1994).

This therefore indicates that any epidemiological study on malaria must at all times include people's environmental factors, socio-cultural beliefs and characteristics of human host like age, sex, occupation and level of formal education for they have an influence on the prevalence and incidence of malaria in a particular community.

FIG. 1 MALARIA ENDEMICITY IN KENYA

BASED ON REPORTED CASES OF MALARIA IN CLINICS

KEY

SR   Spleen rate

Non Transmission Areas

Epidemic

Hypoendemic SR = <10%

Mesoendemic SR = 10-49%

Hyperendemic SR = 50-74%

Holoendemic SP = >75%

0   50   100   150   200   250   300
KILOMETRES

District Boundaries _ _ _
Provincial   "
National   _ . . _
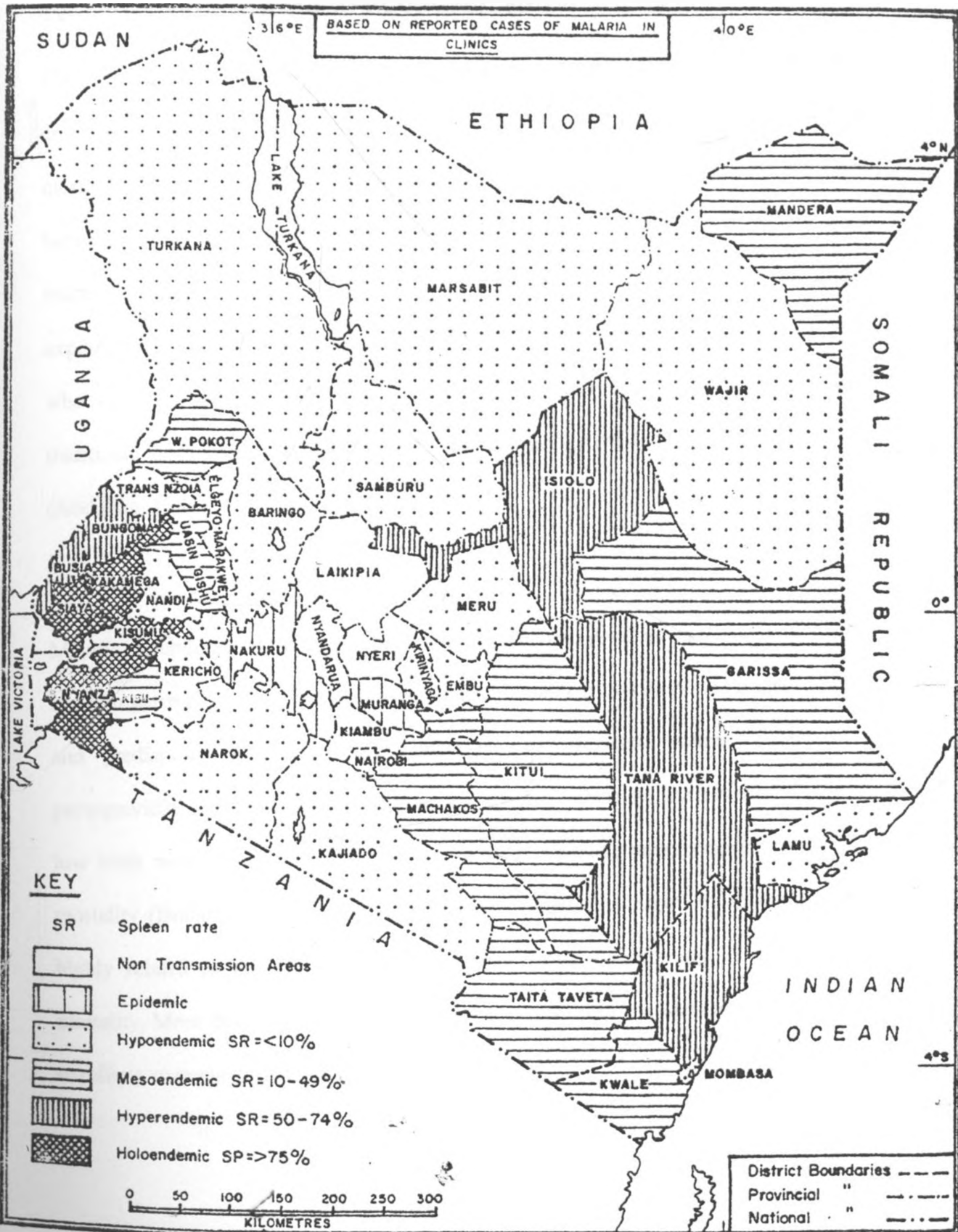
Source: Population Research Institute

University of Nairobi

2.2   MALARIA AS A SOCIO-ECONOMIC AND MEDICAL PROBLEM

The escalation of malaria coupled with parasite resistance to available and affordable drugs have made the disease a major public health and socio-economic concern. The high mortality rates due to malaria especially on infants correspond with high birth rates and hence the problem of high population. It has been noted that in areas where child mortality rates are high, the fertility of the mothers is also high. The traditional explanation of this phenomenon is that traditionally, mothers have to replace each child who dies and also in areas where modern family planning methods are not used traditional ones like breast-feeding are rendered ineffective by frequent infant deaths (Abdullah, 1984).

Malaria in children is the major cause of convulsions, *cerebral malaria* (which often leads to permanent brain damage) severe anaemia and malnutrition, and it also unmasks and predisposes people to other infections. In pregnant women, especially in primigravidae period, malaria leads to severe anaemia, abortion, intra-uterine deaths and low birth weight babies. Low birth weight is the leading underlying cause of infant mortality (Brabin, 1991). In Kenya, the severe anaemia common in endemic areas is highly related to malaria and is an important factor contributing to morbidity and mortality. More than 95% of paediatric blood transfusion in hospitals in endemic areas is to relieve anaemia due to malaria (MOH, 1992).

Malaria is not only an important health problem, but also a serious impediment in achieving objectives in development, education and economic advancement. It clearly constitutes a major drain on government and private resources. At household level, malaria exerts a severe strain on the socio-economic resources of the household and communities. The costs are mainly qualitatively described and are both direct and indirect costs which include: loss of household members' productivity due to illness or death, loss of human resources in the community, the social and emotional consequences of greatly increased child deaths and infant mortality, opportunity cost of time spent seeking treatment and the social and financial burden of long term neurological sequel of severe malaria and heavy burden of treatment (Hill, 1996).

Malaria is also a burden on the country's economy through persons - hours lost due to malaria illness. In a survey done by Mills (1994) in Nepal it was found that workers lost 6 -14 days of work, while school children lost 4 -14 days of school as a result of malaria episode. In another study by Some (1994) in Uasin Gishu district in Kenya, it was found that absenteeism among school children was high by 60% during malaria epidemics and 55% of factory workers spent most of their time seeking malaria treatment.

In sum, the severity of malaria in relation to other diseases in Kenya has heightened the urgency for its control. Mortality and morbidity rates due to malaria in Kenya have increased in the past decade occasioning a critical impact on child survival, people's health and education, and the country's development, productivity and economy.

Therefore, any significant reduction of the malaria cost burden through malaria control programmes could be a substantial gain particularly for poor households.

2.3   MALARIA CONTROL STRATEGIES

The fact that malaria remains a major health problem in the world and particularly in the tropics (WHO, 1996) is not at all due to failure to fight the disease. Actually much efforts aimed at controlling the disease both locally and globally have been in existence for many years including at global level. Globally, malaria has been subjected to a lot of research and control efforts since the discovery by Lavern in 1889 that the parasite was the root cause of malaria and the demonstration by Ross in 1897 that the mosquito was the biological vector responsible for transmitting the diseases (WHO, 1992). Since the middle of the 20th century the World Health Organisation has pursued a global campaign to eradicate the disease. The initial step towards this goal was the adoption of a malaria eradication programme of the eighth World Assembly in 1955. The malaria eradication efforts initiated in the 1960s and 1970s received considerable success on the U.S.A, most of Europe, Israel and Cyprus. However in other parts like South East Asia, India, South America and Africa, little impact was realised (WHO, 1999)

The global campaign for total eradication of malaria by 1970s however, encountered numerous obstacles. For instance, while in the late 1960s there was a sharp decline in the global malaria situation, the 1970s witnessed the threat of resurgent malaria globally. The failure of the eradication campaign was blamed on; the abandonment of anti-malaria control efforts by various nations, the diminished frequency of the disease in some areas, the transfer of control services to general health services which were ill-equipped for the

task, lack of skilled personnel and funds and 'technical' obstacles such as mosquito resistance to drugs and human population movement (WHO, 1993). However, nothing was said about the knowledge and perceptions of people towards such control efforts in different ecological and cultural setting. It was not perceived that malaria control efforts could be hindered by behavioural responses.

With the recurrence of the disease in the late 1970s, global scientific interest shifted from the call of total eradication to that of control efforts (WHO, 1993). The same threat of resurgent malaria is still recognised today (Bruce-Chatt, 1980). Therefore in 1992, World Health Organisation brought together health officials and policy makers from 107 countries in Amsterdam to adopt global malaria control strategies. Advocacy of malaria control rather than eradication encouraged the mobilisation of local resources to fight mosquitoes.

Similarly, other malaria control activities advocated that human beings should learn to live with the mosquito but avoid its effects (Harrison, 1978). In this case human beings should be made to accept and understand the relevance of any malaria control efforts. This was to be attained by understanding local people's socio-cultural beliefs and perceptions and incorporating them with the biomedical factors by maximizing the congruence in both cases.

In Kenya, historically, malaria control has been an active component of the government's health programmes. Prior to the 1950s, substantial efforts were maintained to limit urban

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malaria with environmental measures, house screening, entomological surveillance and vector control (MOH, 1992). These programmes emphasised vector control and environmental management designed to achieve malaria eradication.

According to Butengwa (1987), the importance of control of communicable diseases such as malaria was long recognised by the colonial government in Kenya when in September 1921, the public Health Act was enacted. Under the Act, Public health officers were required to combat communicable disease by various methods through the medical department of the government and local authorities. Part XII of the Act, which addressed itself to the prevention, and destruction of mosquitoes also required everybody to participate in the exercise of preventing mosquitoes. Penal sanctions were attached to these obligations. However, the provision of the Act relied on the enforcement of the public health authorities. To date, this Act has continued to be in operation as chapter 242 of the laws of Kenya.

Owing to the severity of malaria in relation to other diseases in Kenya, malaria was singled out from other communicable diseases in July 1929,when the malaria prevention Act was enacted. This Act was enacted to enable public health authorities to deal with malaria even better. Under this Act, health authorities, that is the ministry of health and the various municipal councils were empowered to construct and maintain drainage systems and take any action like the removal of water under their jurisdiction in order to destroy breeding areas of mosquitoes. Destruction of the breeding grounds was seen in the Act as the best measure for malaria control. This piece of legislation has also

continued with little or no amendment as an Act of parliament of independent Kenya as chapter 246 of the country's laws.

The existence of two Acts in the laws of Kenya since the 1920s indicates the seriousness with which malaria is viewed by the Legislature. However, rules of law cannot obviously be applied against the mosquitoes, instead, the government must seek to eliminate malaria by controlling, influencing and directing human behaviour into patterns which make it impossible for mosquitoes to survive.

Despite the existence of two Acts in the laws of Kenya dealing with malaria control, the government for many years lacked a policy document on malaria (WHO, 1996). However, in 1992, the government launched a 5-year plan of action for malaria called "Roll back malaria" (MOH, 1992). The main goal of this policy was to prevent mortality and reduce morbidity and socio-economic loss due to malaria infection. To achieve this goal, the government emphasized the creation and staffing of malaria control unit, the encouragement of donor and NGO activities geared towards malaria control, increasing financial allocation to malaria control efforts, development of a national guideline for better case management at all levels and implementation of the Bamako-Initiative (that is a community-based health care programme).

Malaria control programmes in Kenya have revolved around vector control strategies and parasite control strategies (Zaneca public health, 1994). In vector control strategies, the main aim is to prevent transmission by eradicating or limiting the population of infective

mosquitoes from contact with potential victims. The most used measures in vector control strategy are:

(a)   Residual indoor spraying which is carried out in urban and peri-urban areas especially at Malindi in the coast and at Kisumu in Nyanza province.

(b)   Larvaciding, which is widely, carried out in urban and peri-urban areas, irrigation and settlement schemes. This method aims at reducing mosquito larvae by the use of chemicals and used oils on breeding grounds.

(c)   Permanent anti-malaria works which include construction of drains, filing up depressions and excavations.

On the other hand, parasite control entails chemoprophylasis or the administration of drugs like *chloroquine tablets,* for protection against malaria and thermo therapy or administration of drugs or treatment of malaria.

Empirical studies done in various non-western communities indicate, however, that in controlling malaria, people do not solely rely on the use of the conventional methods (Glik, *et al,* 1989; Abdullah, 1984;Lipowsky, *et al,* 1992). Instead, these non western communities use both traditional methods like burning of local plants and substances that produce scent capable of chasing mosquitoes away and modern scientific methods like use of impregnated bed nets.

The existence of pluralistic medical system in these non-western communities in the control of malaria influences the use and success of particular biomedical malaria control

method in a particular community (Dressler, 1980). It is therefore important to understand local people's knowledge and perception towards a particular malaria control method and incorporate them with biomedical methods. This is important because it will help local people to easily adapt to the newly introduced malaria control methods.

Since the inception of malaria control strategies globally in 1955, Gome and Litsios (1993) note that little attention has been paid to social behaviour and cultural factors. According to Dunn (1979) this has been found by malariologists to be unsatisfactory not only because of the cost involved in the formulation and operations, but their excessive focus on the mosquito and the parasite thus negating man's socio-cultural environment which influences his health seeking behaviour. This negation of man's socio-cultural environment has made most of malaria control strategies ineffective. This alone has increased disillusionment with the current malaria strategies, as there is a steady upsurge of the disease.

Furthermore, most of these conventional malaria control strategies are based on the use of modern medicine, which classifies a disease in terms of single universal categories (Mishler, 1981). Thus a recognized disease retains its identity whenever it occurs regardless of its socio-cultural context. In this case, a disease is identified, diagnosed, treated and prevented in the same way by the use of same drugs everywhere. This vector-parasite approach to malaria control views malaria scientifically in terms of causation, transmission, treatment and prevention regardless of factors like culture, level of formal education, age and sex, which influences an individual's health seeking behaviour.

Accurate diagnosis and valid treatment of malaria, which forms a central component in biomedical approach to malaria control, may be a problematic one. As noted by Steketee, *et a,l* (1994), local understanding of malaria and its treatment influences how well drugs and other facilities are used. Therefore monitoring anti malarial drugs activities should be accompanied by the assessments of whether anti-malarials are being used correctly by community members. However, this cannot be realised without the understanding of people who malaria activities are directed to and their socio-cultural environment.

In Kenya, as elsewhere in sub-Saharan Africa, little is known about the attitude and knowledge of the affected people toward malaria control measures (Abdullah, 1984), yet the correct usage of control measures by the local population is crucial in exerting significant impact on malaria. A limited understanding of the social and cultural responses to malaria hinders the attainment of high level of the current usage of control services.

Despite limited understanding of the socio-cultural environment of the people whom malaria control programme are meant for, the failure of malaria control programmes has been largely blamed on the structural factors of health care system. According to WHO (1993), administration and operational problems hinder malaria control programmes in sub-Saharan Africa. Mostly malaria programmes require adequate logistic backing and sufficient training for health-oriented personnel to deal with malaria situation, which is not the case on the current control programmes.

Ojiambo (1986) also notes that inadequate financial and human resources hinder efforts devoted to malaria control. In Africa, Ojiambo notes that there is limited health coverage arising from poor and mal-distributed human resources. In this regard, the socio-economic development of a country has an important role in determining the health status of people. In Africa, however, countries are unable to provide for health and other social services due to declining incomes. This greatly affects the implementation and sustainability of malaria control programmes.

Malaria control mechanism should therefore be cost effective and encompass man and his socio-cultural environment. Such mechanism should take into account man's health seeking behaviour towards various control methods.

2.4   SOCIO-CULTURAL FACTORS AND MALARIA CONTROL

Health seeking behaviour, which incorporates both health behaviour and illness behaviour, is quite an elusive concept. It incorporates many variables both at macro and micro level (Hill, 1996). At macro level it comprises society's beliefs, attitudes, knowledge and perceptions, while at micro level it includes individual factors like age, sex and level of formal education. This duo-identity may persuade or discourage an individual to seek health attention, as each category has its own criteria of defining health behaviour in accordance to life style values, ambitions and goals.

The adoption of general standard in regard to health seeking behaviour would therefore be subject to the degree of exposure of particular stratum to such health standards. This would further be dictated by the environmental viability in their implementation (La

Place, 1976). The diversity in socio-cultural conditions may therefore be treated as major variables to the attitude, perceptions, knowledge and health behaviour elicited in different regions.

Elissen (1991) notes that social, economic and cultural factors have a major impact upon the pattern of health and diseases in any community. This is because they play a big role in both the aetiology of most diseases and the organization and utilization of both modern and traditional medical care. This shows that any preventive and Promotive health programmes in a particular community must incorporate people's social, cultural and economic factors for them to be successful.

In each community, explanatory models on malaria explain the aetiology, symptomatology, curability and treatment of the disease. On this basis people choose what seems to be most appropriate action in either preventing or treating this disease. In a study by Yemeneh, et a,l (1993) in Ethiopia they found that although the respondents knew how malaria is transmitted, they nevertheless perceived transmission of the disease as not preventive. This finding by Yemeneh, et al, (1993) show the importance of understanding a particular community's socio-cultural perception towards malaria as it will help in suggesting an appropriate health strategy for control intervention.

People's shared knowledge about malaria in a particular community has a great influence on malaria treatment methods. According to a study by Mwenesi (1993) in Kilifi district on mother's knowledge about malaria, it was found that mothers of young children

conceptualised malaria as two separate illnesses, which correspond to simple and complicated form of the disease. The simple kind was seen as a natural occurrence of fever and was treated by purchasing of drugs from the nearest shop. The second one was seen as life threatening and was characterized by fever with convulsions. This was considered to be caused by spirit possession or other non-natural intervention and was therefore referred to traditional healers.

An understanding of the knowledge and perception of the population affected by malaria is therefore of great advantage to programme planners and implementers. This is because new health habits can be successfully introduced after ascertaining the function and meaning of existing habits and practices towards malaria control.

Within a particular community, however, local cultures mediate between people and their environment in such a way that differences are found between people regarding perceptions of health and illness (Anderson, 1996). These differences in knowledge and perception within a community influence the knowledge and utilisation of control strategies having biomedical components. According to a study conducted in Dar es-Salaam Tanzania by Mnyika, *et al*, (1995), women with high knowledge of malaria were found to use prophylaxis than those with low knowledge of malaria. However, no significant association was found between the knowledge of malaria and perceived effectiveness of various strategies of malaria control. Hence it is important for any malaria control strategy to consider individual factors like age, sex, occupation and level of formal education, which may influence personal readiness in taking action in either

health behaviour or illness behaviour. This will enable health planners and implementers to identify a group of people within a community for malaria intervention programmes.

People's attitudes towards malaria in terms of seriousness, curability and preventability have a major bearing on people's health behaviour. According to Young (1980), the judged seriousness or gravity of a particular disease is a primary consideration in health seeking behaviour. The judged gravity of an illness might be conceived as a continuous attribute and the task of dealing with it will be conceptually simplified by classifying it into small number of gravity classes. Accordingly three level of gravity are specified.

The first level is known as non-serious level. Illness in this level corresponds to what is commonly labelled as small, brief or simple illness. Illness in this category allows normal activities to continue or do not involve an interruption of daily routine for more than a day or two. Treatment of illness in this category involves folk treatment or self-medication.

The second level is known as moderately serious. This level consists of illness that pose more substantial interruption of daily activities by requiring one to remain in bed for a long time and especially that which resist initial treatment attempts. Illness at this level is not regarded as posing a threat to life, although it becomes such a threat if left unattended.

The third level consists of illness that constitutes a threat to life. Illness in this level are characteristic of excessive pain or discomfort as well as functional impairment. Treatment of this kind of illness mostly demands consulting professionals like doctors.

The attitudes of people toward a certain disease and subsequent health behaviour is mostly due to the way symptoms of the illness manifest (Scrambler, 1986). In a study by Ortega and Bink (1994) in rural Ghana, caretakers of children who considered malaria symptoms as non-serious, 83% treated it at home, while only 12% were treated at hospital. However, those treated at home were treated after an average of 1½ days, while the average duration for those treated at a health facility was 4.7 days. Those symptoms of "hot body" which were considered serious mostly prompted caretakers to take a child to a health facility and those who experienced convulsions were treated by traditional healers.

Malaria control strategies, which demand consistent and proper use of available control methods such as use of mosquito nets and anti-malarial drugs, may be affected by attitudes held by people towards such technologies. Studies by Silva (1991) and Snow *et al* (1992) indicate low utilization of mosquito nets among the population in highly endemic areas due to negative attitudes towards such technology.

Other studies by Glik *et al* (1989) in Guinea found in respect to anti-malarial drugs, mothers in the study community held positive attitudes towards the technology. However, contrary to what was expected, their low utilization of anti-malaria drugs in

treatment of malaria was found to be due to limited access to health services where they could obtain these drugs.

Nyamwaya (1995) also notes that in most non-Western communities disease causation is classified either personalistic or naturalistic. In personalistic category is the belief that diseases are due to the active purposeful intervention of an agent usually a human being On the other hand in naturalistic category, disease is believed to stem from natural forces or conditions such as cold or heat.

In both categories, personalistic and naturalistic, no mention is made of any disease that is known to stem from vectors like mosquitoes. Therefore in most non-western communities it becomes hard to comprehend control methods used for malaria as they differ from the social theory.

The perception, knowledge and attitudes of malaria as a health risk vary from one place to place, from one person to another person (Steketee, *et al*, 1994; Ojiambo, 1986). These differences are due to the difference in socio-cultural and environmental implications of malaria transmission. Therefore there will be no universal strategy for malaria control for all communities affected by Malaria. Due to this, an understanding of knowledge and attitude of the affected population will enable programme implementers in coming up with a suitable malaria control strategy for each community. This is because an integrated malaria control programme would require an understanding of complicated natural systems within each community, which are embedded in the socio-cultural environment

that will either motivate or discourage them from using such malaria control technologies.

In non-Western communities, beliefs and practices related to any disease are mostly the product of indigenous cultural development and are not derived from the conceptual framework of modern medicine (Hughes, 1985). Studies by Abdullah (1984) and Foster (1995) indicate that the traditional healing and preventive practices are usually employed beside modern medicine. In this case there is a continuous interaction between folk treatment practices and professional (biomedical) treatment. In most cases however, people in these non-western societies tend to evaluate new services and treatment on the basis of the knowledge acquired in their ethno medical practices. As such, people who have such concept of prevention in their health care system may readily accept new preventive measures. Therefore, the responses by people to malaria in a particular community are guided by already existing knowledge.

The utilisation of malaria control methods may be affected by the availability of home remedies. In most cases, before seeking treatment outside the home situation, self-medication is used (Abdullah, 1984). This may be a substitute or an addition to professional care. The severity, specificity and duration of symptoms after trying home remedies dictate the direction of health behaviour. In the case of malaria, proper treatment may be postponed or ignored due to the use of self-prescribed biomedical or ethno medical remedies (Nyamweya, 1995).

In a study by Dressler (1980) in St. Lucia, it was found that the problem of adherence to treatment was due to ethno medical beliefs and remedies. In most cases the presence of alternative medical system which is at best different from and at worst in direct conflict with that of health professionals greatly influence the doctor and patient relationship and the decision to be followed. Further individual commitment to the humoral theory of medicine can seriously undermine the biomedical treatment of the disease like malaria.

Individual factors like sex, age and level of formal education have been found to have some effect on people's health seeking behaviour. In a study done in urban Nigeria, it was found out that the level of formal education influenced the utilisation of health services. Also in another study done in rural Ecuador, it was found out that utilisation of the health services varied considerably between those with and those without formal education (Osero, 1990).

In another study by Young (1980) in Tarascan town it was found that age played an important role in the choice of treatment among women. For example women who were under 30 years preferred alternative treatment that seemed more likely to clear the illness regardless of the cost. On the other hand for women aged 40 years and over, the most important consideration in treatment was the cost associated with each alternative. When all alternatives are approximately equal then the faith or likelihood of cure consideration becomes primary in any illness intervention programmes.

A search for the knowledge, attitude and meaning of a particular illness in the life of the individual community and their social, cultural and economic environment is therefore important in any illness intervention programmes. In this case, how the society regard malaria and how individuals explain and respond to it is important for any health programme.

Further, malaria being a less medical issue than a cultural and socio-economic one, medicine alone cannot deal with the socio-cultural and ecological factors implicated in the epidemiology of the disease. Hence the socio-cultural and individual variables must be considered when dealing with malaria in any particular community. This is because there are many links between the prevalent precarious social, cultural and individual factors and the increased incidences of malaria epidemics.

In conclusion, the occurrence of malaria among various communities can ultimately be traced to their prevailing cultural practices and beliefs, socio-economic characteristics and forms of interactions with the environment. Therefore to design and implement an effective malaria control in particular community, a multidisciplinary approach becomes of great importance. In this case, a more holistic approach is needed with more emphasis on horizontal linkages on health actions in each community rather than top-down approaches which fail to enlist man and his social environment

2.5   THEORETICAL FRAMEWORK

This study attempts to examine the influence of socio-cultural factors on health seeking behaviour in the case of malaria control and was thus guided by two theoretical approaches. These are the ecological theory and health belief theory.

ECOLOGICAL THEORY

Ecology is the study of relations between organisms and their environment. The total effects of the relationships are explained in the ecological theory (Baker, 1962). In medical sociology, the term environment includes three components; first there is the physical environment, which include weather, climate and geography. Second, the biological environment that comprises the interaction between biological units that is human beings, disease vectors and the pathological process. Third, there is the social and economic environment that may include the type of occupation and the location of the home.

The term environment is used here to call attention to the need to understand human beings in their total setting if solutions to their health problems are to be found. According to Rogers (1960) external forces act on the basic genetic endowment to determine what happens to human beings. He notes, in this sense, the environment includes both the material and spatial aspect of man's world as well as the non-material of human social relations. These relations constitute culture, which profoundly influence health status of human beings. It is in culture that people derive meaning, symbols, perceptions and practices related to health. In the ecological theory, man's health status is

a function of interaction between biological components and the total environment.

The ecological framework holds that the relative state of health of human beings and the occurrence of most illness are greatly influenced by the combined effect of multiple factors arising from the environment. Social conditions of people are also regarded as being part of the environment. The interaction between these conditions and the environment affect people's health in various ways. In the first place, social conditions may create a predisposition to disease. They also directly cause or influence the coarse of a disease. For example, social conditions such as lack of formal education, income, attitudes and knowledge may result in delayed or inadequate medical care or possibly the failure to get it at all (Rogers, 1960).

According to Rogers (1960) environmental factors that have possible effect on health can be categorized as material and non-material. Intrinsic non-material environment include topography, climate, occupation and other aspects of human micro and macro environment. The biological environment having a possible influence on health status includes food, sanitation, disease agents and vectors of disease producing agents. Finally there is the social environment, which encompass relations between human beings and their conditions of living. The extrinsic factors affecting the human being's conscious and unconscious behaviour are also given. These include notions, norms and life experiences such as socialisation, education and cultural factors.

In general, the ecological approach to medical care considers the health status of human beings as a function of the genetic human being and the total effects of the environment.

White, *et al*, (1980) argue that the complex interaction between ecological factors may inhibit or facilitate access to and delivery of health care to individuals and communities. These factors may be described as social, psychological, economic, informational, administrative and organisational.

Ecological theory is important in this study because it focuses the interrelations among the disease agent, vector and host within a particular ecosystem. This approach enables us to learn how individual manifestations of culturally prescribed behaviour contribute to the risk or protection from malaria infection.

The ecological framework also makes it possible to consider the human host separately so as to supplement biomedical efforts in malaria control. In this case it values demographic factors such as age, sex and level of formal education, which are actually the general focus of this study.

The ecological theory lays an adequate foundation for investigations into perceptions and knowledge of disease and its control, which can be categorised as intrinsic environment factors in health status. This is because ecological theory combines physical conditions, habits and customs that are important variables in epidemiological research. Therefore it is within this theory that the socio-cultural and individual variables, which may cause the failure or success of malaria control can be easily examined.

Lastly, ecological theory recognises the fact that the target population may already have established customs related to health and environmental issues. This implies that each culture has developed mechanisms of coping with diseases and illness. Therefore malaria control programmes need to be informed of local health beliefs in order to understand how these influences treatment and prevention. The ecological theory is thus in line with the preventive malaria programmes which focuses on activities of removing or changing aspects of the environment which are harmful to health. In this context ways can be found through which people can be sensitised to avoid contact with the mosquitoes.

HEALTH BELIEF THEORY

The health belief model is frequently used in the analysis of health related behaviour. Formulated by Hohchbanm, Leventhal and Rosenstock in 1950 and 1960, the health belief model was meant to explain the preventive health behaviour by the use of socio-psychological variables. Health belief is therefore defined as the propositions accepted as true by people about the causes, symptoms and remedies related to illness (Rosenstock, 1974).

The health belief model has been incorporated with three models of behaviour. These are health behaviour, illness behaviour and sick role behaviour. According to Kasl and Cobs (1966), health behaviour is any activity undertaken by a person who believes himself to be healthy for the purpose of preventing disease or detecting disease at a symptomatic stage.

As opposed to health behaviour, illness behaviour is any activity undertaken by a person who feels ill for defining the state of his health and of discovering a suitable remedy.

Sick role behaviour is any activity undertaken by those who consider themselves ill for purpose of getting well. In relation to malaria, illness and sick role behaviour are seen as situations where one defines oneself as having malaria, or having been diagnosed by someone else who then acts appropriately by either going for treatment or administering some treatment by taking drugs.

According to Quah (1985), individuals' engagement in a particular kind of health, illness, or sick role behaviour is dependent on two conditions namely; the perceived amount of threat and the attractiveness or value of the behaviour. This means that for a person to define illness as malaria and thus go for treatment or participate in its prevention, he has to know about malaria as a disease, its causes, its seriousness and its being a threat to life before he makes such a move. However, according to health belief theory, the choice of action taken to prevent oneself from a disease depends not only on whether the person knows the cause and seriousness of the disease, but also the perceived probability that the action will lead to desirable preventive or ameliorative result, and the unpleasantness or cost of taking or not taking such action.

As seen from the health belief theory, it seems that malaria control measures including, treatment and prevention can only be successful if the persons involved know about the disease, its treatment and prevention and perceive it as a serious disease and a threat to their lives. Besides, the measures have to be perceived by people as favourable not only because they lead to actual cure and prevention, but also because they are available simple and convenient.

The propositions in the health belief theory provide a theoretical orientation, which considers the individual and the socio-cultural factors that are important in disease control measures. These two factors influence the readiness of community members to utilise various malaria control measures. By targeting the socio-cultural and psychological determinants of health behaviour, the health belief model indicates the variables that can be translated into programmatic initiatives.

The theory is also adjustable to both the households and individual as unit of analysis. In this case, there is a strong basis for understanding health behaviour with specific reference to malaria control. By using the health belief theory in this study, the influence of socio-cultural factors in malaria control, structural variables like knowledge and attitude towards the disease can be identified. This can highlight the changes to be made in the health delivery service so that they may become responsive to the needs of the target population.

2.6   RESEARCH HYPOTHESES.

(1) There is a direct relationship between socio-cultural factors (age, gender and level of formal education) of the individual and the choice of malaria therapy.

(2) The treatment and prevention of malaria is related to the socio-cultural factors of the people.

2.7   DEFINITION OF VARIABLES

Malaria control:

This refers to any activity aimed at preventing malaria occurrence or treating it in an effort to enhance good health.

Treatment:

This referred to any method or process used by people who were attacked by malaria parasites from causing more harm, suffering or an effort geared towards regaining their health.

Prevention:

This was defined as a way of interrupting malaria transmission and protecting individuals from exposure to malaria. This includes activities like destruction of mosquito breeding areas, clearing bushes around homestead, personal protection like use of mosquito nets and taking of anti-malaria drugs to prevent infections.

Health seeking behaviour:

This was defined as the process whereby an individual utilizes various health techniques to prevent, diagnose or treat malaria as a disease.

Knowledge:

This was defined as the level of understanding on how malaria is caused, how it is treated and prevented in relation to scientific facts. If the respondent's understanding of malaria causation and transmission differed from scientific facts his/her knowledge was considered to be low (unknowledgeable).

Causation:

This referred to mosquito-malaria link where a mosquito bite precedes the onset of malaria.

Transmission:

This referred to a mechanism by which infected mosquitoes pass on malaria parasites from one person to another.

Attitudes:

This referred to the feelings that a respondent has on malaria as a disease in terms of seriousness, curability and preventability. These feelings were measured on Likert scale questions, which had different level of "agreeing or disagreeing" with given statement on malaria. In measuring attitudes each level of either agreeing or disagreeing was accorded scores. In this case "Agreeing" was accorded a score of 3 points, "disagreeing" was accorded a score of 2 points and "Don't know" 1 point. In this study there were two statements, which were positive to malaria control, and three statements, which were negative. Therefore a respondent was supposed to "agree" with the two positive statements about malaria and thus score 6 points. On the other hand the respondent was also supposed to "disagree" with the three negative statements on malaria and score 6 points. In this case the respondent was to be taken to have **favourable attitudes** towards malaria control. When the scores on positive statements on malaria were less than the score on negative statements on malaria the respondent was taken to have **unfavourable attitudes** towards malaria.

Gender:

This referred to either male or female.

Chronological age:

This referred to the number of years lived since the birth of the respondent and was measured in four categories namely: 20-29, 30-39, 40-49, 50 + years.

Formal education:

This referred to the number of years spent in acquiring formal knowledge in an education institution such as school or college. In this case four categories of this variable were used. These are no education, primary education, secondary education and post-secondary education.

Socio-cultural factors:

This referred to shared knowledge and attitudes based on both traditional and modern healthcare system and linked to recognition of symptoms of illness and prescribed course of action.

Therapy:

This referred to any method of treatment designed to diagnose or heal malaria as a disease. In this study malaria therapy was measured by asking respondents the various methods they utilize to treat the disease.

Practices:

This referred to any actions committed or omitted by the respondent in relation to malaria transmission, prevention and treatment.

CHAPTER THREE

METHODOLOGY AND RESEARCH DESIGN

3.0   SITE DESCRIPTION

This study was done in Sameta division, Kisii district*. The rationale for the selection of this area of study is because; Kisii is one of the districts in Kenya experiencing a high endemicity of malaria. As such it was considered to be an ideal site to gather data relevant to the needs of this study. Secondly, the researcher being a native to the district, there was language advantage eliminating the need for a translator who is not able to convey the same meaning during translation.

Financial and time resources available for the study, consideration of access and transportation during the field data collection, however, suggested impracticalities of covering the entire district in the research. Thus the geographical scope of the study was confined to Sameta division as the specific study site.

Kisii district is one of the rural districts that make up Nyanza province (see figure 2). It borders Nyamira district to the Eastern side, Transmara district to the South, Migori district to the South West, Homabay district to the west and   Rachuonyo district to the west. The district lies between latitude 0° 31' and 0° 38' South and Longitude 34° 42' and 35° 05'. (Kenya, 1997). It occupies an area of about 1302.1 sq. Km and is subdivided

*Sameta division where this study was done is currently in Gucha district. However, during the time of this study most of her documents were still under Kisii district

into eleven administrative divisions namely; Keumbu, Suneka, Mosocho, Marani, Masaba, Nyamarambe, Kenyenya, Ogembo, Nyacheki, Sameta, and Nyamache (see figure 3).

The district has a highland equatorial climate. It receives an average of over 1500 mm of rainfall per year, which is highly reliable. This falls in two seasons: long rains, which fall from March to June and short rains occur from September to November. December, February and January are relatively dry months.

The high altitude of the district is expected to lower temperatures. However, the proximity to the equator raises the temperatures to a mean annual maximum of 27°C in the lowlands and minimum of 16°C. The annual maximum temperature on the highlands is 24°C with mean annual minimum of 14°C. The coldest months are experienced in late June, July and August.

Due to high and well-distributed rainfall in the district, there is high presence of mosquitoes that has caused malaria to be a major killer in the district (see table3.1). Malaria in this district accounts for over 40% of all mortality rates that occur every year (Kenya 1997). Further, Kisii district lies in the zone classified as stable malaria zone where malaria transmission rates are high throughout the year making malaria a major health problem (MOH, 1992).

LOCATION OF THE DISTRICT

SUDAN

ETHIOPIA

UGANDA

TURKANA

L.TURKANA

MARSABIT

MOYALE

MANDERA

WAJIR

WEST POKOT

MT.ELGON   TRANS   MARAKWET
TESO   BUNGOMA   NZOIA
BUSIA   UASIN   BARINGO
KAKAMEGA   GISHU
SIAYA   VIHIGA   NANDI   KEIYO
KISUMU   KOIBATEK
KERICHO   NAKURU
MACHUONI
HOMA   BAY   KISII   NYAMIRA
SUBA   BOMET
MIGORI   NAROK
KURIA   TRANS MARA

SAMBURU   ISIOLO

NYAMBENE

LAIKIPIA

MERU

NYANDARUA   NYERI   THARAKA   NITHI
KIRINYAGA   EMBU
MURANGA   MBERE   MWINGI
KIAMBU
THIKA
NAIROBI
MACHAKOS
KAJIADO   MAKUENI
KITUI

GARISSA

TANA RIVER

LAMU

SOMALIA

INDIAN OCEAN

KILIFI

TAITA TAVETA

KWALE   MOMBASA

T A N Z A N I A

L.VICTORIA

K E Y

——————— International boundary

—·—·—·— District boundary

Scale :-1:5 000 000

0   100   200 km

36°E

40°

FIGURE 3 - Map Showing Sameta Division
Map No. 2

KISII DISTRICT
ADMINISTRATIVE BOUNDARIES

MARANI

MOSOCHO

KISII MUNICIPALITY

N

SUNEKA

KEUMBU

SAMETA

OGEMBO NYAMACHE

MASABA

NYACHEKI

NYAMARAMBE   KENYENYA

—··—··—	District Boundary
—·—·—	Divisional "
············	Municipal "
▦	Area of Study

5   0   5   10   15 Km.

Prepared by DRSRS

46
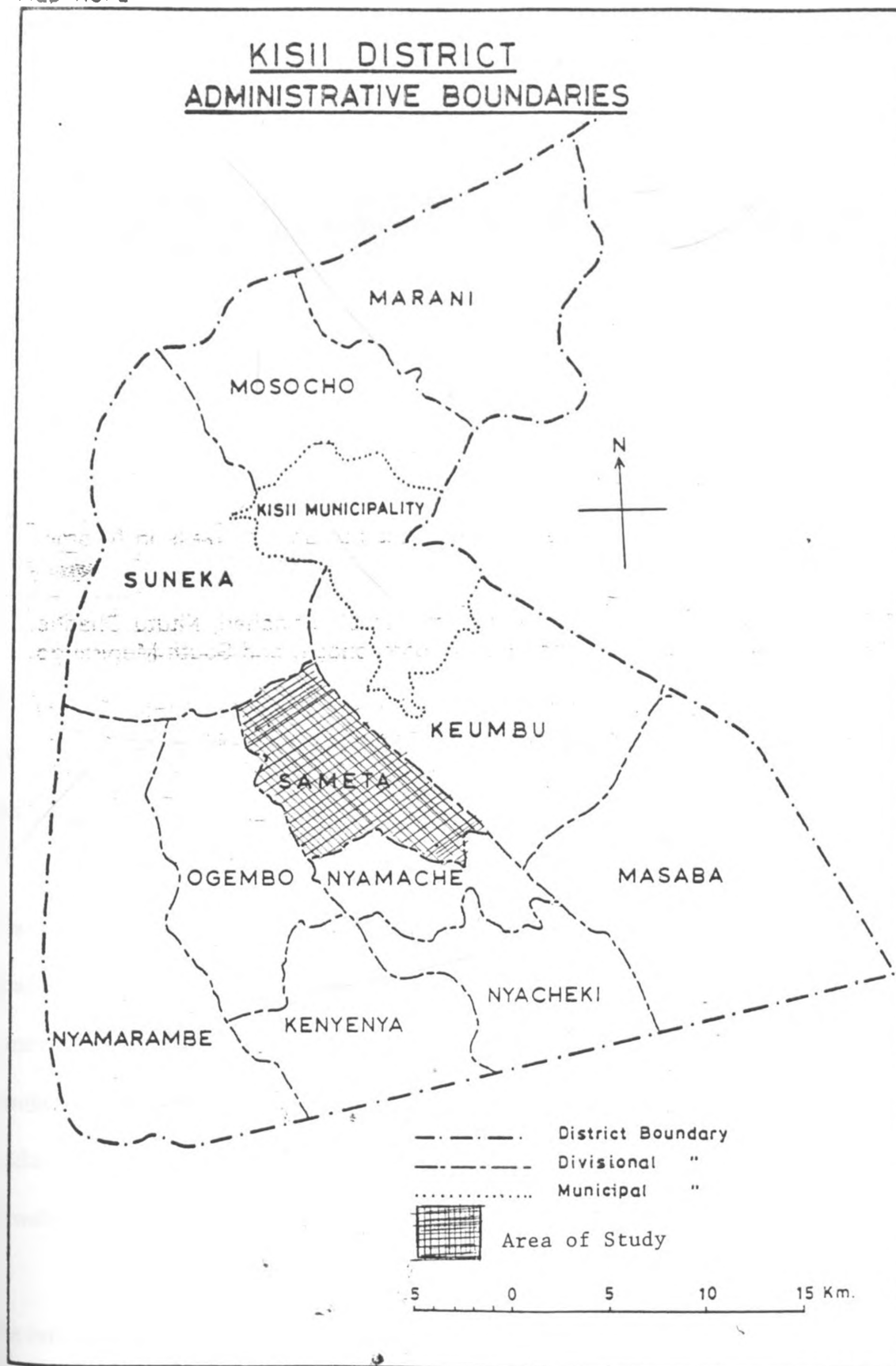
TABLE 3.1

Disease incidences in kisii district 1991 to 1995

	1991	1992	1993	1994	1995
Malaria	34500	26000	19700	43000	35800
Anaemia	15900	12300	7700	11800	15300
Gastro-intestinal	7800	5300	4000	7300	10300
Pneumonia	6600	4800	4400	5100	9900
Tuberculosis	900	1700	2300	3800	4700

Source: Kisii development plan 1997 -2000

3.1 UNIT OF ANALYSIS

The sampling unit for this study was the household while the unit of analysis was an adult member of the household.

A household is viewed as a consumer as well as producer of health services. This is because in the event of an illness, household members can treat themselves in their homes or seek help from health workers outside their homes. Alternatively, household members can decide to do nothing about a health problem. That is, they can decide not to produce health behaviour and not to seek it from any source like health care providers (Mwabu, 1995)

The rationale for the choice of adult members of the household as the unit of analysis is that they are involved in decision-making. Apart from parents, other members of the

household aged 20 years and above were considered because by virtue of their ages, they are also likely to share in decision-making.

3.2   SELECTION OF THE SAMPLE

The general rule in most social science researches is to use the largest sample as possible because the main interest is to learn more about the population from which the sample is selected. Therefore, in a survey research, the general recommended minimal sample size is 100 respondents (Kline, 1980). Thus in this study, a predetermined sample size of 200 respondents was targeted in Sameta division. This was due to limited time, the nature of the study, which required movement from one household to another and lack of resources. Further, Koul (1984) notes that when the population is relatively homogeneous like in this study, it is necessary to take a small sample in order to do intensive and satisfactory investigations.

This research was conducted in all locations of Sameta division. The three locations were; Bassi chache, Bassi Bointangare and Mokwerero. It was felt necessary to draw a sample from all locations in order to get a representative sample.

In determining the sample size in each location proportionate random sampling was used. According to the Central Bureau of Statistics (CBS 2000), there were 7992 households in Sameta division with Bassi·Chache having 4104 households, Bassi Bointangare 2008 households and Mokwerero 1880 households. In order to get the sample size required in each location, the total number of households in each location was taken, for example,

Bassi Chache 4104 households multiplied by 200 (sample size) divided by the universe or the population of households in the division. This gave the number of households to be interviewed in each location.

Therefore each location had the following number of households as shown in Table 3.2.

TABLE 3.2 Number of households targeted in each location

Location	Number of household
Bassi Chache	102
Bassi Bointangare	50
Mokwerero	47

In selecting households for in-depth interview in each location systematic random sampling was used. The systematic random sampling was chosen so that every household in the study population would have calculable and non-zero probability of being selected. The sampling frame was the pre-2000 population census location head of household registers. These registers were used, as they were the most current, accurate and reliable records available in each location at the time of the study. The names of heads of households in each location were arranged randomly and were not recorded with this study in mind making the sampling frame unbiased.

In order to obtain the sampling interval in each location, the total number of households in each location was divided by the size of the required sample in each location. The sampling intervals in each location were as shown in Table 3.3.

TABLE 3.3 Sampling intervals in each location

Location	Sampling interval
Bassi Chache	40
Bassi Bointangare	40
Mokwerero	40

These resultant figures were the intervals, which were used to determine the point at which to begin the selection of the first respondent and the next respondent. This went on for each location. However, due to unforeseen circumstances such as the absence of household members of the targets households during the time of research, the immediate next household was considered and subsequently used as a starting point for selecting the next household. Further a screening interview, which was oral, was done on the target household to determine if any member of the household had suffered from malaria in the past one month in order for the household to qualify to be included in the sample. In case the target household had not recorded any incidence of malaria illness, the immediate next household was considered instead. Based on this screening interview 119 households were selected for the interview.

In identifying households in each location the researcher sought help from clan elders. Also in order to maintain gender balance in the study, females and males were interviewed alternatingly. That is, if the first household a female was interviewed, the

second household the interviewee had to be a male.

3.3   METHOD OF PRIMARY DATA COLLECTION

In-depth Interview

In depth interview was used to solicit detailed data using guiding questions. Through the guiding questions, the study collected data on individual factors like gender, age, level of formal education, religious affiliation and socio-cultural factors which include all the shared knowledge and attitudes based on traditional and modern health care system and linked to recognition of symptoms of malaria and prescribed courses of action.   Other variables were indicators of the health seeking behaviour in the case of malaria control.

The guiding questions contained both open ended and close-ended questions to allow for appropriate flexibility of the respondent as well as restrict them to relevant issues. Questions related to knowledge, practices and attitudes were mostly open ended and the consistence of the responses of the interviewees was ensured through cross checking questions. Supplementary questions were asked where further probing was needed and recorded in a field notebook. Close-ended questions were asked to elicit quantitative data.

The guiding questions were used to obtain conformity as each respondent was asked exactly the same questions, in the same order, thus ensuring comparability, although the responses were not limited to the asked questions.   During the

interview, all the respondents were encouraged to speak freely elaborate on answers and bring out other relevant or important topics that were not included in the guiding questions.

In formulating guiding questions for in depth interview, a number of factors were taken into consideration. This is in keeping with Bailey's (1987) caution that sensitive issues are mostly prone to "social undesirability bias" (situation whereby respondents answer sensitive or taboo questions in a way that is consistent with norms even though they are false answers for fear of disapproval and social undesirability) and respondents may feel threatened to answer questions truthfully. In order to minimise, the provision of normative answers, the researcher made use of "inter-locking questions" that is a question was posed repeatedly in different forms in order to enable the respondent understand it. Further, the researcher used of long open-ended questions when seeking information on threatening or socially undesirable behaviour.

Informal interviews

Informal interviews were used in this study to enrich data gathered from the interview schedule. The data obtained from such informal interviews was mainly qualitative. The need for this method arouse as the researcher moved from one household to another, many people became curious about what the researcher was doing. Therefore the researcher had to develop some conversation with them.

From such conversations a lot of information was obtained. The researcher did the selection of respondents for informal interviews purposively.

Simple Observation

Simple observations were carried out in the community in general and of the respondents' homes. This involved accurate watching and noting of phenomena. Observations helped to capture some social, economic and cultural aspects that would have been vaguely perceived, unnoticed and therefore minimised the chances of lies or exaggerations in some aspects of the respondents' lifestyle and living conditions.

3.4 SECONDARY SOURCE OF DATA

A review of books and journals on malaria especially on practice, knowledge, attitude and the influence of socio-cultural factors on health seeking behaviour on different communities was done and used to supplement the primary data collected.

3.5 TECHNIQUES OF DATA ANALYSIS

This study utilized the statistical package for social sciences (SPSS) in the organization and analysis of quantitative data from closed-ended questions. This data was presented in form of frequency and percentage tables.

The qualitative data from open- ended questions, further probing and informal interviews was detailed and massive. These necessitated its classification into various themes on the

basis of their central focus for the purpose of presentation and analysis. Qualitative analysis included presentation of quotes from different respondents and recording verbatim what some respondents said. Qualitative data was also analysed by inference and discovery procedure as described by Spradley and Mccurdy (1975). This involved identification of both tacit and socio-cultural concepts and interpretation of issues related to malaria control.

In this study the data gathered from the field was integrated with available secondary data for the purpose of interpretation, which involved the search for broad meaning to answers given and making inferences.

The extensive use of qualitative analysis was influenced by disparities and variations in individual social framework, the goal of this study which was to grasp the meaning that actions had to actors and the desire to produce "private" rather than "public" experiences. Public experiences in this case referred to a set of meaning that affirm or reproduce the moral order or dominant ideology. On the other hand private experiences referred to a set of meaning derived from individual experimental world and which might reveal a darker side of individual actions towards malaria,

3.6   PROBLEMS ENCOUNTERED IN THE FIELD

During the course of this research a number of problems were experienced. The first problem was that some respondents had high expectations about the research, as they thought it was a government program to register and help those who were suffering from malaria. Therefore a few respondents wanted to be interviewed and their personal details

taken, while others wanted the investigator to listen to their other health problems and tell them how best to treat and manage them. Due to this, some respondents exposed their disappointment when they learnt that the researcher was not going to solve their problems. To solve this problem, the researcher kept explaining to them that the research was an academic exercise, which was nevertheless likely to influence government policy toward malaria control in the area.

The second problem encountered was that in some cases some respondents from the sampled household were too busy to be interviewed or were not at home at the time of research. This problem arose because this was the time most people were busy weeding their farms (that is April to May). To solve this problem the researcher changed his interviewing schedule from the morning to the afternoon of each day when people had left their farms.

CHAPTER FOUR

DATA PRESENTATION AND ANALYSIS

4.O INTRODUCTION

This chapter uses both qualitative and quantitative statistics to present data collected from the field. This chapter is also concern with the analysis of relationships between dependent variables and independent variables. Specifically, there is an attempt to show the nature of relation between socio-cultural factors and malaria control and the influence of individual socio-cultural factors like age, gender and level of formal education on the choice of malaria therapy. This is done through testing of research hypothesis and interpretation of research findings.

4.1   SOCIO-DEMOGRAPHIC DATA

4.1.1   Gender and status in the household

Out of the 119 respondents interviewed, 51.3% were females, while 48.7% were males. One of the possible explanations for high number of female respondents is that the area of study is a rural population characterised by little migration among women compared to men.   Therefore women were most likely to be found at home. Out of this sample of males and females, 44.5% were mothers, 38.7% fathers, 10.1% sons and 6.7% daughters.

4.1.2   Age

The age distribution showed that the area has fairly young people aged between 20-29 years who constituted 35.3% of all respondents interviewed, while only 13.4% were aged above 50 years. See table 4.1. The finding that most respondents are fairly young shows that the fertility rate in this area is likely to be high and therefore the demand for social infrastructures like hospitals and schools is also likely to be high.

Table 4.1 Age of respondents

Age (years)	Frequency	Percentage
20-29	24	35.3
30-39	34	28.6
40-49	27	22.7
50 +	16	13.4
Total	119	100.0

4.1.3 Level of formal education

Most of the respondents interviewed had acquired formal education and only 16.8% had not been to any formal school. The largest number of respondents (40.3%) had attained primary education. The respondents with secondary education comprised 38.7%of all respondents while those with post-secondary education were 4.2%. These findings show that the level of literacy is high.

Table 4.2   Level of formal education of respondents

Level of education	Frequency	Percentage
None	20	16.8
Primary	48	40.3
Secondary	46	38.7
Post-secondary	5	4.2
Total	119	100.0

4.1.4   Occupation

As shown in Table 4.3 below, 73.5% of the respondents indicated that they were farmers, while 17.1% were business people and 8.5% were professionals. The respondents who were professionals included teachers, nurses and clerks. The finding that 73.5% of the respondents were involved in farming is a reflection of the general situation in the district. This is because agricultural sector actually employs full time 72.5% of the labour force in the district (Kenya 1997).

Table 4.3 Occupation of respondents

Occupation	Frequency	Percentage
Farming	86	73.5
Business	20	17.1
Professionals	10	8.5
Unemployed	1	0.9
Total	117	100.0

Missing cases 2(1.7%).

4.1.5   Household decision makers on health issues

Of all the respondents interviewed, 44.5% indicated that fathers were decision-makers on health issues while 20.2% said it was both the father and mother. Mothers were cited by 31.9% of the respondents as decision makers and another 4.0% indicated the sons to be the ones to decide. The findings that fathers were major decision makers shows that this society is still a patriarchal society.

4.2 SOCIO-CULTURAL FACTORS AND MALARIA CONTROL

4.2.1 Knowledge about malaria

Most respondents were aware of malaria as a disease. There were two local names used to denote malaria. These two names were *"esosera"* which was mentioned by 10.9% of the respondents and *"mareria"* which is actually malaria in *"ekegusii pronunciations"* mentioned by 89.1% of respondents. This finding shows that most people had adopted the name malaria in their bio-medical vocabulary thus confirming the fact that wherever professional, popular and folk health system co-exist have enabled some communities to have some knowledge on malaria to the extent of adopting the name "malaria" (Lipowsky, *et al*, 1994).

On malaria identification, 42.9% of the respondents claimed they would identify malaria through observation and experience. The other 57.1% claimed to have been taught or learned on how to identify malaria from various sources as shown in Table 4.4.

Table 4.4.   Source of information on how to identify malaria.

Source	Frequency	Percentage
School	30	25.2
Health Centre	27	22.7
Home	1	0.8
Church	6	5.0
Public meetings	4	3.4
Experience/Observation	51	42.9
Total	119	100.0

Malaria in this area is thought to be seasonal and its occurrence is associated to many factors. Most of the respondents (46.2%) associated malaria occurrence in a particular season with a lot of rain and coldness while, 18.6% associated it with bad environment like a lot of pollen grains from maize and breathing of "bad air" which results from decomposing weeds as most farms are weeded during the same period when malaria is thought to occur. On the other hand, 17.6% associated malaria occurrence with a lot of mosquitoes, 5.0% linked malaria with scarcity of food and 12.6% did not know. This is shown clearly in Table 4.5.

Table 4.5.   Reason why malaria is rampant in particular season.

Reason	Frequency	Percentage
A lot of Mosquitoes	21	17.6
A lot of rain and coldness	55	46.2
Bad environment	22	18.2
Lack of food	6	5.0
Do not know	15	12.6
Total	119	100.0

The association of malaria occurrence in a particular season to many factors was found to be due to the fact that most people tend to explain the occurrence of such illness to the immediate prevailing environmental situation. For example, malaria in Kisii district is rampant during the months of April, May, June and July when there is a lot of rain and coldness.

Local people's definition of seasons on the occurrence of malaria was found to hinder both the treatment and prevention of malaria. This is because both the diagnosis and treatment of malaria is hindered by what season people think it is and by what illness they think is common in each season. For example, during the months of September, October, November and December, for example, when malaria was thought not to occur, only 17.1% of the respondents took malaria preventive measures like sleeping under mosquito nets and taking anti-malaria drugs, while 81.9% of the respondents took no malaria preventive measures. Further probing also showed that most respondents delayed or refused to seek malaria treatment during the season when malaria was thought not to occur. These findings also concur with a study by Winch, et al, (1994) in Muhenza district in Tanzania which showed that diagnosis, treatment and prevention of malaria was influenced by local definition of seasons, perception of seasonal variation of abundance of mosquitoes and diseases people think are common in particular seasons.

On malaria symptoms, 69.2% respondents mentioned high fever as the most common symptom in the area, 67.2% cited shaking chills followed by rapid headache, 42.9% mentioned body aches and 15.1% indicated general feeling of malaise. None of the respondents mentioned convulsions, diarrhoea, muscle cramps, blood stained stool and dehydration.

Most respondents showed they could identify malaria by several correct symptoms, confirming the observation that people become relatively familiar with obvious

symptoms of a disease after a long exposure to it (Abdullah, 1984). The identification of malaria by the correct symptoms is important as in many rural areas, including Sameta division, where health personnel rely on clinical diagnosis of malaria symptoms presented by patients to treat malaria and then offer presumptive treatment based on these symptoms where no laboratory facilities exist. In medical practices however, there has been concern that the use of common symptoms such as fever and headache to diagnose malaria may lead to over reporting of malaria as not all cases of fever and headache are indicative of malaria illness (Owaga, 1981).

Knowledge about malaria symptoms was found to influence the choice of malaria treatment. Most respondents were found to treat each predisposing malaria symptom as an illness on its own. For example, respondents who experienced body aches and headache tended to take painkillers like *panadol* and *Hedex*. Further, the classification of malaria symptoms into various simple illnesses like headache, fever and general body malaise made most respondents to disregard malaria illness as serious and often not even seek adequate treatment. As observed by a doctor in charge of Nyansakia health centre:

> *The way malaria manifests itself in terms of its various*
> *simple signs which are normally interpreted as other forms*
> *of illness, it becomes difficult to convince those affected*
> *by it (malaria) of the need to seek adequate and effective*
> *treatment.*

The conceptualisation of malaria symptoms as different illness, which needs particular treatment was found to negatively affect proper treatment. These findings imply that any malaria control programmes in Sameta division, needs to educate people on the correct

symptoms of a disease after a long exposure to it (Abdullah, 1984). The identification of malaria by the correct symptoms is important as in many rural areas, including Sameta division, where health personnel rely on clinical diagnosis of malaria symptoms presented by patients to treat malaria and then offer presumptive treatment based on these symptoms where no laboratory facilities exist. In medical practices however, there has been concern that the use of common symptoms such as fever and headache to diagnose malaria may lead to over reporting of malaria as not all cases of fever and headache are indicative of malaria illness (Owaga, 1981).

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58. When you notice malaria symptoms when do you stop working? _____

59. Do you think malaria can heal on it's own? (Probe)

> 1. Yes   2. No

60. (a) Do you think malaria is a difficult disease to treat?

> 1. Yes   2. No

  (b) If yes why?

    If No why?

61. (a) Do you think malaria can kill? (Probe)

> 1.Yes   2. No

  (b) If yes, who is it especially dangerous on?

62. (a) Do you think it is necessary to prevent malaria?

> 1. Yes   2. No

  (b) If yes why? _____

    If No why? _____

63. (a) Do you think it is necessary to treat malaria?

> 1. Yes   2. No

  (b) If yes why? _____

    If No why? _____

64. (a) Do you know some events if one does them, involves with them or fail to do them can lead to malaria?

> 1. Yes   2. No   3. Don't know

  (b) If yes, give details.

65. Do you have any suggestion as to what should be done to improve on malaria problem in this area?

<div align="center">

Thank you.

</div>

general feeling that malaria is caused by mosquitoes. A few others, however, had a different view. For example 3.4% of the respondents mentioned the eating of sugary foods like sugar cane and ripe bananas, 10.1% said malaria is caused by being rain on and coldness, 3.4% cited bad environment like pollen grains from maize and "bad air" from decomposing weeds and 1.7% did not know. This is shown in Table 4.6.

Table 4.6.   Knowledge about malaria causation.

Causes	Frequency	Percentage
Mosquitoes	97	81.5
Eating of Sugary Foods	4	3.4
Bad environment	4	3.4
Rain and coldness	12	10.1
Do not know	2	1.7
Total	119	100.0

The association of other factors with the cause of malaria other than mosquitoes by some respondents show that the role of mosquitoes in malaria aetiology is not the only factor.. Further, despite many respondents (81.5%) knowing mosquitoes cause malaria, its explanation on its occurrence is linked to the immediate prevailing environmental situation (see Table 4.5.). This linkage of malaria causation to other factors like rain and cold weather is not illogical because this being a rural community, most events are comprehended on the basis of what Mbithi (1974) calls cause-effect relationship. For example, it is a fact that during and after the rain season, conditions are very favourable for the breeding of mosquitoes and hence there is frequent malaria. Also during the

months of May to July, when malaria is thought to be rampant in Kisii district, the whole district experiences a lot of cold weather which is then associated with shivers and chills, the identified symptom of malaria.

The finding that some community members know that malaria is caused and transmitted by mosquitoes is important especially in implementing community supported malaria programmes focusing on vector reduction. Nevertheless that some community members do not associate the disease with the mosquito vector could act as a hindrance to the control of the disease. Those who do not associate the disease causation and transmission with mosquito vector are not likely to protect themselves against infective mosquitoes and if they protect themselves, it is because they perceive mosquitoes as a nuisance. Due to this, it is important to synthesise cultural beliefs or perceptions of disease and biomedical practices.

According to Nitchler (1984), one way to re-dressing this is by conveying messages related to the disease by analogues. This approach seeks to incorporate cultural metaphors and analogues by maximizing the congruence between popular health concepts and biomedical facts thereby facilitating the adoption of new behaviour.

On malaria transmission, 44.6% respondents felt that malaria is transmitted by close contacts with infected persons by either sleeping with or sharing utensils like spoons, plates and cups with malaria patients. Only 17.6% respondents attributed malaria transmission to mosquitoes while 37.8% did not know how it is transmitted.

The association of malaria transmission with other factors other than mosquitoes was found to be due to the fact that this being a rural community the occurrence of events is explained in cause-effect relationship. For example, when infected mosquitoes bite a healthy person, it takes an average of 12-28 days before the onset of malaria fever, depending on the species of the parasite. This duration between malaria infection and onset of symptoms makes most people not to associate malaria transmission with any vector, but the immediate prevailing environmental situation. Further, the classification of malaria illness as a natural illness caused by natural factors made it hard to associate vectors like mosquitoes to its transmission.

4.3 PRACTICES RELATED TO MALARIA

4.3.1 Identification of malaria illness

Majority (73.9%) of the respondents knew that they were suffering from malaria through the signs they experienced or observed, 24.4% were diagnosed at hospital, 0.8% through therapeutic diagnosis, that is illness complaints responded positively with malaria treatment and only 0.8% knew it was malaria because of the season (see Table 4.7).

Table 4.7 Identification of malaria illness

Identification of malaria illness	Frequency	Percentage
Through signs observed/experienced	88	73.9
Diagnosed at hospital	29	24.6
Therapeutic diagnosis	1	0.8
Season	1	0.8
Total	119	100.0

The finding that most respondents relied on experience and observed signs to identify malaria is because the area is not well served with health care facilities. As noted by Kisii Development Plan 1997/2000, Kisii district had only five fully operational hospitals at the time of this study, one, which was government maintained while the rest were privately owned. There were 11 health centres, 31 dispensaries and 24 private run clinics. However, most of these health facilities were concentrated within Kisii municipality and Masaba division. Sameta division where this study was done had only one private health centre and one government run health centre, which served a population of 53,620 people.

The district also had 19 working doctors. This worked out to approximately one doctor for every 48,700 patients. However, 75% of these doctors were based in Kisii municipality. Therefore, most of the doctors were not easily accessible to rural population in Kisii district (Kenya, 1997)

4.3.2 Time Taken before seeking malaria treatment

Majority of the respondents (59.7%) who suffered from malaria took less than one week before starting any form of treatment. Most of these respondents said that they were not sure if it was malaria at its early stages. For the remaining respondents, 27.7% took less than a day before starting any·form of treatment and 12.6% took more than a week. The reason for duration taken varied as shown in Table 4.8.

The major reason for delayed treatment as stated by 36.1% respondents was that they did not know whether they were suffering from malaria. This is because most symptoms on malaria can sometimes be confused with those belonging to other diseases. Further probing also revealed that most respondents often mistook the symptoms of malaria for those of colds and flu which are thought not to be a threat or serious to warrant health attention. Other respondents mistook malaria symptoms with general feeling of fatigue due to overworking especially weeding of farms.

Another reason for the delay in seeking treatment was financial difficulties. This was cited by 14.3% of the respondents. Some (13.4%) of the respondents hoped to get better while 15.1% considered the signs were not serious to warrant any health attention. Those who sought treatment immediately indicated that they did so because either the signs were severe (7.6%) or they wanted to prevent the disease from getting worse (13.4%).

Other factors that influenced the duration taken before seeking treatment included the value an individual attached to good health and accomplishment of other economic activities like weeding of farms, taking care of children and purchasing food for the family. In this case some respondents considered the cost and benefits of seeking treatment immediately illness signs were noticed in relation to accomplishing other social and economic obligations. Access to health care facilities and the cost of utilising such health facilities were other important factors that determined the duration taken by an individual before seeking treatment.

Table 4.8 Reasons for duration taken in seeking treatment

Reason	Frequency	Percentage
Hoped to get better	16	13.4
Signs were not clear	43	36.1
Lack of money	17	14.3
Signs were not serious	18	15.1
To prevent it from getting worse	16	13.4
Signs were severe	9	7.6
Total	119	100.0

4.3.3 First method of treatment utilised

As regards health seeking behaviour (see Table 4.9) 74.8% of the respondents bought medicine from the shop or chemist, 15.1% visited health centres, 5.0% used herbs and 8.4% visited traditional medicine men. The low utilisation of health centres in the treatment of malaria can be attributed to over-reliance on self-medication by most respondents. This became clear when inquires were made about the stage at which respondents visited or utilised health institutions during malaria illness. According to some respondents (41.2%) said they visited health institutions when locally available drugs did not help, while a negligible proportion (0.8%) visited health institutions when advised by traditional medicine men. Only 8.5% visited health institutions when malaria signs were noticed. Other respondents visited health institutions either because the signs were severe (37.8%) or when advised by family members (1.7%).

These findings that most respondents depended on self-medication in treating malaria show that proper treatment of malaria may be delayed, postponed or ignored due to use of self-prescribed biomedical or ethno medical medicine. This is because before seeking treatment outside home, self-medication was used.

Table 4.9   First Method Of Treatment Utilised.

Method used	Frequency	Percentage
Used herbs	6	5.0
Visited health centres	18	15.1
Bought medicine from shop	72	74.8
Visited traditional medicine man	10	8.4
Total	119	100.0

Respondents' knowledge, about particular illness signs and their corresponding bio-medical and ethno medical medicines used to elevate them determined the choice of first method of treatment. For example due to a long period of exposure to malaria illness, most respondents through experience have known various drugs used to treat malaria. Due to this, most people bought anti-malaria drugs from nearby shops or chemist. However, data from further probing showed that most respondents treated particular malaria sign as an illness on its own because of their poor knowledge about malaria signs.

The perceived cause of illness determined the choice of treatment. For instance, respondents who perceived malaria illness as unnatural consulted traditional medicine men. The interpretation of malaria signs as unnatural relied on the way the signs

manifested themselves and their intensity. For example, signs like convulsions and unconsciousness were seen as unnatural and thus necessitated treatment from traditional medicine men. For those respondents who preferred to use herbal medicine as the first method of treatment, their knowledge about malaria causation could be said to be embedded in folk theory. On the basis of accounts from respondents this folk theory can be described as follows:

*"A person eats sugary foods like sugar cane, ripe bananas
and dried molasses. The sugar in these foods accumulates
in the body to form "esosera". When "esosera" accumulates
in the body, the individual suffers from malaria".*

To treat this condition, a patient was induced to vomit and to diarrhoea so as to get rid of these substances from the body. Patients were therefore given bitter herbal medicine that caused one to vomit and diarrhoea. Information from informal interviews revealed that herbs such as *Omuarobaini* (Neem), *Omonyasese, mokera ogesimba*" were used to treat malaria. These herbs were usually crushed, boiled and taken by patient. The average dosage is usually one glass for at least three times a day.

Individual attitudes towards malaria in terms of severity also influenced the choice of first method of treatment utilised. As observed, most women especially child caretakers knew malaria as a serious disease which can even lead to death among young children and therefore sought malaria treatment immediately malaria signs were noticed. The choice of first method of treatment sought was predetermined by the perceived effectiveness of a particular source. In most cases child caretakers preferred health centres (hospitals) because of their perceived effectiveness.

Apart from individual knowledge about and attitudes towards malaria, community social networks were found to influence the choice of first method of treatment. As noted by Sindiga (1995), social networks are a set of persons with specific cultural identities and association that relate them to one another. Culturally related people in some networks are bound by a set of role expectations including helping the sick to choose the best course of action. Such therapy management groups usually consist of relatives, friends and neighbours.

The social networks in this study were found to enable victims of the disease to test their experiences against those of other networks. That is, before seeking any form of treatment most respondents consulted either their family members or close friends. This produced reinforcement or modification of one's judgement and subsequent health behaviour.

In this study, it was also found that structural factors like the perceived cost of utilising a particular method of treatment, accessibility and the perceived effectiveness of a particular method of treatment also influenced the choice of first method of treatment utilised. The perceived cost of utilising a particular method of treatment was determined by the amount of money spent in utilising that method of treatment, the time spent in seeking treatment and the benefit of seeking treatment in relation to other activities like weeding of the farm, doing business and looking after children.

Accessibility was perceived in terms of the actual distance travelled to seek treatment in any particular source. The distance was seen as either near or far. Sources of treatment that were perceived near were greatly used. For example, it was observed that in this area (Sameta division), there are two health centres both of which are situated at the Southern end of the division. Due to this most people were not accessible to these health facilities and therefore they tended to utilise other forms of treatment more.

On the other hand, perceived effectiveness of a particular source was seen in terms of the quality of services offered. Quality in this case was seen in terms of availability of drugs and the kind of therapy offered. For example, most respondents perceived good quality to mean administration of injection therapy or administration of both injection and tablets to a patient.

Mbiti (1969) asserts that patients tend to utilise a particular method of treatment depending on their belief about the cause of illness. However, when faced with actual illness, patients in African context have been observed to be quite flexible, sometimes using a number of systems together for the same episode of illness. Accordingly, 32.8% of the respondents in this study preferred combining traditional and modern malaria treatment in their first method of treating malaria and 59.7% preferred using one method of treatment at a time. These findings are consistent with the views of Helman (1984) concerning medical pluralism. He states that every society has multiple health care systems which members are free to choose one or more from the available therapeutic options.

4.3.4. Use of anti-malaria drugs during malaria illness

Adequate and effective treatment of malaria require malaria patient to use proper anti-malaria drugs and to finish the recommended dose. In this study majority of the respondents (66.4%) took anti-malaria drugs immediately signs were noticed, 20.2% took them when signs were severe, 8.7% took them when diagnosed at hospital and 8.7% when herbal medicine had failed to heal them.

Despite many respondents' use of anti-malaria drugs immediately when signs are noticed, data from further probing showed that most respondents used wrong drugs to treat malaria. This is because a number of respondents were not sure whether they were suffering from malaria or not. Further, for those who use proper anti-malaria drugs, majority of them did not use the correct and recommended dose.

The use of proper anti-malaria drugs was found to be influenced by an individual's knowledge about malaria. Most of the respondents who were knowledgeable about malaria in terms of its signs used proper anti-malaria drugs while those respondents who had poor knowledge about malaria tended to treat each predisposing sign as an illness on its own thus using wrong medication.

An individual's level of knowledge about malaria also influenced the continuation of using anti-malaria drugs during malaria illness. For example, those respondents who were knowledgeable, 90.9% continued using anti -malaria medicine while only 9.1% stopped. On the other hand 55.2% of the respondents who were not knowledgeable continued

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using anti-malaria medicine and 44.8% stopped. This does confirm the view that knowledgeable people are more likely to continue using medicine than those who are not knowledgeable.

Data from informal interviews showed that respondents who knew the side effect of particular anti-malaria drugs tended to continue using the drug until they finished the recommended dose. On the other hand, those respondents who were not knowledgeable about the side effect of anti-malaria drugs stopped taking anti-malaria drugs when they noticed such anti-malaria drugs side effects. This is because most of these respondents confused these side effects with other form of illness. Among the side effects mentioned by many respondents include itching, vomiting, dizziness, blurred vision, general body malaise and loss of appetite.

An individual's attitudes towards malaria were found not to influence the continuation of using anti-malaria drugs. This is because a large proportion of respondents who continued using anti-malaria drugs had either favourableable attitudes (57.7%) or unfavourable attitudes (63.0%). On the other hand, the small proportion of respondents who stopped using anti-malaria medicine had either unfavourable attitude (37.0%) or favourable attitude (42.4%). This finding is contrary to the expected finding that those respondents who had favourable attitudes were more likely to continue using anti-malaria medicine.

Data from informal interviews and further probing also showed no significant association between individual attitudes towards malaria and the continuation of using anti-malaria drugs. Itching which has been widely reported as a factor hindering the use of *chloroquine* in various studies (Mnyika, *et a, l* 1995; Steketee *et al* 1994 and Abdullah, 1984); similarly in Sameta division, the cost involved after taking anti-malaria drugs was the most cited hindrance. Most of the respondents argued that for them to continue using anti-malaria drugs like *chloroquine*, they needed to be sure that they had enough money to buy Piritons to alley itching. The respondents claimed that itching would continue as long as one continued taking anti-malaria drugs implying that they would need more *piritons*. As observed most of the respondents with relatively low incomes were more likely to stop taking anti-malaria drugs immediately they felt well.

The local people were noted to have negative attitudes to *chloroquine* prophylaxes in particular, because they disliked its bitterness and unpleasant taste. Although some respondents in the study area were complacent about malaria, the perceived threat of the disease did not appear as a reason for non-continuation of taking anti-malaria drugs as postulated in Health Belief Model. Over half of the sample of the respondents indicated that they were willing to complete the full dose of medication. Such willingness has an important role to play in malaria control efforts especially that of enhancing educational messages about malaria management. However, the fear of unpleasant taste, need to keep medicine for the next illness and the held belief that too much medicine in the body is harmful made most respondents not to complete the dose of treatment.

The existence of many alternative methods of malaria treatment like ethno medical medicine were also found to influence an individual adherence or commitment when using anti-malaria drugs. In a situation of mixed medical setting as found in this study, the greater the commitment an individual had to ethno medical belief systems, which often conflicted with biomedical systems like on the use of drugs, the less likely that the individual adhered to a treatment regimen.

4.3.5 Malaria prevention

On malaria prevention, majority of the respondents (52.9%) believed that malaria could be prevented, 45.4% were not aware that it can be prevented and 1.7% did not know. Data showed that those respondents, who did not know whether malaria could be prevented, knew various malaria preventive methods but never associated them with malaria prevention. For example, those respondents who knew mosquito nets associated them with the prevention of mosquito bites at night, which they perceived as a nuisance. Other methods like clearing bushes and grass around the compound and drainage of stagnant water were associated with general cleanliness.

The possible explanation to these findings is that most respondents' viewed malaria as a natural disease caused by natural forces like rain and coldness and therefore did not associate the mosquito with its transmission or cause. This finding concurs with the views of Nyamwaya (1995) that in most non-western communities, vectors like mosquitoes are not associated with disease causation or transmission hence it becomes hard for these

people to comprehend biomedical preventive methods, which differ from their social theory of disease causation and transmission.

The failure of some respondents to differentiate between the use of mosquito nets and mosquito coils for protection against malaria and of mosquitoes can be attributed to incomplete understanding of malaria causation and transmission. This to some extent had some negative effect on the use of various malaria preventive measures.

Apart from biomedical malaria preventive methods this study also revealed that there exist several local anti-vector strategies. The use of smoke from cow dung and use of herballant like *"Omobakora"* (Cyprus tree) were used to drive mosquitoes away because they were perceived as a nuisance. This implies that any biomedical intervention programme in this area needs to base its activities on the knowledge of the local adaptation to the mosquito nuisance.

Individual knowledge about malaria causation and transmission paralleled with their ideas about malaria prevention methods. Respondents, who perceived malaria to be caused by rain and cold weather, avoided being rained on and insisted on wearing warm clothes during cold weather. Also respondents who believed that malaria is caused by eating of sugary foods, which later accumulates in the body, avoided eating a lot of sugary foods.

Other practices observed in relation to malaria prevention were; avoiding sleeping with a person infected with malaria. The explanation given to this practice is that if a person who is not sick inhales air from the sick person, he/she contacts malaria. Sharing of utensils like cups, plates and spoons with malaria patients was also discouraged.

Studies by Aggrepony (1992) and Ryan (1998) have shown that accurate knowledge on the aetiology and transmission are related to appropriate malaria control. This study however, found that individual knowledge about malaria had no effect on the use of biomedical malaria preventive methods like mosquito nets. This is because 73.7% of the respondents who were not knowledgeable used biomedical preventive methods like mosquito nets and 66.7% of the respondents who were knowledgeable used them. On the other hand 33.3% of the respondents who were knowledgeable did not use biomedical methods and 26.3% of the respondents who were not knowledgeable did not use them. This finding is contrary to the expected finding that people who are knowledgeable about malaria were more likely to use biomedical preventive methods.

The use of biomedical preventive methods like mosquito nets were instead found to be influenced by structural factors like availability, affordability and accessibility. For example, in this study, it was noted that lack of money constrained the use of modern malaria preventive methods like mosquito nets among some respondents. Consequently, they felt that they would not buy mosquito nets when other domestic needs are unmet. In this case, the cost of the nets is the barrier to the local use of mosquito nets.

The nature of malaria as a disease was also found to have some effect on its control. This is because the impact of malaria is often not dramatic (that is it does not cause instant death or body disfiguration) thus made most people to disregard malaria infection and thus took no measures to prevent it. As observed by a 55 year old female respondent;

> *Most people blame malaria for many deaths in this place, yet*
> *they know very well malaria does not kill. Malaria like colds*
> *and flu comes on its own and goes even if you don't take any tablet.*
> *So why take a lot of pain to prevent something which is totally*
> *harmless.*

Other factors, which emerged as either encouraging or discouraging the use of a particular modern preventive method, were the socio-economic cost and benefit associated to the use of the particular method. For instance it was observed that most people had intense cultural attachment to certain socio-economic activities like cattle rearing. As a result, some of the respondents were reluctant to cut down grass around their homestead. Such grass acted as breeding grounds for mosquitoes.

4.3.6   Use of prophylactic drugs

The majority of the respondents (72.3%) do not take anti-malaria drugs when well to protect themselves from malaria. This is because 62.5% of these respondents believed that there was no reason for taking drugs when well and 9.8% believed drugs could be harmful if taken when one is not sick. On the other hand, only 26.1% of the respondents said they use prophylactic drugs like *Fansidar, Malaraquine* and *Chloroquine* to protect themselves against malaria and 1.6% did not know.

The use of prophylactic drugs was found to be influenced by an individual knowledge about malaria. This is because 31.8% of the respondents who were knowledgeable about

malaria were found to use prophylactic drugs and 24.7% of the respondents who were not knowledgeable used them. Similarly 74.2% of the respondents who did not use prophylactic drugs were not knowledgeable and 63.6% were knowledgeable. The remaining respondents (4.6%) who were knowledgeable and 1.1% of those who were not knowledgeable did not know whether they use them. This does confirm the view that knowledgeable people are more likely to use prophylactic drugs than those who are not knowledgeable.

Data from informal interviews and further probing also showed some significant association between an individual level of knowledge and use of prophylactic drugs. Respondents who perceived malaria as a natural disease caused by natural forces like rain and cold weather wondered how a mere tablet would prevent natural forces like rain and cold weather from causing a disease like malaria. Other respondents would not understand how a drug like chloroquine would stay in the body for some time " waiting " for a disease to invade.

Individual knowledge about drug use and its effects influenced the use of prophylactic drugs. Some respondents interviewed were of the view that drugs should only be used when one is sick. They felt that drugs used when one is not sick weaken an individual's immunity to any disease. Therefore to them anti-malaria drugs should be used only when one is sick. The knowledge about the side effects associated with anti-malaria drugs like loss of appetite, vomiting, blurred vision and dizziness discouraged many people from using prophylactic drugs. Further, most respondents were found to confuse these anti-

malaria drugs side-effect with illness and therefore believed that any anti-malaria drugs taken when one was not sick causes malaria.

Individual attitude towards malaria was found to influence the use of prophylactic drugs. This is because 46.2% of the respondents who used prophylactic drugs had favourable attitudes and 20.4% had unfavourable attitudes. On the other hand 84.9% of the respondents who did not use prophylactic drugs had unfavourable attitudes, while 50.0% were those with favourable attitudes. The remaining respondents (1.0%) who had favourable attitudes and 4.5% of those who had unfavourable attitudes did not know whether they use them.

The use of prophylactic drugs was also found to be influenced by the cost of prophylactic drugs and the benefit of using them to protect oneself against malaria. Respondents who saw malaria as an expensive disease to treat tried to use prophylactic drugs to protect themselves, as they perceived these drugs to be a bit less expensive. On the other hand, respondents who saw the cost of these drugs as expensive did not use them. This is clearly captured by sentiments of a 45-year-old male respondent.

> *It is absolutely crazy to spend a whole Ksh.70/- to buy a dose*
> *of Fansidar tablets when you are not sick, yet you have other*
> *obligations to fulfil like buying food for your family.*

This shows that malaria, as a disease is not taken as a serious health problem worth prevented.

4.3.7 Malaria treatment

A large proportion (90.8%) of the respondents believed that malaria is the most severe of all diseases prevalent in this area because it causes a lot of deaths especially among children. On the other hand, 9.2% of the respondents believed that Acquired Immuno Deficiency Syndrome (AIDS) and Tuberculosis (TB) are the most severe diseases.

Despite majority of the respondents knowing malaria as the most severe disease, its treatment varied from one individual to another. Most of the respondents (69.7%) interviewed were of the opinion that malaria patients should be taken to hospital immediately malaria signs were noticed. This was because either the respondents believed that the hospital is the most effective source of treatment (53.4%) or they believed that such action would prevent malaria from getting worse (16.3%). Some other respondents (30.2%) however, believed that a patient must first try self-medication.

Nevertheless, not all those respondents who felt that malaria patients should be taken to hospital at once actually did so. In fact findings showed most people tried self-medication first and only visited the hospital if the signs got severe or when locally available drugs could not help. Most people relied on self-medication when treating malaria because most hospitals were not within reach. For example, Sameta division was served with only two health facilities namely Nyansakia health centre (government owned) and Nyamagwa mission health centre (privately owned). These health centres were not centrally located in the division making people to travel at least five to ten kilometres to use them. Also most people were aware of various biomedical and ethnomedical

medicines used to treat malaria and therefore saw no use of going to hospital to be given the same medication, which they could easily buy, from a nearby shop or chemist.

The quality of services offered at government hospitals also discouraged most people from seeking treatment in such institutions. As noted by most respondents, despite the introduction of user fees, most hospitals lacked essential anti-malaria drugs and were inefficient as one took a lot of time to get proper treatment.

During malaria illness, 69.7% of the respondents bought anti-malaria drugs from the nearby shop because they are near and cheaper. A few respondents (28.6%) did not buy anti-malaria drugs from nearby shops because they perceive them as an ineffective source. As noted by one respondent; *"most shopkeepers are not knowledgeable about the recommended dose for malaria. To them, a dose of anti-malaria is directly equivalent to the amount of money you have"*. There is therefore need to improve both accessibility of drugs in reliable doses and also reduce the cost of essential anti-malaria drugs.

In treating malaria, very few respondents (17.1%) consulted traditional medicine men. They did so mostly when hospital medicine failed to heal malaria. Majority of the respondents (77.3%) did not consult traditional medicine men because they perceived them as ineffective in treating malaria. In spite of this some respondents actually consulted traditional medicine men albeit secretly. This is because of the social stigma associated with such act.

In this study it was found that there were ethno medical practices related to malaria treatment. Most of the ethno medical practices described involved the use of leaves, barks and roots of specific herbs, which were boiled, and the solution taken orally. Most respondents in Sameta division stated that the traditional treatment of malaria involved the use of "bitter medicines" (like *Omonyasese, Mokera Ogesimba*). In fact, bitterness was one of the known similarities between modern malaria medicines and traditional medicines. It is believed that such bitter medicine cure malaria through induced vomiting and diarrhoea. Hence knowledge of the expected qualities of malaria medicine from the ethno medical perspective may be useful in promoting the use of biomedical medicine used to treat malaria.

A number of respondents were however, unwilling to talk about traditional medicine. This was partly because most respondents believed that the government was against the use of traditional medicine especially those given by traditional healers and the social reproach associated with the use of traditional medicine. This implies that the local people were likely to use traditional medicine secretly because to them ethno medicine lacked official recognition. Therefore, there is need for an official recognition of traditional anti-malaria medicine and practice so that their use is regulated.

The use of traditional resources to treat and prevent malaria besides the alternatives provided by biomedical approaches can be seen as the local peoples cultural adaptation to their environment (Maccormack, 1984). This means that community health workers in Sameta division should have a thorough knowledge of the existing traditional cures of

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malaria, so that they can easily promote the alternatives provided by biomedical approach. Further, the local malaria control strategies can be promoted to assist the poor people maintain their health as they are cheap, most accessible and easily available. As noted by Nyamwaya (1995), the co-existence of biomedical and ethno medical practices calls for a thorough understanding of traditional therapies and practitioners to enhance consumer satisfaction.

During malaria treatment, the withdrawal or restriction of some foods was considered as an essential element in its treatment. In this case 44.9% of the respondents said that patients should be restricted from taking certain foods like milk, sugary foods, salt, alcohol and fats. The most cited reasons for restricting these foods were that they increased malaria illness, weakened the anti-malaria medicine and complicated the disease making it hard to heal.

The association between some foods like sugary foods and malaria was found to plies directly into people's beliefs about such foods and malaria. As noted in this study, for example, most respondents restricted the consumption of sugary foods during malaria illness because they believe that sugary foods increase malaria. Though the association of sugary foods and malaria may lack scientific basis, it may affect patient compliance and eventually treatment outcome. Lay people may exclude sugary-coated ant-malaria tablets and syrups that are given to children from the regimen even when a doctor has prescribed it because they associate sweetness with malaria. The children, who are usually given

syrups, may thus be denied proper medication because the caretakers fear worsening the existing condition by the very action meant to bring relieve to the patient

Looking at the clusters of issues explored in this section one may observe some association between socio-cultural factors of the people and the prevention and treatment of malaria. For example, an individual level of knowledge about and attitudes toward malaria was found to influence the choice of the first method of malaria treatment, use of anti-malaria drugs during malaria illness and use of prophylactic drugs. This does confirm the study hypothesis that "The prevention and treatment of malaria is related to the socio-cultural factors of the people." However, it is noteworthy that there are some cases that don't fit into the general trend. These may suggest some other intervening factors variables that must be incorporated in any malaria control programmes. For instance, in this study it was noted that structural factors like accessibility, affordability and accessibility had some effect on the use of malaria control facilities.

Apart from examining the influence of socio- cultural factors on malaria control, this study also aimed at identifying the target group for intervention in case of malaria control strategies. To attain this goal, individual socio-cultural factors such as gender, age and level of formal education were cross tabulated with socio-cultural factors towards malaria as shown below:

4.3.8 Gender and socio-cultural factors

When respondents' gender was cross-tabulated with the level of knowledge as shown in Table 4.10, 50(51.5%) of the females were found to be unknowledgeable whereas

47(48.7) of the males were unknowledgeable. This findings shows males are more likely to be more knowledgeable than females.

Table 4.10 Gender and level of knowledge

	Females	Males	Total
Unknowledgeable	50(51.1%)	47(48.5%)	97
Knowledgeable	11(50.0%)	11(50.0%)	22
Total	61	58	119

The difference in the level of knowledge between males and females was found to be due to accessibility of different sources of information about malaria. As observed in this study, males were more accessible to many sources of information on malaria. For instance, males mostly listened to radios, read newspapers and attended public meetings where most information about malaria was given. This is because of the society's division of labour, which is patriarchal. In this division of labour, females have the duty to care for the sick and family while males are supposed to fend for the family and attend public meetings. As observed in the course of this study, community health workers used assistant chief public meetings to disseminate information about malaria. These meetings were however, attended by very few women. As noted among the " Kisiis" there is a rigid division of labour based on gender. Attending public meeting is not one of the responsibilities of women since it is partially a public relation activity reserved for men.

Despite wide exposure to different sources of information about malaria, males were found to have unfavourable attitudes towards malaria compared to females as shown in Table 4.11.

Table 4.11 Gender and attitudes towards malaria.

	Females	Males	Total
Unfavourable	43(46.2%)	50(53.8%)	93
Favourable	18(69.2%)	8(30.8%)	26
Total	61	58	119

4.3.9 Age and socio-cultural factors

When respondents age was cross tabulated with the level of knowledge as shown in Table 4.12, there was a marked difference on the level of knowledge of the respondent and age. This does confirm that an individual age influences the level of knowledge about malaria.

Table 4.12 Age and level of knowledge

	20-29	30- 39	40 - 49	50 +	Total
Unknowledgeable	34(35.1%)	26(26.8%)	22(22.7%)	15(15.5%)	97
Knowledgeable	8(36.4%)	8(36.4%)	5(22.7%)	1(4.5%)	22
Total	42	34	27	16	119

Data from further probing showed that some respondents aged 50 years and over for example regarded malaria as a natural disease caused and transmitted by natural phenomena. This belief on malaria was found to be partial due to their limited exposure to various sources of information about malaria.

Similarly, an individual age was also found to influence the attitudes towards malaria (see Table 4.13)

Table 4.13 Age and attitudes towards malaria

	20- 29	30 – 39	40 -49	50	Total
Unfavourable	14(53.8%)	7(26.9%)	3(11.5%)	2(7.7%)	26
Favourable	28(30.1%)	7(26.9%)	24(25.8%)	14(15.1%)	93
Total	42	34	27	16	119

4.3.10 Level of formal education and socio-cultural factors

As shown in Tables 4.14 and 4.15, many respondents who had attained higher level of formal education were more knowledgeable about malaria and had favourable attitudes towards malaria. These findings do confirm that the level of formal education influences both the level of knowledge about and attitudes towards malaria.

Table 4.14 Level of formal education and level of knowledge.

	None	Primary	Secondary	Post secondary	Total
Unknowledgeable	18(18.6%)	43(44.3%)	32(33.0%)	4(4.1%)	97
Knowledgeable	2(9.1%)	5(22.7%)	14(63.6%)	1(4.5%)	22
Total	20	48	46	5	119

Table 4.15 Level of formal education and attitudes towards malaria.

	None	Primary	Secondary	Post secondary	Total
Favourable	4(15.4%)	6(23.1%)	14(53.8%)	2(7.7%)	26
Unfavourable	16(17.2%)	42(45.2%)	32(34.4%)	3(3.2%)	93
Total	20	48	46	5	119

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From the above observation, it is clear that there is some association between individual socio-cultural factors like gender, age and level of formal education and the socio-cultural factors towards malaria. This therefore indicates that any malaria control programme must always consider individual socio-cultural factors of the beneficiaries.

4.4 THE CHOICE OF MALARIA THERAPY

On malaria treatment, there were marked differences on the type of treatment preferred by any person who went to hospital for treatment. The researcher appreciated the fact that in reality people do not have a choice for the mode of treatment, however, the question was important for assessing how effective malaria control through treatment was, and how it could be made better. It has been observed lately that treatment of malaria through medical facilities or self-medication is probably one of the most immediately applicable ways of reducing morbidity and mortality due to malaria (Molineaux *et al* 1980).

On malaria therapy 45.4% of the respondents preferred injections not only because they believed it entered the blood stream faster thus causing faster recovery but also because they experienced side effects such as vomiting and body irritation after taking anti-malarial tablets. Sixteen percent preferred tablets because they were easy to administer, as they did not involve the pricking of the skin, 21.0% preferred either of the two (injection or tablets) because they felt that the doctor knew what medication was best for them. However, 17.6% of the respondents only accepted treatment if they were given both the tablets and injection simultaneously. They felt that each on its own would not lead to effective healing.

Apart from individual knowledge about a particular therapy, the choice of malaria therapy was also found to be influenced by individual socio-cultural such as gender, age and level of formal education as discussed below:

4.4.1 Gender and choice of malaria therapy

In this study when respondents' sex was cross tabulated with the choice of malaria therapy, there was a marked difference on the preference of therapy by either male or female. As shown in Table 4.10,some females 32(52.2%) and males 22(37.9%) preferred injection but there was a notable difference on the preference of any of the therapy, which involved tablets. For example, 15(25.9%) of the males preferred "either" therapy whereas 10(16.4%)of the females preferred it. Also some females did not prefer any therapy that involved tablets. For instance, 9(14.8%) of the females preferred tablets whereas 10(17.2%) of the males preferred tablets. Similary, 10(16.4%) of the females preferred " both therapy" whereas 11(19.0%) of the males preferred "both therapy". This finding does suggest that female most often do not prefer any malaria therapy that involves tablets.

The explanation for this finding as found out through further probing is that females fear taking anti-malaria tablets when they have started noticing malaria signs because of the fear that the predisposing signs may not be of malaria illness but pregnancy. As observed by some respondents, female early-pregnancy signs include vomiting loss of appetite and general body malaise, which in most cases can also be experienced during malaria illness.

Therefore taking of anti-malaria tablets like *chloroquine* is believed to cause miscarriage and even lead to death if one was pregnant. This believe on the use of tablets concurs with another study by Khayundi (2000) in Siaya district, Kenya which showed that culture believes prohibited pregnant women from using any non-indigenous medicine as a measure of protecting their lives and that of the foetus. Due to this believes some females were very selective on the kind of therapy to use when malaria signs are noticed. Due to this, most females avoided taking anti-malaria tablets even when malaria signs were noticed.

Table 4.16 Gender and the choice of malaria therapy.

Gender	Tablets	Injection	Either	Both	Total
-Female	9(14.8%)	32(52.2%)	10(16.4%)	10(16.4%)	61
Male	10(17.2%)	22(37.9%)	15(25.9%)	11(19.0%)	58
Total	19	54	25	21	119

4.4.2 Age and the choice of malaria therapy

When respondent's age was cross tabulated with the choice of malaria therapy, some of the respondents that is, 26(61.9%) aged between 20-29 years preferred injections. As noted from research findings most of these respondents preferred injection because of the socio-economic benefit associated with the injection. These socio-economic benefits include the belief that an injection works faster as it enters directly into blood making one to heal quickly and continue with his or her social and economic activities. Injections are seen as non-time consuming as one is injected only once, unlike tables where one takes

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some at a time repeatedly. Lastly, injections do not have negative effects like dizziness, which may prevent one from carrying on other socio – economic activities.

Those respondents aged between 30-39 years, most of them that is 10(29.4%) preferred either tablets or injection. This is because some of these respondents believed that any anti-malaria therapy could heal malaria if properly administered.

Some of the respondents 10(40.1%) aged between 40-49 years preferred injections and none preferred tablets. As noted from research findings some of these respondents believed that injection works faster than tablets and they do not have negative side effects like vomiting.

Respondents aged 50 years and over, some of them 10(31.2%) preferred either injection or both therapy. This is shown clearly in Table 4.11

Table 4.17 Age and the choice of malaria therapy

Age (years)	Table	Infection	Either	Both	Total
20 – 29	6(14.3%)	26 (61.9%)	4(9.5%)	6(14.3%)	42
30 – 39	10(29.4%)	10(29.4%)	8(23.6%)	6(17.6%)	34
40 – 49		13(48.2%)	10(37.0%)	4(14.8%)	27
50+	3(18.8%)	5(31.2%)	3(18.8%)	5(31.2%)	16
Total	19	54	25	21	119

4.4.3 Level of formal education and the choice of malaria therapy

As shown in Table 4.12, most of the respondents who had not attained post secondary education preferred injection. Those respondents who had attained post secondary education; most of them 2(40.0) preferred either tablets or injections while none preferred both therapy. This shows that people who had attained post secondary education are more likely to prefer any malaria therapy than those who have not attained post secondary education.

Table 4.18 Level of formal education and the choice of malaria therapy

Education level	Tablets	Injection	Either	Both	Total
None	3(15.0%)	8(40.0%)	5(25.0%)	4(20.0%)	20
Primary	5(10.4%)	23(47.9%)	9(18.8%)	11(22.9%)	48
Secondary	9(19.6%)	21(45.7%)	10(21.7%)	6(13.0%)	46
Post Secondary	2(40.0%)	2(40.0%)	1(200%)		5
Total	19	51	25	21	119

In summary, from the above findings one may confirm some association between individual attributes like gender, age and level of formal education and the choice of malaria therapy. For example, an individual gender was found to influence the choice of therapy involving tablets. In this case females preferred any therapy which did not involve tablets whereas males preferred any therapy regardless of what it involved. Further, respondents who had attained post secondary level of education were found to

prefer any malaria therapy unlike those who had not attained post secondary level of education.

On the basis of these observation the postulated hypothesis that; "There is a direct relationship between gender, age and level of formal education and the choice of malaria therapy" is accepted.

CHAPTER FIVE

5.0 Introduction

This chapter has three main aims. First, it recuperates the major findings of the study and draws conclusions. Secondly, it provides some policy recommendations in light of the findings of the study and lastly it suggests areas which need further research..

5.1 Summary and conclusions

In this study, attempts have been made to explain the influence of socio-cultural factors on malaria control. In particular, attempts have made to document peoples knowledge about and attitudes towards malaria, account how the shared knowledge and attitudes based on both traditional and modern health care systems and prescribed course of action, influence people on the prevention and treatment of malaria and lastly establish how individual socio-cultural factors such as age, gender and level of formal education influence the choice of malaria therapy.

One of the major objectives of the study was to investigate people's knowledge about and attitudes towards malaria. The findings of this study revealed that people of Sameta division had fair lay knowledge and scientifically rational views about malaria. Majority of the respondents viewed malaria as fatal, severe and preventable. They also appeared to be fairly knowledgeable on how malaria is caused and transmitted; it is major diagnostic symptoms and the period of the year when the disease is most likely to occur in their locality.

Further investigation however, revealed that the respondents' perception on how malaria was caused and transmitted to be scientifically misplaced. For instance, although 81.5 % of the respondents believed mosquitoes cause malaria, it is occurrence was linked to other causes other than the mosquito. This suggested that the actual role of mosquitoes in malaria aetiology is not clear. This belief on malaria aetiology can be attributed to socialization process within the community. According to Kleinman (1980), the knowledge about a disease in any community is embedded in its culture whose health components include "patterns" of belief about causes of illness.

Similarly, although perceived by 90.8% of the respondents as the most severe disease on the study area, it was nevertheless perceived by some as a mild illness that will not cause death even if left untreated. This perception led to malaria not being considered as a health problem that deserves much attention in terms of prevention and treatment. Cause of for treatment of malaria was noted to be necessary, in most cases, only when the illness experienced had either acute symptoms onset or if the symptoms worsened into severe illness.

This study also sought to establish the influence of socio-cultural factors on malaria control. The study focused in particular how socio-cultural factors influenced people on the choose of first method of treatment, use of anti-malaria drugs during malaria illness, malaria prevention and use of prophylactic drugs.

Results from this study revealed that during malaria illness respondents tended to utilize various methods of treatment. As noted in this study, 74.8% of the respondents bought medicine from nearby shops or chemist, while 15.1% visited health institutions when they experienced malaria illness. The low utilization of health institutions in treating malaria was found to be due to over- reliance on self- medication by some respondents. For example, 41.2% of the respondents visited health institutions when locally available drugs do not help, while a negligible proportion (0.8%) visited health institutions when advised by traditional medicine men. Those who visited health institutions did so either because the symptoms were severe or when advised by family members.

Further investigations also showed that the choose of first method of treatment was influenced by an individual knowledge about a particular illness signs and their corresponding biomedical and ethno medical medicines used to alleviate them, the perceived cause of illness and attitudes held by an individual towards malaria in terms of severity. Other factors found to influence the choose of first method of treatment were community social networks and structural factors like the perceived cost of utilizing a particular method of treatment, accessibility and perceived effectiveness of a particular method of treatment.

The study also found that although 66.4% of the respondents took anti- malaria drugs immediately malaria symptoms were noticed, the continuation of using such drugs during malaria illness were found to be influenced by an individual level of knowledge about malaria. For example, those respondents who were knowledgeable about malaria, 90.9%

continued using anti-malaria drugs, while only 9.1% stopped using them. On the other hand 55.2% of the respondents who were not knowledgeable about malaria continued using anti-malaria drugs and 44.8% stopped using them.

The study also found that individual attitudes towards malaria did not influence the continuation of anti-malaria drugs during malaria illness. Instead the continuation of using anti-malaria drugs was found to be determined by the cost involved when taking such drugs, the held belief that too much medicine in the body is harmful and the existence of many alternative methods of malaria treatment like ethno medical medicines.

Another finding of this study showed that 52.9% of the respondents believed that malaria could be prevented. Those respondents who did not believe malaria could be prevented, data showed that they knew various preventive methods but never associated them with malaria prevention. For example those respondents who knew mosquito nets associated them with prevention of mosquito bites at night, which they perceived as a nuisance.

The study also found that individual knowledge about malaria causation and transmission paralleled with their ideas about malaria prevention methods. For example, respondents who perceived malaria to be caused by being rained on and cold weather, avoided being rained on, while those who believed malaria to be caused by eating sugary foods, which later accumulates in the body to cause malaria, avoided eating such foods.

Another finding of this study showed that an individual level of knowledge about malaria had no effect on the use of biomedical malaria preventive methods like mosquito nets. Instead the use of biomedical preventive methods was found to be influenced by structural factors like availability, affordability and accessibility. For example, in this study, it was noted that lack of money constrained the use of modern malaria preventive methods like mosquito nets among some respondents.

Apart from biomedical malaria preventive methods, this study also revealed that there exist several local anti-vector strategies. These local anti- vector strategies were found to aim at driving mosquitoes away because they were perceived as a nuisance.

The study also found that 72.3% of the respondents did not take prophylactic drugs. The most cited reason by 62.5% of the respondents was that there was no reason for taking drugs when well, while 9.8% of the respondents believed that drugs could be harmful when one is not sick. The use of prophylactic drugs was found to be influenced by an individual level of knowledge about malaria. This is because 31.8% of the respondents who were knowledgeable about malaria were found to use prophylactic drugs and 24.4% who used them were not knowledgeable about malaria. Similarly, 74.4% of the respondents who did not use prophylactic drugs were not knowledgeable and 63.6% who did not use them were knowledgeable about malaria.

Similarly, the use of prophylactic drugs was also found to be influenced by individual attitudes towards malaria in terms of severity, preventability and curability. Other factors,

which were found to influence the use of prophylactic drugs, were the cost of prophylactic drugs and the perceived benefit of using them to protect oneself against malaria.

Another finding of the study showed that individual socio-cultural factors such as age, gender and level of formal education had a major influence on individual knowledge and attitudes towards malaria. For example, females were found to have favourable attitudes towards malaria than males. The difference in attitudes towards malaria was found to be due to society's division, which is patriarchal. In this case, females were supposed to care for the sick and the family at large. This exposure made female to know the severity of various illness affecting household members. On the other hand, males were found to be more knowledgeable about malaria than females because of their wide accessibility of various source of information about malaria.

This study also found that the choice of malaria therapy was influenced by individual socio-cultural factors like age, gender and level of formal education. For instance, in this study some females were found not to prefer any malaria therapy involving tablets. Also respondents who had attained post secondary level of formal education were found to prefer any malaria therapy whereas, those who had either attained no level of formal education or primary level of education were found to prefer mostly injections or a combination of injections and tablets.

Apart from individual socio-cultural factors, this study also found that the choice of malaria therapy was influenced by individual knowledge about a particular therapy. For example, 45.4% of the respondents who preferred injections believed it causes fast recovery as it entered the blood stream faster and had no side effects like vomiting and body irritations as tablets. The 16.0% of the respondents who preferred tablets did so because they believed they were easy to administer, as they did not involve pricking of the skin.

Overall, the study concludes that intervention measures must occur if significant reduction in burdens caused by malaria in this area has to be realized. This will require among others, a positive change of peoples knowledge about and attitudes towards malaria for those with limited understanding of malaria, harmonization of modern and traditional technologies in the prevention and treatment of malaria by improving their accessibility, availability and cost-effectiveness and incorporation of individual socio-cultural factors such as age, gender and level of formal education of the beneficiaries in the implementation and execution of malaria control programmes.

5.2 Recommendations

First there is need to change peoples health, illness and sick role behaviour towards malaria through health education. The finding of this study indicated that education had a very significant influence on knowledge and attitudes towards malaria and its control. Health education should therefore aim at making people understand the seriousness of malaria, its cause and mode of transmission, therefore changing their knowledge and

attitudes towards malaria. Such health education should be packaged with detailed yet easy understood health messages on the scientific facts about malaria and on various facets of the disease prevention and treatment. Women groups, churches, schools and public meetings are some of the forums and channels that could be used to reach local people with intended health education messages.

Second, the study recommends that any malaria control programme should incorporate individual socio-cultural factors such as age, gender and level of formal education of the beneficiaries during the execution and implementation of such programmes.

Third, its recommended that malaria control facilities should be made more accessible, available and cost-effective to the local people. This study therefore suggests that:
1): The government should ensure easy availability of anti- malaria drugs to members of the study community. The government should achieve this through establishment of more health facilities in the study area, proper equipping of the existing government health units with anti- malaria drugs. Non-government organizations, churches and religious organization could also help by initiating mobile or village based drugs stores from where the residents could purchase drugs that they may require to prevent or treat malaria related illness. Further, household malaria control technologies such bed nets, mosquito repellents should be made more accessible to residents as they could greatly help reduce the incidences of malaria. If possible their unit prices should be reduced to make them more affordable. This could increase the use of these health technologies among the local people.

2) The local people should be encouraged to utilize various ethno medical resources in treating and preventing malaria because they are accessible, available and affordable. Therefore this study suggests that a scientific study be carried on local anti-malaria resources and anti-mosquito plants to determine their efficacy. Those traditional resources, which are found to be efficacious, people should be educated on their correct use. This effort will reduce the cost of malaria control at the local level.

3) The government and other actors dealing with malaria should enhance the implementation of Bamako- PHC initiative in the study area. The Bamako initiative (BI) aims at reinforcing PHC at the community level, ensuring that essential drugs and other PHC service are accessible to those who need them most like the poor and rural population. The study therefore recommends a well-focused and sustained implementation of Bamako initiative in the study area. Among other things, implementation of Bamako initiative in the area would lay and act as a strong base for increased involvement of the government and other actors like non-governmental organizations in malaria control efforts.

5.3 Further research

This study recommends a further evaluative study on the influence of health decision making in the household in the case of malaria control.

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THE INFLUENCE OF SOCIO-CULTURAL FACTORS ON HEALTH SEEKING BEHAVIOUR: THE CASE OF MALARIA CONTROL IN SAMETA DIVISION, KISII DISTRICT.

Good day to you. My name is Masese Rosana Eric; a postgraduate student in the Department of Sociology, University of Nairobi. I am carrying out a research on the influence of socio-cultural factors on health seeking behaviour in the case of malaria control. This research is part of the requirement for the award of University of Nairobi Master of Arts degree in Sociology. I therefore request for your participation. All your views will be held confidentially and will be by no means used for any other purpose outside this study. Thank you.

Respondent number   _____

Location   _____

BACKGROUND INFORMATION

1. Sex _____   1. Female   2. Male

2. Status of the respondent in the household

        1. Father   2. Mother   3. Son   4. Daughter

        5. Other specify _____

3. How old are you? _____ Years (Probe).

4. Which is your religious denomination?
        1. Catholic   2. Muslim   3. Protestant   4. African religious tradition
        5. Other specify _____

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BACKGROUND INFORMATION

1. Sex _____   1. Female   2. Male

2. Status of the respondent in the household

    1. Father   2. Mother   3. Son   4. Daughter

    5. Other specify _____

3. How old are you? _____ Years (Probe).

4. Which is your religious denomination?

    1. Catholic   2. Muslim   3. Protestant   4. African religious tradition

    5. Other specify _____

5. Which language can you read or write? (Tick as said by respondent).

Language	Read	Write
(a) Ekegusii		
(b) Kiswahili		
(c) English		
(d) Other specify		

6. Level of formal education attained.

    1. None   2. Primary education   3. Secondary education

    4. Post Secondary education   5. Other specify _____

7.   Your occupation _____ (probe).

8. How many people live in your household?

9. In your household who makes important decisions on health issues.

    1. Father   2. Mother   3. Son   4. Daughter

    5. Other specify _____

KNOWLEDGE ABOUT MALARIA

10. What is the local name for Malaria _____

11. What do you think cause malaria _____

12. How does one get malaria_____

13. (a) During which month(s) is there rampant Malaria in this area. (Tick as said by respondent). 1. January   2. February   3. March   4. April   5. May
6. June   7. July   8. August   9. September

10. October   11. November 12. December.

(b) What makes Malaria so rampant during this month (s)? _____

(c) What do you do in anticipation for Malaria during this season? (probe)

14. (a) During which month (s) is there no Malaria in this area? Tick as said by respondent.

1. January   2. February   3. March   4. April.   5. May   6. June

7. July   8. August   9. September   10. October   11. November

12. December.

(b) What makes Malaria disappear during this month(s)? _____

(c) Do you take any malaria protective measures at this time? (Probe)

1. Yes   2. No.

15(a) Who are most susceptible to malaria?

(b) Why are they most susceptible _____

16. What are the major symptoms /signs of malaria (Tick as said by respondent).

1. Vogue bouts of fever   2. Body aches

3. General feelings of malaria   4. High fever.

5. Profuse sweating   6. Diarrhoea

7. Muscle cramps   8. Blood stained stool

9. Shaking chills followed by rapid headache.

10. Other specify _____

17. (a) Are the symptoms/signs the same for everybody?

    1. Yes   2. No.

    (b) If No why?

18   (a) If one has malaria, can this be passed to someone else?

    1. Yes   2. No.

    (b) If yes, how? _____

19   (a) Can malaria lead to other diseases?

    1. Yes   2. No

    (b) If yes, which ones? _____

20   (a) Is there any person in this household who cannot get malaria?

    1. Yes   2. No.

    (b) If yes, why do you think malaria do not attack him/her?

21.   (a) Have you had information on how to identify malaria?

    1. Yes   2. No.

    (b) Where was the information given?

    1. School   2. Health centre   3. Home

    4. Church   5. Baraza / public meeting   6. Other specify _____

PRACTICES RELATED TO MALARIA

22.   (a) Has any member of your household suffered from malaria?

    1. Yes   2. No.

23.   How did you know it was malaria? _____

24.   (a) How long did it last? (Tick as said by respondent).

    1. Less than a day   2. Less than one week   5. Other specify _____

    3. One week   4. Two weeks

    (b) How would you describe it? Tick as said respondent.

1. Very serious   2. Serious

3. Not serious   4. Don't know

25. (a) How long did the member stay before starting any form of treatment?

1. Less than a day   2. Less than a week.

3. One week   4. More than one week.

5. Other specify _____

(b) Why _____

26. What was the first thing done to treat the illness? (Tick as said by respondent).

1. Used herbs   2. Bought medicine from the shop /chemist.

3. Visited traditional healer   4. Visited private clinic

5. Visited health center   6. Other specify_____

27. Why did you choose this course of action in question 26? (Tick as said by respondent).

1. It was nearest source   2. It was the cheapest source

3. Most effective source   4. Other specify _____

28. What were the results? _____

29. What else was done to treat the illness? List all the methods used and why.

Method Used	Why used

30 (a) Do you think it is necessary for malaria patients to be given special foods?

1. Yes   2. No.

(b) If yes which foods (List them).

(c) Why _____

31. Do you think it is necessary for malaria patients be restricted from taking certain foods?   1. Yes   2. No

    (b) If yes which foods (list them?

    (c) Why _____

32. (a) Do you know any herbal medicines or traditional methods used to treat it malaria?

    1. Yes   2. No.

    (b) If yes continue to question 33.

    (c) If no skip to question 37.

33. Which herbal medicine or traditional methods do you use to treat malaria? Please name them and describe how they are used?

Method/Medicine used	How used

34. How often do you use or members of your household use herbal medicine or traditional methods to treat malaria?

    1. Once   2. Sometimes   3. Always 4. Most of the time

    5. Never   6. Other specify _____

35. When do you or members of your household prefer to use herbal medicine or traditional methods in treating malaria? _____

36. Why do you or members of your household prefer to use herbal medicine or traditional methods in treating malaria? _____

_____

37. When you or member of your household has malaria when do you or do they take anti malaria drugs? _____

38. When do you or member of your household visit a health centre in case of malaria illness (tick as said by respondent)
    1. When locally available drugs do not help
    2. When advised by medicine man
    3. When symptoms are immediately noticed
    4. When symptoms becomes severe, unbearable.
    5. When advised by family member
    6. Other specify _____

39. (a) When you or any member of your household has malaria do you or do they prefer tablets or injection for treating malaria?
    1. Tablets
    2. Injections
    3. Either
    4. Both
    5. Neither

(b) (I) If tablets why _____

(ii) If injection why _____

(iii) If both why _____

(iv) If either why _____

(v) If neither why _____

40. (a) Do you or member of your household continue taking anti-malaria medicine even after you have started (they have started) feeling better?

    1. Yes   2. No

(b) If Yes why?_____

If No why? _____

41. (a) Do you think it is necessary to follow instructions written on anti malaria medicine or those given by health workers?

    1. Yes   2. No

(b) Why _____

42. (a) Does malaria medicine harm or as any bad effect on you or other member of your household?

    1. Yes   2. No

(b) If yes, what are these effects?

43. (a) Do you (they) still continue using malaria medicine despite its effects?

    1. Yes   2. No

(b) If yes why? _____

44. (a) Do you think it is necessary to combine modern anti-malaria medicine with traditional medicine?

   (b) If yes why? _____

      If No ,why? _____

45. Do you think malaria can be prevented?

   1. Yes   2. No

46. (a) When you or any member of your household is not actually suffering from malaria is it necessary to take anti-malaria drugs?

   1. Yes   2. No

   (b) If yes, which tablets (probe) _____

      If No why (probe) _____

47. (a) In case you or member of your household use anti-malaria tablets to prevent you or themselves from malaria, where do you or they get the tablets?

   1. Village helper

   2. Nearby shop.

   3. Private clinics /Health centres

   4. Other specify_____

48. Do you know any method of preventing malaria? (Probe)   1. Yes   2. No

 (a)If yes state the method(s) you know?

(b) If yes do you use the methods in(a)?

49. (a) Which is the appropriate season (time) to use the method mentioned in questions 48

Method	When used

(b) Why? _____

50. (a) Do you encounter any problem in using these malaria prevention methods in questions

48?   1. Yes   2. No.

(b) If yes which problems (probe)?

Method	Problem

51. (a) Do you know any traditional method(s) used to prevent one from malaria?

1. Yes   2. No.

(b) If yes continue and fill the following table

Method	How used

52. (a) Have you ever used these traditional method(s) to prevent yourself from malaria?

1. Yes   2. No.

(b) If Yes why? _____

If No why? _____

ATTITUDES TOWARDS MALARIA

Using the following keys, answer the following statements from question number 53 to 57.

1. Agree   2. Disagree   3 Don't know

Statement	Option	Reason
53. (a) Is malaria a serious disease		(b) If not which one is it_____
54. (a) When a person has malaria he/she should be taken to hospital immediately		(b) Why?_____
55. (a) When a person has malaria he/she should be taken to a traditional medicine men		(b) Why?_____
56. (a) When a person has malaria he should be given any medicine in the house?		(b) Why?_____
57. (a) When a person has malaria he/she should be given anti malaria tablets from nearby shop.		(b) Why?_____

58. When you notice malaria symptoms when do you stop working? _____

59. Do you think malaria can heal on it's own? (Probe)

    1. Yes   2. No

60. (a) Do you think malaria is a difficult disease to treat?

    1. Yes   2. No

  (b) If yes why?

    If No why?

61. (a) Do you think malaria can kill? (Probe)

    1.Yes   2. No

  (b) If yes, who is it especially dangerous on?

62. (a) Do you think it is necessary to prevent malaria?

    1. Yes   2. No

  (b) If yes why? _____

    If No why? _____

63. (a) Do you think it is necessary to treat malaria?

    1. Yes   2. No

  (b) If yes why? _____

    If No why? _____

64. (a) Do you know some events if one does them, involves with them or fail to do them can lead to malaria?

    1. Yes   2. No   3. Don't know

  (b) If yes, give details.

65. Do you have any suggestion as to what should be done to improve on malaria problem in this area?

<div align="center">

Thank you.

</div>