

**LOCAL PEOPLE'S RESPONSE TO MALARIA IN PREGNANCY IN
BAR CHANDO SUB LOCATION, SIAYA DISTRICT, KENYA**

**BY
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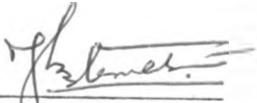
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DECLARATION

This thesis is my original work and has not been submitted for a degree to any other University



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This thesis has been submitted for examination with my approval as a University Supervisor



Dr Stevie M. Nangendo

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DEDICATION

To my parents, my wife and our sons

TABLE OF CONTENTS

PAGE

ACKNOWLEDGEMENTS

ABSTRACT

CHAPTER ONE

INTRODUCTION

1.0	Background Information	1
1.1	Statement of the Problem	7
1.1.1	Background to the problem	7
1.1.2	The problem	10
	Objectives of the Study	13
1.2.1	General Objective	13
1.2.2	Specific Objectives	13
1.3	Justification of the Study	13

CHAPTER TWO

LITERATURE REVIEW

2.0	Introduction	19
2.1	Literature review	19

2.1.1	Overview of malaria situation	19
2.1.2	Malaria in pregnancy	27
2.1.3	Perception of disease etiology and labelling	33
2.1.4	Disease Classification (Nosology)	40
2.1.5	Medical beliefs and practices vis-a vis pregnancy	43
2.1.6	Utilization of health facilities by Pregnant women	50
2.2	Theoretical framework	56
2.2.1	Environmental factors	57
2.3	Hypotheses	60
2.3.1	Definition of terms	60

CHAPTER THREE

METHODOLOGY

3.0	Introduction	62
3.1	Site	62
3.1.2	Climate	63
3.1.3	Agriculture	65
3.1.4	Population	65
3.1.5	Health	65
3.2.1	Entry in the Study Area	71
3.2.2	Sampling Procedure	73
3.2.3	Methods of Data collection	74

3.2.4	Questionnaire Administered Interview	74
3.2.5	Non-participant Observation	75
3.3.6	Informal Interviews	75
3.3.7	Methods of Data Analysis	76
3.4.	Problems Encountered	76

CHAPTER FOUR

PRESENTATION AND DISCUSSION OF DATA

4.0	Introduction	80
4.1	Sex, age and marital status	80
4.2	Religion	81
4.3	Education	82
4.4	Occupation and Income	82
4.5	Family size	84
4.6	Water supply	84
4.7	Housing	85
4.8	Knowledge of malaria	86
4.8.1	Local name and symptoms	86
4.8.2	Transmission of malaria	88
4.9	Prevention and Treatment Practices	90

4.9.1	Prevention of malaria	90
4.9.2	Treatment of malaria in Pregnancy	91
4.10	Impact of lay perceptions on malaria Pregnancy	93
4.10.1	Prenatal Maternal Health	93
4.10.2	Nutrition during Pregnancy	95
4.10.3	Division of Labour	96
4.11	Obstacles to utilization of Health facilities	97

CHAPTER FIVE

DISCUSSION AND CONCLUSIONS

5.0	Introduction	104
5.1	Discussion	104
5.2	Conclusions	111
5.3	Recommendations	116

Bibliography	120
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Appendices	130
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LIST OF TABLES

Table 1	Age of respondents	81
Table 2	Household income per month	83
Table 3	Local name of malaria	86
Table 4	Transmission of malaria	88
Table 5	Methods of preventing malaria	90
Table 6	Type of medicine used for malaria treatment	91

LIST OF MAPS

Map. 1	Kenya : Endemicity of malaria	18
Map. 2	Kenya : Location of Siaya District	64
Map. 3	Siaya District Health facilities	67
Map. 4	Location of Bondo Division	69
Map. 5	Location of Bar Chando Sub-location	72

LIST OF MAPS

Map. 1	Kenya : Endemicity of malaria	18
Map. 2	Kenya : Location of Siaya District	64
Map. 3	Siaya District Health facilities	67
Map. 4	Location of Bondo Division	69
Map. 5	Location of Bar Chando Sub-location	72

ABBREVIATIONS

EAS	-	East African Standard
WHO	-	World Health Organization
KEMRI	-	Kenya Medical Research Institute
PHC	-	Primary Health Care
NGO	-	Non Governmental Organization
TBA	-	Traditional Birth Attendant
LBW	-	Low Birth Weight
GOK	-	Government of Kenya
UNICEF	-	United Nations International Children's Fund
WB	-	World Bank
IMF	-	International Monetary Fund
PEM	-	Protein Energy Malnutrition
UNDP	-	United Nations Development Programme
OAU	-	Organization of African Unity
UNESCO	-	United Nations Educational, Scientific and Cultural Organization
B.I.	-	Bamako Initiative
MCH/FP	-	Maternal and Child Health and Family Planning
NMCP	-	National Malaria Control Programme
MCU	-	Malaria Control Unit
MOH	-	Ministry of Health

SAP	-	Structural Adjustment Programme
ORT	-	Oral Rehydration Therapy
AIDS	-	Acquired Immunodeficiency Syndrome
ICD	-	International Classification of Disease
HIV	-	Human Immunodeficiency Virus
KEDHAR	-	Kenya Danish Health Research Project
ANC	-	Antenatal Clinic
HE	-	Health Education
CHW	-	Community Health Worker

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ABSTRACT

This study set out to investigate the local people's response to malaria in pregnancy in Bar Chando sub-location, Bondo Division. The study specifically sought to find out the local people's knowledge about malaria and the strategies used in responding to it, to identify the community's attitudes towards illness in pregnancy, and to determine local conditions that influence the utilisation of health care services by pregnant women.

The population sample was selected using non-probability sampling techniques. The principal informants were male and female in the study area and a total of 110 respondents were interviewed. The data were collected using interviewer-administered standardized questionnaire, non-participant direct observation and conversational interviewing. The coded data were analysed both qualitatively and quantitatively and the outcome presented in the form of frequencies, percentages and tables. Cultural ecology theory guided this study. This theory is concerned with the way people use their culture to adapt to the environment in which they find themselves.

The findings of the study revealed that people's knowledge about malaria varied and this seemed to influence their perceptions about the symptoms of the disease. The therapeutic options were, however, influenced by factors other than the perceived symptoms of malaria. The community's attitudes towards pregnancy

had implications for the health status of pregnant women as pregnancy was not perceived as a sickness. The study also revealed that the utilization of health care facilities by pregnant women was influenced by socio-economic, cultural and environmental factors.

Following these findings it is recommended that health education should be intensified with a view to sensitising people about the effects of malaria in pregnancy and how it may be prevented and controlled. The intersectoral approach to community development should similarly be adopted as one of the strategies for malaria control in pregnancy. It is also recommended that self-medication should be officially recognized. This should be followed with scientific research on indigenous medicine to establish its efficacy for safe use as an antimalaria treatment. Lastly the local shopkeepers who sell non-prescription patent medicine should be educated so that they can advise their customers on the correct antimalaria medicine and its usage

CHAPTER ONE

INTRODUCTION

Background Information

Malaria is derived from the Latin word *malaria* which means “bad air”. The disease is caused by four types of plasmodium, namely, *P. falciparum*, *P. vivax*, *P. malariae*, and *P. ovale* (Neville 1990), and is transmitted by female mosquitoes of the genus *Anopheles* namely *A. gambiae*, *A. funestus*, *A. meles* *A. arabiensis* (Coimbra 1988). The *P. falciparum* is the most fatal of the malaria causing plasmodia in Kenya. *P. falciparum* infections may also cause neurological complications which are rare in infections caused by other plasmodia (Osuntokun 1985). In Nyanza and Western provinces of Kenya, *P. falciparum* accounts for 80% of malaria infections (Roberts 1974; Ruebush *et al*, 1995).

Malaria is among the most prevalent of infectious diseases affecting more than 40% of the world's population and kills more than 100 million people per year.

According to Osuntokun (1985:209):

malaria occurs in the area between latitude 62°N and 40°S mainly in the tropical and subtropical zones where the climate provides optimal conditions for the survival of mosquitoes and a minimum temperature of 17 C below which the plasmodia cannot develop.

Specifically in sub-Saharan Africa up to 500 million are susceptible to malaria infection out of which an estimated one million, mainly children, die every year (Neville 1990). In East Africa, the endemicity of malaria is found in the humid low-lying areas of the coastal plains and the lake shores of Victoria and

Tanganyika (Prothero 1961). For instance, in Kenya malaria is endemic in the Western region around Lake Victoria and at the Indian Ocean coast (see Map no. 1). Endemicity of malaria is experienced where malaria infection occurs throughout the year. Malaria is said to be stable in such areas. The prevailing humid conditions and high rainfall favour continuous mosquito breeding. The populations in such areas are reinfected throughout most of their lives making those who survive to develop some immunity (Roberts 1974). In the recent past there have been epidemics of the disease in the hitherto non-malarious regions (Moazami, 1994). This has sometimes been attributed to easy and faster transfer of people from one part of the country to the other. Proper epidemiological explanations are, however, still awaited

When a healthy person is bitten by an infected anopheles mosquito it takes 12 to 30 days before the onset of malaria (Eshuis and Manshot 1978:49). The common symptoms for malaria include fever, chills, rising body temperature, joint pains, sweat and loss of appetite. These are, however, not the same symptoms that are used by lay persons in the "diagnosis" of malaria. Lay persons tend to label fever and malaria as one and the same disease. The presence of fever is normally taken to be an indication of the presence of malaria (Jackson 1985; Jayawardene 1993). The difference between clinical and lay diagnosis of malaria is, therefore, important to both the prevention and treatment of the disease in endemic areas.

Clinical treatment for malaria is ideally achieved by giving the patient four chloroquine tablets at the start of treatment followed by two tablets six hours later

and then for the next three days two tablets daily (Eshuis and Manshot 1978:10). This process is considered to be ideal since it presumes the application of the prescribed medical schedule for malaria treatment: that is treatment is never given without a blood slide.

We know that this is far from the truth in the majority of health care facilities in the rural areas. On the other hand, most of the malaria cases in the developing countries are treated at home (Foster 1995; Ruebush 1995). Moreover, this drug regimen is increasingly becoming ineffective in areas where there is chloroquine resistant malaria parasites. Studies have shown that the emergence of chloroquine resistant malaria parasites have complicated malaria control strategies especially in Africa (Oloo et al. 1991). Recent studies among children in malaria prone areas like Kisumu, Bondo and Kwale in Kenya showed that overall resistance to chloroquine ranges between 75% and 85%. It is feared that fansidar (Sulfadoxine/Pyrimethamine), the next cheap alternative is likely headed for the same fate (EAS Feb. 1998).

Malaria has a negative impact on a people's economy as well as their health. For instance, in Kenya a lot of working hours are wasted through absence from work or attending to those infected with malaria (Kenya, 1992). It is not easy to give a proper picture of the economic loss experienced as a result of malaria infection as most cases go unreported. However, it is estimated that Kenya loses 174 million working days per year as people between 15-60 years of age are kept away from productive work due to morbidity attributed to malaria (Kenya, 1992). Again

these estimates do not give the correct picture since some work days are lost by relatives and friends who are obliged to either visit or take care of the sick. The role of health care for the sick tends to fall more heavily on the women who on the other hand are viewed to be the backbone of the country's economy. Malaria also affects the economy to an extent to which families are forced to spend their savings in order to receive treatment especially in areas where health care facilities are inadequate or non-existent.

Malaria and pregnancy are two diametrically opposed phenomena that tend to exist together. Pregnant women have been found to be more susceptible to malaria attack than non-pregnant women. Studies have shown that the level of malaria parasites in the blood increases during pregnancy, especially the first and second pregnancies (Bray and Anderson 1979). It has been established that failure to treat malaria in pregnancy results in maternal mortality and morbidity, miscarriage, still births, premature deliveries and low birth weight infants (Kaseje *et al*_1987; McGregor 1984). The World Health Organization (WHO) recommends prompt treatment and use of chemoprophylaxis throughout the pregnancy. However in endemic areas and specifically in developing countries the use of chemoprophylaxis can only be a partial solution in overcoming malaria in pregnancy. A number of issues merit consideration. The pregnant mothers in endemic areas may sometimes be asymptomatic and, therefore, may not see the sense of taking antimalarial drugs without any symptoms of the disease. The influence of cultural perceptions, attitudes and practices cannot be discounted in as far as the adoption of chemoprophylaxis for malaria or any other disease in

pregnancy is concerned. Pregnant women may shun chemoprophylaxis due to, prohibitions to or attitudes associated with, drugs during pregnancy. For instance, in some communities in Kenya and India pregnant women do not take any drugs for fear that these would be harmful to the unborn child (Jayawardene 1993; Kaseje *et al* 1987). Moreover in most communities in Kenya the common antimalaria drug-chloroquine-is wrongly associated with inducing abortion. For example, in Kano plains chloroquine related abortions are responsible for 28.7% of the abortions in the area (Kaseje *et al* 1987).

The reluctance by pregnant women to accept chemoprophylaxis by no means implies their total rejection for prophylactic measures during pregnancy. It is significant to note that pregnant women and their significant others have their own ways of handling diseases or illnesses that afflict pregnancy. This is normally based on the community's perception of illness and pregnancy. This study investigated how lay persons in Siaya District respond to malaria in pregnancy.

This study was conducted in North Sakwa Location, Siaya District, Kenya. Siaya District is a holoendemic malarious area and at the same time lacks adequate health facilities. According to the data available in the district medical records, the district faces grave health problems contributing to one of the highest infant mortality rates in the country. This infant mortality has direct relationships with malaria in pregnancy and other prevalent infectious diseases in the region. Recent research the by Kenya Medical Research Institute (KEMRI) indicates that malaria

in pregnancy is not uncommon in Nyanza Province in which Siaya is one of the districts. According to the report (The East African 1996:5), "some 25%-26% of the 500 pregnant women studied were infected with maternal malaria parasites."

This grave situation requires concerted efforts between the local community and the relevant governmental and non-governmental agencies with a view to putting in place viable primary health care (PHC) programmes to alleviate the problems. However, inadequate funding by both the government and non-governmental organizations (NGOs) continues to have adverse effects on the existing PHC programmes in Siaya District in general and in Bondo Division in particular. On the other hand, it is argued that even if more funds were availed to the existing PHC programmes they would still be found wanting in terms of their overall impact on the local community. This is attributed to the fact that the existing PHC programmes still lack an element of local participation in both their planning and implementation. The important point is that a lack of local participation or community's involvement in the planning of PHC programmes does normally deny both planners and implementers of the programmes the opportunity to appreciate the forces that are crucial to a community's health seeking behaviour patterns. As at present PHC programmes, in North Sakwa Location in general and in Bar Chando sub-location in particular, portray a notable bias for the biomedical health care systems. However, it is evident from the study that there exists other health care systems in the area which are well patronised in addition to the biomedical health care systems.

If planners were to involve the local community in PHC programmes the chances are high that the community would advocate for the incorporation of other non-biomedical health care systems in the primary health care programmes for the local community. The accommodation of non-biomedical health care systems is likely to enhance the social acceptability of PHC programmes. On the other hand, the incorporation or cooperation of indigenous health care systems may prove a major asset to the success of PHC programmes as some of these systems could facilitate the delivery of modern health care to more members of the community. For example, studies have shown that traditional birth attendants (TBAs) can be an effective 'conduit' for delivering malaria chemoprophylaxis to pregnant mothers (Kaseje *et al*, 1987), especially in the rural areas where official health facilities are still inadequate.

1.1 STATEMENT OF THE PROBLEM

1.1.1 Background to the problem

Malaria in pregnancy has attracted a lot of attention and research, especially by biomedical scientists. Pregnant women in endemic malarious areas suffer from increased prevalence and severity of malaria infection. It has been established through research that the level of malaria parasites in the blood increases during pregnancy (Bray and Anderson 1979; Brabin 1983, 1985; MacGregor 1984). This phenomenon is more prevalent in women pregnant for the first and, to some extent, second time. The most severe period occurs between 13 to 16 weeks of gestation (Brabin 1983; Kaseje *et al* 1987). Infants, especially the first children,

born to pregnant women infected with malaria have lower birth weight (LBW) and usually remain at increased risk of prenatal and neonatal infections (Kaseje *et al* 1987; MacGregor 1984). Severe malaria in pregnancy if not promptly treated may be responsible for spontaneous miscarriages, still births and premature deliveries (Kaseje *et al* 1987; MacGregor 1983). Moreover, malaria in pregnancy is believed to be the commonest cause of anaemia among pregnant women in endemic areas, especially in the tropical countries (Mnyika 1985). To prevent morbidity resulting from malaria infection the WHO recommends the administration of antimalaria drugs for prophylaxis.

Studies conducted in Kenya on malaria in pregnancy have confirmed that it is a major health problem in endemic areas. The problem is more significant in Western and Coastal regions of the country. Recent research conducted by the KEMRI indicates a strong presence of maternal malaria in Nyanza (East African 1996) Siaya District, one of the districts that make up Nyanza Province, has been a recipient of a number of research missions on malaria. Few of these studies, however, have addressed exhaustively the subject of malaria in pregnancy in the district. For instance, the Saradidi research project on malaria chemoprophylaxis to pregnant women is reported not to have been effective “in providing malaria chemoprophylaxis to pregnant women even though malaria is perceived as an important cause of abortions or still births” (Kaseje *et al* 1987). This is clear proof of the poor state of primary health care delivery in the district. Moreover there is still poor or low utilisation of existing modern health care facilities due to

sparse population, accessibility problems and the apparent preference of the well known traditional health care systems.

The government recognises the poor state of existing primary health care services in Siaya District and has continuously made efforts to improve the situation despite its recurrent and development budgetary constraints. Similarly the District Development Planners continue to make efforts to provide for curative and preventive health services utilising the available resources. There is the desire to achieve more improvement. For example, during the 1994/96 plan period the District Development Planners undertook to:

increase immunization coverage from 57% to 80% and immunizing centres from 36 to 46; reduce infant mortality rate from 130 per 1000 to 80 per 1000; increase family planning acceptance by 15% from 5%; reduce family planning drop out rates to less than 1%; morbidity from 10 killer diseases in the district should be reduced to 20%.....; increase the number of deliveries attended to by trained staff to 75% (Kenya 1994-96:141).

Although both the National and District Development Plans for 1974/78, 1979/83, 1984/88, 1989/93 and 1994/96 have planned for the improvement of health provision in Siaya district, the situation of health in the district remains far from adequate. People continue to experience health problems which are not costly to prevent. The prevalent diseases experienced include, in order of morbidity rates, malaria (46%), respiratory tract diseases (23%), skin diseases (11%) and diarrhoeal diseases (7.4%). With regard to hospitalization the principal causes are malaria (47.5%), abortions (14.5%), diarrhoeal diseases (13.1%) anaemia (12.6%) and respiratory tract diseases (6%) (GOK and UNICEF 1989). The government,

non-governmental organizations (NGO's) and other interested organizations have initiated a number of health care activities in the district. These primary health care initiatives have not had a significant impact on the community due to a number of constraints notably the shortage of qualified staff, shortage of drugs and other consumables, lack of equipment, transportation problems, and insignificant participation by the community. This study, conducted in Bondo division, based its investigation on one of the health problems prevalent in the district namely: malaria in pregnancy.

1.1.2. The Problem

Research in Siaya on women's knowledge of malaria has been done in Lwak (Ringsted and Ringsted 1995), East Asembo (Ruebush 1995) and Saradidi (Kaseje *et al* 1987). The common finding of these studies, like similar studies done elsewhere, is that people know what malaria is and what causes it. These studies also concur on the recommendation on the use of antimalarial drugs for prophylaxis. The major discrepancy of most of these studies seems to be the lack of appreciation for the influence of peoples ignorance, cultural perceptions and attitudes and socio-economic status on the acceptance and use of antimalarial drugs. These studies adopt an epidemiological approach which may not be consistent with a community's way of responding to ill health. Every community has its own established mechanisms of responding to ill health. These mechanisms are embedded in the cultural perceptions and practices usually gained during the socialization process.

In most communities all over the world pregnancy, child birth and the entire process of human reproduction are normally marked with rituals consistent with the cultural context in which they occur (McLean 1971). In African societies pregnancy and child birth are perceived to initiate procreation. For most communities this is what constitutes marriage and, therefore, inability to conceive and bear children is seen as one of the biggest misfortunes (Mbiti 1969). In which case pregnancy and child birth are never entirely biological phenomena but must also conform to socio-cultural construction. Browner and Sargent (1990:215) identify cultural patterns that accompany maternity to include.

- the beliefs and practices surrounding menstruation, proscriptions on circumstances under which pregnancy may occur and who may legitimately reproduce, the prenatal and postpartum practices of mothers-to-be and their significant others observe.

The significant point to note is that pregnancy is more of a social activity than a pathological process. Therefore, any activities pertaining to pregnancy including ill health, must be seen through the 'eyes' of a particular culture. In all human societies beliefs and practices relating to ill health are a central feature of the culture. Often these are linked to other aspects of culture such as religion, social stratification and politics (Mbiti 1969). Cross-cultural studies have shown that response to ill health in pregnancy varies according to culture. Sargent and Rawlins (1991:179) established that "the cultural construction of pregnancy as a life cycle event rather than a pathological condition may account for expressed

indifference to medical surveillance during pregnancy. Similarly in Mexico

Browner and Sargent (1990:25) cite studies carried out which established that:

Mexican women refused to accept injections during pregnancy because they understood that injections cause the cervix to close. Because those women believe that the fetus breathes through its mother's cervix they decline injections other than jeopardize the well being of their fetus.

On the other hand among the Luo of Kenya, therapy seeking during pregnancy tends to vary from family to family, but there are general beliefs that

abdominal pains during pregnancy (*tuo ich*) is among the conditions which the Luo believe cannot be cured by modern medicine. The other diseases in this category are mental illness (*neko*), abdominal pains caused by evil eye (*ich muor*) epilepsy (*ndulume*), post partum abdominal pains (*ojiwo*) and women infertility (*dhako maok nyuol*). (Sindiga 1995:76)

Therefore, the central problem of this study was to investigate the relationship between lay persons' perceptions and practices on malaria in pregnancy and the services offered by the existing health facilities in Bar Chando sub-location, Bondo division. The questions guiding the study included.

1. Can the people in the area identify symptoms and signs of malaria as opposed to the pregnancy related diseases ?
2. Do they have ways of treating malaria-related illnesses in pregnancy ?
3. How is malaria related illness in pregnancy viewed by the community?
4. Are there any social, economic and cultural factors that influence the utilization of existing health facilities by pregnant women?

1.2.0 Objectives of the Study

1.2.1 General objective

To investigate and describe local peoples response to malaria in pregnancy

1.2.2 Specific Objectives

The immediate objectives of the study are:

1. To describe the knowledge and attitudes the local community has about malaria and malaria related illnesses in pregnancy.
2. To document strategies employed by the local people in responding to malaria like illnesses in pregnancy.
3. To determine local conditions that influence the use of existing health facilities specially by pregnant women.

1.3.0 JUSTIFICATION OF THE STUDY

The pursuit for good health is the ultimate goal of all human beings whether as individuals, families or members of a community. The World Bank however regards good health as an asset in a community or country since

---improved health contributes to economic growth in four ways: it reduces production losses caused by worker illness; permits the use of natural resources that had been totally or nearly inaccessible because of disease; it increases the enrolment of children in schools and make them better able to learn; and it frees for alternative uses resources that would otherwise have been spent on treating illness. The economic gains are relatively greater for poor people who are typically most handicapped by ill health (World Bank, 1993:17)

This statement is true for the aspirations of every developing country, including Kenya. On the other hand, investing in health by any country or organization requires proper planning due to the meagre resources available. In such a situation therefore, any information regarding morbidity and mortality situation in the community or country is very important. Magadi (1997:5) observes that “meaningful planning and management of health services requires knowledge about the frequency and patterns of morbidity in a population as well as the utilization of preventive and curative services”. Information is also needed on the utilization of and attitudes towards other forms of health care available within the community. This study, therefore, aimed at providing information and data that will be useful in planning a health care system geared towards prolonging life as well as the prevention of premature or early death, especially of children and pregnant women in malaria endemic areas.

Women are an invaluable asset to any community, especially in the non-western societies. Besides their pivotal role in the national economy they are the building blocks of food production and household management. However, the role of women in any society is greatly weakened if their reproductive health is neglected or less appreciated. This study has documented some ways in which women’s reproductive health tends to be overlooked with disastrous results to their health and productivity. The practices identified by the study may be useful to planners, opinion leaders, and other interested parties when it comes to drawing up health education programmes aimed at promoting appreciation of and support for

reproductive health especially in those communities where importance and appreciation of reproductive health is still low.

Malaria in pregnancy is important to the health of pregnant women in malaria endemic areas. Many programmes aimed at combating malaria have been launched by both the government and non-governmental organizations. Most of these programmes, however, have not achieved the intended objectives. Failure or insignificant success of the programmes tends to correlate positively with lack of support from or acceptance by the local or recipient community. This is significantly common with vertical health programmes. Lack of support from or acceptance by the local community stems from the fact that these communities are least involved, if at all, in the planning and sometimes in implementation of the programmes. Excluding recipient communities from the planning process denies programmes the vital cultural context that is key to their eventual success. This study underscores the importance of this element in the planning of community based health care programmes (Ongore *et al* 1989).

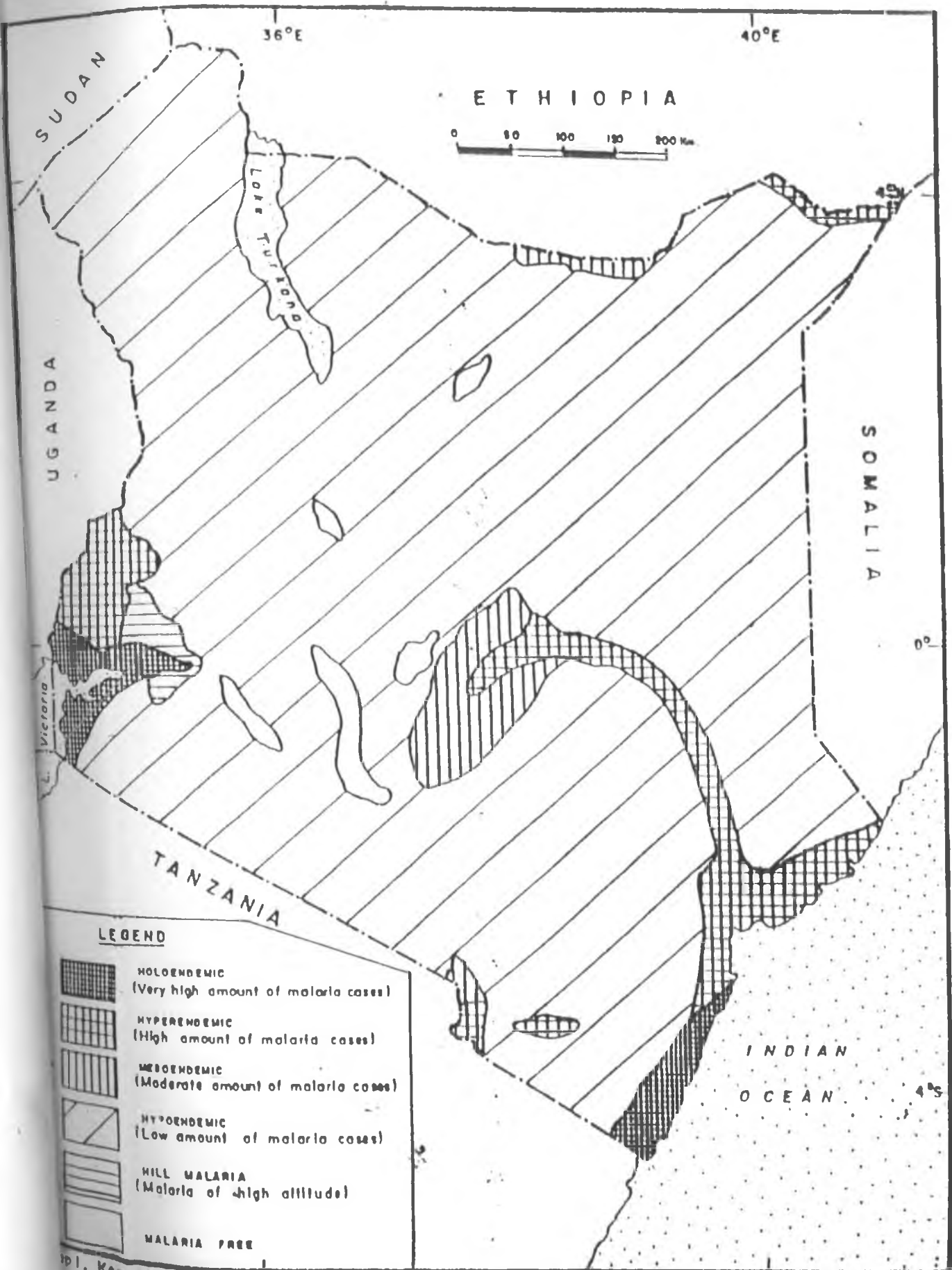
Most studies conducted on malaria in pregnancy recommend the use of antimalarial drugs for prophylaxis. This study has established that most people, in this case pregnant women in the rural areas, have less or no access to essential drugs. This condition, which is prevalent in most developing countries (WHO 1988), has made many people to resort to self medication and other forms of health care. It is, therefore, important for planners of primary health care programmes to recognize and appreciate the existence and importance of medical pluralism in the rural areas. This is important as it will help them in putting up

programmes which will, without hesitation, accommodate the popular, professional and folk sectors of health care as vital components of a viable health care system

Studies commissioned by the World Bank (1993) have revealed that there is a high correlation between non health related variables of development and pregnancy related health. This implies that programmes targeted solely at pregnancy related health may not have significant impact on malaria in pregnancy in endemic areas unless other non health variables are put into consideration. Non health sectors of development are important if malaria in pregnancy is to be successfully combated. This study has revealed the importance of intersectoral approach in combating malaria in pregnancy. For example programmes to combat malaria in pregnancy will not make any significant impact without a viable infrastructure, food security (nutrition), clean water and improved sanitation, education (level of literacy), income, and good administration, to mention the main ones.

Finally, when taken as a whole this study should enhance the appreciation of anthropology by all those concerned with improvement of health care situation in the cultural entities or rural communities. This study has provided these groups with the facts that a health care system must always incorporate peoples' medical knowledge about disease, their medical beliefs, their disease classification systems and their healing practices. This is useful information which may not be easily solicited from a people or community without using an anthropological

approach. Apart from drawing appreciation from policy makers, health planners and participants in intervention programmes it is expected that this study , its limitations notwithstanding, also forms a valuable basis and reference for similar future studies either in the same study area or elsewhere where malaria is important to the health of pregnant women.



1. Kenya: Endemicity of Malaria

Source: DVBD Annual Report, 1983

CHAPTER TWO

LITERATURE REVIEW AND THEORETICAL FRAMEWORK

2.0 Introduction

This chapter covers the literature review, theoretical framework, formulation of hypotheses, and the operational definition of terms.

The literature review on malaria in pregnancy is so enormous that no attempt can be made here to cover it in its entirety. Therefore, only part of the pertinent literature is reviewed and it is divided into three sections. The first section gives an overview of the malaria situation with emphasis on the developing world but with specific reference to Kenya. The second section is on malaria in pregnancy while the last section deals with the literature which is pertinent to this research topic.

2.1 Literature Review

2.1.1 Overview of Malaria Situation

Malaria remains a major problem to health improvement in all affected countries world-wide. The efforts of the WHO to eradicate malaria have not been successful due to a number of factors but notably the increasing resistance of malaria causing mosquitoes to insecticides and the malaria parasites to drugs. The reality of the situation is that the malaria resurgence is increasingly becoming the worry of many people in malarious and non-malarious areas.

According to Khare (1998), about 46% of the world population live in areas that are considered to be malarious while 500 million people around the world suffer from malaria infection. It is, however, in sub-Saharan Africa where malaria infection is felt in unprecedented dimensions. Out of a global total of 300 to 500 million clinical cases of malaria suffered each year, 90% occur in sub-Saharan Africa alone. Furthermore, malaria is responsible for an estimated 1.5 to 2.7 million deaths globally and 80% of which is from sub-Saharan Africa (Malangalila and Mbugua, 1998).

Malaria is a great burden to the health sector in countries where the disease is endemic. In such countries the disease accounts for 30% of outpatient attendances and high proportion of inpatient admissions (Khare 1998). This may be, however, a false representation of the real situation especially in countries where access to health facilities is still a problem

The World Health Organization, in recognition of the worsening situation of the malaria manace, has recommended a global strategy to be adopted as a measure of fighting against the threat by malaria. The strategy comprises of four elements; namely;

1. to provide early diagnosis and prompt treatment;
2. to plan and implement selective and sustainable preventive measures;
3. to reassess regularly a country's malaria situation in particular the cological, social and economic determinants of the disease (WHO1992; iv)

Besides efforts being exerted by WHO in the fight against malaria the threat by this disease to the health of the world population has also attracted the attention of the World Bank, UNDP, UNICEF, UNESCO, OAU, the Group of 8(G8), multi and bi-lateral agencies and the International research agencies (Malangalila and Mbugua 1998)

In Africa individual countries have been urged by the WHO Africa region to set up National Malaria Control Programmes to supplement or reinforce the existing legislation or programmes on the prevention of malaria in their countries. The strongest commitment by African countries about the fight against malaria, however, is the "Harare Declaration on malaria prevention and control in the context of African economic recovery and development" which was ratified by the Assembly of Heads of State and Government of the Organization of African Unity in Harare in June 1997.

This declaration became the blue print for malaria prevention and control in Africa as all Member States pledged to adopt the following:

1. consider malaria control in Africa one of its priority programmes and reaffirms its unflagging resolve to maintain the gains so far achieved and prevent the outbreak of epidemics;
2. support fully the implementation of the Global and Regional strategy and approaches recommended by the World Health Organization;
3. implement well planned and coordinated malaria control programmes involving individuals, families, communities, institutions, relevant government Ministries, and other public and private sectors;

4. allocate sufficient human, financial and material resources, and mobilize other local resources including resources from non-governmental and private civil sectors, for the sustained prevention and control of malaria in Africa.
5. mobilize additional external resources from international agencies, governmental and non-governmental agencies, foundations and industrial and commercial enterprises to support national and commercial action to control malaria and surveillance to prevent epidemics and sustain the progress made;
6. support malaria prevention and control through well defined policies and appropriate legislation and its enforcement, to facilitate programme implementation, community participation and access to preventive measures and treatment, for all populations at risk
(Harare Declaration 1997, 2-3)

In Kenya the National Malaria Control Programme (NMCP) was set up in 1993 to reinforce the existing legislation and/or programmes on malaria control. Laws governing the control of diseases such as malaria include the Public Health Act (Cap. 243, Laws of Kenya 1921) and the Malaria Prevention Act (Cap. 246, Laws of Kenya 1962). The Public Health Act requires that the Ministry of Health (MOH) should combat communicable diseases by various methods through its medical departments and through the other medical departments in all local authorities. Part XII of the Public Health Act is specifically on malaria control and urges all concerned to participate in the prevention and destruction of mosquitoes. Under the auspices of the NMCP, a Malaria Control Unit (MCU) was set up in 1994 to give more serious attention to the problem of malaria control. The objectives of MCU include: (Ministry of Health, Document for internal circulation 1998)

1. improving and sustaining services within the community for reducing malaria morbidity and mortality;
2. co ordinating and focusing the control efforts of Ministries, Divisions, International agencies, and Private sector on malaria as a national health problem;
3. guiding and empowering community members to protect themselves from malaria related illness and death;
4. using current and completed research findings to target appropriate interventions to regional malaria problems; and
5. ensuring the availability of appropriately trained personnel at all levels for effective implementation of the plan

The major target of these objectives is to reduce malaria morbidity and mortality by 30% by the year 2000.

Efforts at malaria control in endemic areas are mainly directed at the efficacious use of biomedically prescribed therapies. The World Health Organization estimates that almost half the world population have little or no regular access to essential drugs. Sub-Saharan Africa is the worst hit as only 1/3 of its population have any access to essential drugs (Foster 1990). Besides, African countries are yet to possess the capacity to produce the drugs they need and this leaves them with no alternative other than importing drugs using scarce foreign exchange. It was in recognition of this situation that WHO encouraged the use of other non-biomedical therapies for combating diseases in the developing countries. The need to make more utilization of locally available medicine is more economical at this time when the health sector, like other sectors, is under pressure from the

World Bank and International Monetary Fund supported Structural Adjustment Programmes (SAPs)

The adoption by African governments of the Primary Health Care (PHC) strategy remains a single approach by which governments can provide accessible, affordable and socially relevant health care to a majority of the populations by the year 2000. Among the principles of PHC strategy include the utilization of a community's local resources in fighting problems that impede health improvement of a community. This means the incorporation of the existing health care systems, for example, indigenous health practitioners, in the primary health care programmes (Akerele 1987). Interest in traditional or indigenous health care has been on the increase as a result of the inadequacies of the modern health care services. Many people have expressed disappointment with the poor quality of care rendered by modern health care institutions.

Most patients have objected to the failure of modern medicine to address their problems in a holistic manner (Heggenlounen 1980). Sindiga (1995:4), quoting Pillsbury (1979) on the same point, states that:

---large numbers of the rural people do not always utilize existing official health care services - most of them are suspicious of Western medicine partly because it does not tolerate local beliefs and behaviour related to health matters and is partly the reason why some 90 per cent of the rural population seeks health care in traditional medicine

Dejong (1991) sees traditional or indigenous medicine as an important source of health care for a significant number of the population of Africa and other developing countries. In Africa survey data indicated that about 20% of those

who seek medical care first consult the popular sector, notably the traditional healers. The level of education does not seem to be the determining factor because a survey in Ibadan, Nigeria, found that roughly 70% of both educated and non-educated groups used indigenous health care before moving to the biomedical sector (Dejong 1991).

As far as maternal and child health is concerned traditional medicine and practice play, and may continue to play, a major role especially in non-western societies. In these societies women and children have difficulties in having access to health care delivery. Community based MCH/FP programmes, like other primary health care programmes, have not yet made a widespread impact due to their dependence on government and donor agency funding (Pillsbury 1982). One of the principles of primary health care strategy was the incorporation of traditional health care system in a community health care system. Pertinent to MCH/FP was the emphasis on incorporating and training of the traditional birth attendants (TBAs). It was recognized that both the indigenous healers and TBAs were part of the local culture and that they had high social standing and an influence on local health practices (Maclean 1987). Involving such people in a community's health care could yield positive results towards health improvement especially among pregnant mothers and infants. Studies have shown that in many non-western societies a majority of pregnant women do not attend antenatal clinic services and few of them, mostly emergency cases, deliver in hospitals. Instead there is an overwhelming preference for traditional birth attendants (Karbo 1987). Many reasons have been given for this state of affairs but common ones include fear of

witchcraft, fear of breaking taboos, high cost of hospital delivery, the youthfulness of hospital staff who are assumed to lack cultural knowledge about child birth and the unfriendly treatment and atmosphere of the hospital environment (Karbo 1987:90)

An overwhelming support for and utilization of traditional medicine and healers is a clear indication that their integration within the national health care delivery system would enhance people's access to health care services. Studies in Ghana have shown that traditional healers are more accessible to the people than personnel in modern health care service (Warren 1987). According to Green (1987), indigenous practitioners are accessible, affordable and culturally appropriate and acceptable, thereby, fulfilling the major criteria for effective health service. It is argued that the credibility these traditional practitioners command in the community places them in a better position to influence both modern and indigenous MCH/FP delivery services (Sindiga 1995). Case studies have shown that services of indigenous practitioners can be successfully harnessed in combating preventable disease such as malaria, cholera, diarrhoeal diseases as well as family planning (Green 1987). In Nigeria, for example, herbalists were selected and trained in community based distribution of contraceptives and in preventive aspects of primary health care. The selected herbalists were people specializing in midwifery, pre and postnatal care, and in traditional methods of preventing pregnancy. On the other hand, in Swaziland traditional healers were invited to workshops in which they received lectures on different topics including diarrhoeal diseases and administration of oral

rehydration therapy (ORT), as well as on secondary topics such as immunization against childhood diseases, breastfeeding and nutrition. An evaluation of this exercise a year later indicated that oral rehydration therapy was becoming an accepted practice and indigenous healers were likely to refer serious cases of diarrhoea to clinics. Drawing from the experiences of these two case studies Green (1987:140) concludes that

---the basic idea of such programmes is to tap the potential of healers to deliver culturally appropriate and cost-effective health or family planning services. Traditional healers can motivate people to use oral rehydration therapy or modern contraceptive methods once they themselves become convinced of the advantages. And because of their credibility, ubiquity, and business acumen, traditional healers have the potential to become effective distributors of---contraceptives, oral rehydration salts, or vitamin A.

The foregoing literature review indicates that malaria in pregnancy in particular and malaria in general in endemic areas is yet to be effectively controlled. Control by modern methods is hampered by insufficient funding and logistics besides the socio-economic status of the populations. Effective control of the disease needs to be approached by using any available avenues..

2.1.2 Malaria in Pregnancy

Malaria and pregnancy are two conditions that impact upon one another. Studies have shown that malaria parasites in the blood normally increase during pregnancy (Bray and Anderson 1979). It is believed that pregnancy in some way interferes with the pre-existing acquired immunity and so reactivates malaria

(McGregor 1984). Other conditions exacerbated by pregnancy include "anaemia, protein-energy-malnutrition (PEM), diabetes, rheumatic heart disease, hepatitis, tuberculosis (TB) and sickle cell disease. Complications of pregnancy may also cause permanent damage such as uterine prolapse, and obstetric fistulae" (Tinker 1994:5). The intensity of malaria in pregnancy is more pronounced during the first and second pregnancies (Kaseje *et al* 1987). In studies conducted in the Gambia (McGregor 1984), it was reported that in a sample of primigravidae women 64% had infection and for those in their second and third pregnancy 39% had malaria infection while 20.9% malaria infection was detected in the rest of the sample. Malaria related ill health in pregnancy has adverse effects on the health of the mother and the foetus. Severe malaria in pregnancy, if not promptly treated, may result in complications which may be responsible for high maternal morbidity and mortality, spontaneous miscarriages, still births, premature deliveries and low birth weight (LBW) infants (Kaseje *et al* 1987). Infants particularly first children, born to mothers infected with malaria have lower birth weight and are at increased risks of perinatal and neonatal infections (Kaseje *et al* 1987; McGregor 1983).

Pregnant women in malaria endemic areas have high risks of suffering from severe anaemia. According to Tinker (1993:4), "from 60% to 70% of pregnant women in developing countries are estimated to be anaemic. Anaemia impedes a pregnant woman's ability to resist infection or survive haemorrhage increasing the likelihood of death in child birth". Anaemia is attributed to the suppression of the

pre-existing acquired immune system and the deficiency of iron and folic acid in the body of the pregnant woman (Bruce-Chwatt 1983; Hamilton *et al* 1972)

Malaria infection of the placenta puts the outcome of pregnancy in great jeopardy. It has not been established exactly how the placental malaria infection affects the birth weight of the infant but there are two possibilities "first by inducing premature labour and second by depressing placental function as an organ of foetal nutrition" (McGregor *et al* 1983:232). The Kenya Medical Research Institute (KEMRI) in Kisumu said in a recent research report that a discovery had been made of a malaria parasite that specifically threatens the foetus in the womb. The report indicates that as many as a quarter of the pregnant women studied were infected with *P. falciparum* malaria. The report further states that the pregnant women are susceptible because their immune system is suppressed diminishing their ability to resist the infection (The East African, Jan 15-21 1996). It is believed that placental malaria is a major cause of higher death rates of infants over the first seven days of life (McGregor *et al* 1983). Babies delivered with malaria infected placenta are lighter in weight than those babies whose mothers had no parasite in the placenta (Hamilton *et al* 1972). Prevalent rates of placental malaria infection reported in tropical Africa vary between 20% to 34% (Hendrickse 1987). An estimated 23 million babies are born in Africa each year out of which approximately 4 million of them will be born with low birth weight, thus, placing them at increased risk of neonatal and early infant mortality (Schultz *et al* 1994).

The morbidity and mortality rates of malaria cases in pregnancy prompted the WHO to recommend in 1984 the use of anti-malaria drugs for prophylaxis throughout pregnancy. Although the WHO recommendations have been adopted in most malarious areas of the world the war against malaria is far from being over. The acceptance of anti-malarial drugs for prophylaxis in endemic areas has encountered a number of obstacles. Similarly the acceptance of chemoprophylaxis depends on the willingness of pregnant mothers and their significant others. In malaria endemic areas most pregnant women are malaria asymptomatic and, therefore, they may not easily accept chemoprophylaxis when there are no overt symptoms associated with what is locally perceived to be malaria. Studies carried out in Guinea, for instance, established that pregnant mothers were less likely to use anti malarial drugs for prophylaxis due to uncertainty about their effects and also lack of access to the medication (Glik *et al* 1989). On the other hand, in Tanzania it was found that pregnant women with a high knowledge of malaria were more likely to use malaria prophylaxis than those with low knowledge (Mnyika 1995). Chloroquine side effects, such as, itching and bitterness in the mouth, and the perceived lack of protective effects against malaria have been associated with women's reluctance to use the drug as prophylaxis. Some women also believe that chloroquine and any other drugs may be harmful to the unborn baby (Mnyika *et al* 1995; Jayarwadene 1993; Kaseje *et al* 1987). In areas where malaria chemoprophylaxis has been properly marketed it is still a problem to meet the demands with the available resources and infrastructure. Chemoprophylaxis given infrequently is not effective. Studies have

shown this to be true for malaria chemoprophylaxis on placental infection (Cot *et al* 1992). The administration of effective malaria chemoprophylaxis for pregnant women, therefore, requires strategies that are both acceptable and accessible. This can only be achieved when health care delivery services are well coordinated. Such coordination can be achieved through the primary health care (PHC) programmes.

One of the major components of primary health care strategy is the strengthening of the community-oriented maternal and child health and family planning programme (MCH/FP). Through MCH/FP the health of pregnant mothers in malaria endemic areas can be safeguarded. Lettermaier *et al* (1988:1) feel that such community-oriented programme should provide to pregnant mothers, amongst other things basic information about pregnancy and child bearing.

Community-oriented MCH/FP unfortunately are not widespread especially in the rural areas where they are needed most. Lack of progress in this area is attributed to a number of factors the chief ones being the degree to which national health policy responds to local aspirations and needs; the degree to which the civil service has been de-centralized; the degree of organization at a local level, whether district or location; and the degree to which communication takes place between the centre and the periphery at both local and national levels (Rifkin 1990)

The recognition by WHO for a strong MCH/FP led to the establishment of the Safe Motherhood Initiative in Nairobi in 1987. The Safe Motherhood Initiative aims at alleviating the plight of women especially in the developing world. More than 150 million women become pregnant in developing countries each year and an estimated 500,000 of them die from pregnancy related causes. Most of the women receive insufficient prenatal care or none at all. The Safe Motherhood Initiative plans to conduct research on maternal health measures. Some of the specific activities include increasing access to family planning and traditional birth attendants, and providing tetanus toxoid and other medicines to maternal and child health clinics (Koblinsky *et al* 1993; Word Development Report 1993:113).

In developing countries, notably Africa, MCP/FP programmes have been anything but strong and this has implications for malaria during pregnancy.. This is mainly attributed to inadequate funding, highly centralized civil service, and low participation by the effected communities in planning of health services. For example, in Kenya MCH and FP have for a long time operated as separate entities. This has weakened the services offered since women are required to visit two institutions to receive what could have been a consolidated service. On the other hand, most of the community, based MCH/FP programmes in Kenya are run by non-governmental organizations (NGO's) and religious based organizations. These organizations have the tendency of choosing where to operate. In which case there may be some parts of the country which are likely to miss both the government or non-governmental sponsored health care services (World Bank 1980).

The common features of the current MCH/FP programmes in Kenya is their lack of intersectoral linkage. According to Dissevelt (1978), community-based maternal and child health programmes are stronger when there is simultaneous development in the areas of health, sanitation and socio-economic development. But above all the programmes must be established and run within a cultural context, because matters touching on human reproduction are sensitive in any community. This was realised by the World Health Organization in 1976. According to the Sixth Report of WHO Expert committee on MCH of 1976.

If MCH care programmes are to be effective in the contemporary, changing social environment, they must concern themselves not only with the immediate causes of morbidity and mortality, but more important, with the types of social organization and the values, aspirations and particular problems that characterise the lives of the underserved populations. There is no other period in human life span when beliefs, customs and values affect health and health care as much as they do at the time of pregnancy, childbirth and childhood (Dissevelt 1978:34).

Malaria in pregnancy in endemic areas has not received the attention it requires especially in African countries. In Kenya, for instance, the services offered at the MCH do not always include routine diagnosis and treatment of malaria among pregnant women attending antenatal clinic. Since malaria diagnosis ideally involves blood tests the MCH services are unable to undertake this since functional laboratories are rare within the vicinity of most MCH services.

2.1.3 Perception of Disease Etiology and Labelling

Research hitherto conducted on malaria has adopted the biomedical paradigm on the etiology of the disease. Such stance tends to neglect a consideration of the

social, cultural, political and economic factors as of any influence on the cause and nature of disease. This is common with the empirical approach normally employed by biomedical science research. For instance, physicians look for connections and causes as they pertain to physics, biochemistry, anatomy and physiology as a means of explaining the cause and nature of disease.

The nineteenth century witnessed great advances in physiology and chemistry which resulted into the birth of the germ theory. The theory was formulated by Lois Pasteur who "postulated that germs (microbes) are the cause of disease and that specific germs were the cause of specific diseases" (Quick 1980:24). This theory has been the basis for drug formulation for use against each specific disease causing germ. The trust in chemotherapy is, therefore, seen by the biomedical profession as the panacea for all diseases, thereby, relegating any other factors that may be integral to disease causation and healing.

Malaria, like other diseases, has not escaped from the ambit of biomedical paradigm on disease etiology. As a result it is, according to Abdullah (1984:22),

identified, diagnosed, treated and prevented in the same way and by the use of the same drugs everywhere. The vector-parasite approach to malaria control supposes that everybody views malaria scientifically, in terms of causation, transmission, treatment and prevention, regardless of factors like culture, levels of education and religious affiliation, among others.

The germ theory which is central to biomedical paradigm remains the basis of disease etiology in the Western societies. In the recent past, however, challenges

to the paradigm have come from, among others, sociologists, anthropologists, economists, medical geographers and public health planners. The argument from these groups is based on the fact that disease etiology must be seen within the framework of a health care system. A health care system, it is argued,

--integrates the health related components of society. These include patterns of belief about causes of illness, norms governing choice and evaluation of treatment; socially legitimated status, roles, power relationships, interaction settings, and institutions (Kleinman 1980:24)

The straight interpretation of this argument is that health care systems are socially and culturally constructed. The health care systems are meant to reflect the social reality of each community in matters relating to disease etiology and healing. Berger and Luckman (1957) see this as the social construction of reality since the health care system is a reflection of all the medical knowledge of a community. Relating disease etiology to socio-cultural aspects of society facilitates the classification process of disease using relevant idioms. These specific cultural idioms "are used in determining classification of disease, the cause, the weight of the seriousness, the type of treatment required and the healer to be consulted" (Abdullah 1984:25).

The classification of disease etiology in non-western societies may fall under either a personalistic or naturalistic medical system (Foster and Anderson 1978).

Accordingly, therefore,

A personalistic system is one in which illness is believed to be caused by the active, purposeful intervention of a *sensate* agent who may be a supernatural being (a deity or a god), a non human being (such as a ghost, ancestor, or evil spirit), or a human being (a witch or sorcerer). The sick person literally is a victim, the object of aggression or punishment directed specifically against him, for reasons that concern him alone (Foster and Anderson 1978:53)

On the other hand in a naturalistic medical system

--illness is explained in impersonal, systemic terms. Naturalistic systems conform above all to an equilibrium model; health prevails when the insensate elements in the body, the heat, the cold, the humors or *dosha*, the yin and yang, are in balance appropriate to the age and condition of the individual in his natural and social environment. When this equilibrium is disturbed, illness results. (Foster and Anderson 1978:53).

The two medical systems are by no means mutually exclusive as in some societies certain disease etiologies may be perceived as either personalistic or naturalistic. It is moreover important to note that the two medical systems portray the etic cross cultural classification of disease etiology. There exists emic inter-and intra-cultural variations of disease etiology. In Africa, for example, Namboze (1983:2041) identifies three culturally constructed classification of disease causation; namely:

- i) magical supernatural: - this group includes diseases caused by angry result of infringing social rules (especially sexual conduct of child's parents) and failure to perform certain rituals. gods, evil eye, witchcraft, the influence of spirits, breach of taboos..
- ii) infectious diseases or those which are acquired through close contact with an infected person
- iii) hereditary diseases: - disease with known causes are usually treated with westernized medical practitioner while diseases caused by magical and supernatural causes are treated by indigenous methods and are collectively called natural diseases

Among many African societies there are also differences in disease etiology. Among the Luo of Kenya for example it is believed that disease or ill health may come about through at least five ways; namely, diseases of the air, water and food; diseases of inheritance, and diseases resulting from breaching of taboos and customs (Sindiga 1995:65-68). The Luo believe that changes in weather conditions are usually accompanied by bad air which is responsible for seasonal diseases such as flu, common cold and malaria. Eating of contaminated food and drinking of dirty water is believed to be responsible for such problems as dysentery, diarrhoea and abdominal sickness. Evil people within the community, for example, sorcerers and witches, may also cause harm to their enemies through the use of herbs, evil eye or witchcraft. Failure to honour the wishes of the ancestors is seen as an offence which may be punished by the visitation of disease and/or misfortune. The Luo also believe that some diseases may be caused by breaching taboos or customs. The consequence of committing this offence is known as *chira*. *Chira* may manifest itself through diseases such as headache, coughing, diarrhoea, and more recently AIDS. Other manifestations of *chira* are infertility, giving birth to children of one sex, children dying after birth, and children contracting incurable diseases.

Disease like malaria though portraying an apparent naturalistic etiology may sometimes assume a sociocultural interpretation. A comparative study of the biocultural perception of malaria and clinical evidence of the same diseases was conducted by Jackson (1987) among children in Liberia. The study revealed a

significant difference between the social and biomedical model of the perception of malaria in the Liberian community. Whereas clinical malaria illness was based on the parasitological confirmation of *plasmodium* protozoa in the red blood cells of the affected children the lay people's recognition of malaria was based on socially known symptoms namely high fever, simultaneous occurrence of joint pains, general body weakness and headache. Although most of these symptoms are evident in clinical malaria it is important to appreciate the fact that the socially conditioned timing of the recognition of malaria is important in the control of malaria infection in such a community.

There is evidence from studies carried out in non-western societies that most ill health is interpreted within the personalistic medical system. Ill health is never separated from the general misfortune, however, naturalistic it may appear to be. According to Foster Anderson (1978:67), it is believed that

---the same agents, the same beings, also lie behind all misfortune, such as blighting of crops, financial reverses, theft, and family quarrels: Illness is not a separate category from misfortune in general.

Lay perception of disease etiology is crucial to planning for health interventions. Knowledge of indigenous medical beliefs and practices is important in planning health programmes as a non recognition of such knowledge makes programmes appear foreign and, therefore, unacceptable. Lipowsky *et al* (1992), for instance, attribute the failure of many health programmes on professionals and planners who fail to recognize lay peoples health beliefs. The tendency by professionals to

transplant health programmes without any cultural considerations has been likened to the fallacy that people do not have established health beliefs of their own and are empty vessels waiting to be filled with new health information on disease etiology and control (Polgar 1962).

Malaria control programmes are no exception to the views expressed above. Many of such programmes have been launched without due regard being given to the medical knowledge and beliefs of the recipient communities. The biomedical model portrays malaria as having "naturalistic" etiology and, therefore, sensitive to chemotherapy. Studies have shown, however, that there are communities where what may be perceived to be clinical malaria may also be an agent of malevolence. In such communities illness is not a separate category from misfortune in general. Ringsted and Ringsted (1995) have, for instance, cited several accounts among the Luo of Lwak where *chira* was used as an explanation of misfortunes that had been experienced by informants but which initially appeared as malaria. The death of children who suffered from and/or died of what seemed to be clinical malaria was attributed to *chira*. It is also true that among non-western societies there are certain ailments associated with pregnancy and will always be classified and treated as such. For instance, malaria infection during pregnancy will not be classified as the normal malaria and, therefore, the course of treatment will vary.

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2.1.4 Disease Classification (Nosology)

Disease classification is a prerequisite for therapy. A universal disease classification does not exist at present. The existing International Classification of Disease (ICD) is far from universal. Although it is a product of international collaboration, the collaborators have thus far all been trained in biomedicine; indigenous non-biomedical medicines have not been represented. A universal cross-cultural nosology is possible but only if it takes cultural settings into account (Hahn 1995; Fabrega 1972). In accordance with the biomedical model diseases are discrete pathological conditions, which can be adequately described in biomedical and physiological terms (Good 1977). In non-western societies, however, "diseases are categorised differently in different societies, using various discriminating principles; and culturally varied causal explanations are attached to each category" (Good 1977:51). In which case in such societies the formulation of a global classification of disease may appear formidable due to the need to incorporate many cultural forms to represent the various societies or communities (Hahn 1995; Bibean 1981; Fosu 1981; Yoder 1981; Frake 1961).

In Africa the available literature indicates that disease etiology plays a major role in disease classification. As already noted, however, disease etiologies are conceived within a cultural context and, therefore, this also affects disease classification (Yoder 1981). This situation makes it difficult to develop a universal taxonomy of disease for Africa similar to the International Classification of Disease found in the West. There are, however, characteristics of illness classification that are thought to be representative of many societies and

communities in non-western societies in general and Africa in particular (Bibeau 1981). Following a study conducted among the Ngbandi of Congo (Bibeau 1981) on disease classifications it was concluded that classification of disease could be adapted to the following principles:-

1. The principles of localization - naming the disease through the part of the body mainly affected by the symptoms e g head(ache), chest(pain), back(ache), etc
2. The principles of resemblance or likeness - The disease is assigned a place in the environment. This form of naming is rooted in the gaze which establishes a connection between characteristic present in the symptom and something else already known by experience, for example the disease is named after an animal, plant or object.
3. The principle of representation - Representation is built upon a deeper level of abstraction. The disease is considered in itself as a complex set of signs. For example the Angbandi name for leprosy is *ndiha* which refers literally to a knife (*ba*) that is no longer sharp (*ndi*). In using the composite word, the Angbandi indicate that a leper's skin may not recognize a sharp instrument when applied to it.
4. The principle of etiological reference - This is reference to a causal agent or factor. In which case the disease becomes part of the entire causal system
5. The principle of therapeutic reference - This is when a disease is named after the treatment applied
6. The principle of socio-cultural imperative - The name used is deeply rooted in cultural values (Bibeau 1981:299)

In other non-African societies, in the developing world, a classification of disease is also consistent with the cultural beliefs and traditions of the people. Frake (1961), for example, studied the Subanum of Mindano in the Phillipines and

found that the community had an exhaustive disease classification system. The system was found useful in diagnosis and a useful guide for therapy.

A classification of disease is important as it helps in therapy seeking. It is also equally important to health planners as it assists them in comprehending the folk taxonomy of disease, illness and healing practices of a community (Spradley and McGurdy 1975). According to Fosu (1981), success in introducing biomedical practices into non-western societies health care system can be realised only if efforts are made to comprehend and accommodate indigenous disease nosology. If this is achieved then:

---health planners will be able to design appropriate programmes to communicate needed educational information either to reinforce favourable attitudes or modify unhealth practices. In the long run it will help health planners to organize improved and acceptable health care for---communities (Fosu 1981:472)

Malaria is classified by most people in endemic areas as a disease with a natural cause and it is, therefore, treated as such. On the other hand, if malaria infection fails to respond to what is regarded socially as the normal treatment for malaria infection then its classification may shift to a new status of causation. This is because cultural interpretation of illness changes as illness itself changes through time. In many cases illness episodes which are classified as 'natural' at an early stage are later explained in terms of sorcery or spirit causation (Hours 1987; Horton 1967). For example:

Kamba diagnosticians give different interpretations of cases which continue for less than one month, between one month and two years, and more than two years (Feierman 1985:77).

The point here is that the relationship of experience to time is at the core of the cultural classification of illness in most non-western societies. Davis-Roberts (1981:315) puts it thus "Illness brings to bear upon the family of the patient the pressure of time speeded up. Instead of basing their choice upon their necessities and convenience, people must move to the pace set up by the progress of the disease." For both Good (1977) and Kleinman (1981) the broader process of cultural interpretation of disease is more important than finding "the right narrow label for a particular kind of disease" (Feierman 1985:77). Ringsted and Ringsted (1995) found that among the Luo of Lwak a cultural interpretation of malaria among children influenced the course of treatment taken by the parents and their significant others.

2.1.5 Medical beliefs and practices Vis-a-vis Pregnancy

Medical beliefs and practices constitute a major element in every culture (Foster and Anderson 1978). These beliefs and practices are normally linked to other aspects of culture such as religion, magic, politics and social structure. Within a cultural context we are able to understand how a particular community reacts to ill health, death or misfortune. The emphasis here is on inter-and intrasocietal variations in the perception-of ill health and the resultant diagnosis, response and treatment. These variations, however, make it somehow problematic in giving a cross-cultural definition of what comprises sickness. Hahn (1995:20) gives a list of characteristics that define what it means to be sick:

- i) To be sick is to have something wrong with oneself in a way regarded as abnormal when compared to a suitably chosen class
- ii) To be sick is to experience both unpleasant sense of disruption of body and self and threat to one's integrated personhood
- iii) To be sick is to have the sort of thing that medicine, as an evolving craft, has customarily treated
- iv) To be sick is to undergo an alteration of one's social roles and relationships in ways that will be influenced by cultural belief systems
- v) To be sick is to participate in disruption of an integrated hierarchy of natural systems, including one's biological sub-systems, oneself as a discrete psychological entity and the social and cultural systems of which one is a member.

While accepting the above characteristics of sickness Helman (1990), Kleinman (1980), Eisenberg (1977) and Good (1977) have also discussed how sickness is perceived. Their discussion, however, centres on the dichotomy of two aspects of sickness namely; disease and illness. Kleinman (1980:72) differentiates between disease and illness by stating that:

Disease refers to a malfunctioning of biological and/or psychological processes, while the term illness refers to the psychosocial experience and meaning of perceived disease--- Illness involves processes of attention, perception, affective response, cognition, and evaluation directed at the disease and its manifestations--- Viewed from this perspective, illness is the shaping of disease into behaviour and experience. It is created by personal, social and cultural reaction to disease.

On the other hand, Helman (1990:107) looks at both disease and illness from a behavioural angle. He says:

Illness is the subjective response of an individual, and those around him, to his being unwell; particularly how he and they, interpret the significance of this event, how it affects his

behaviour, and his relationship with other people; and the various steps he takes to remedy the situation. It not only includes his experience of health, but also the meaning he gives to that experience.....

Both the meaning given to their symptoms, and their emotional response to them, are influenced by their own background and personality, as well as the cultural, social and economic context in which they appear.

These definitions underscore the fact that sickness is an integral part of any culture. In which case those who fall sick must of necessity provide a cultural context to their sickness for legitimate recognition of their "sick role." Each cultural group or community has elaborate culturally constructed patterns of coping with illness as well as behaviour to be exhibited by those who are sick. The recognition of the sick role confers some rights and obligations to those so defined (Coe 1970). The rights include being excused from normal duties and having claim upon other members of society for assistance. The obligations include the desire to want to get well as quickly as possible and to seek competent help and cooperate in the process of getting well (Lasker 1981; Igun 1979; Mckinlay 1972; Coe 1970).

Those whose sick role has cultural significance are allowed to assume illness behaviour. Mechanic and Volkert (1961:52) define illness behaviour as:

---the way in which symptoms are perceived, evaluated and acted upon by a person who recognises some pain, discomfort or other signs malfunction--- two persons having much the same symptoms, clinically considered, may behave quite differently; one may become concerned and immediately seek medical treatment while the other may ignore the symptoms and not consider seeking treatment at all.

It is evident that factors that influence illness behaviour are embedded in one's own culture and are internalized during the socialization process. Both sick and illness behaviour roles ideally take place in a situation where there is no conflict in decision making. Some otherwise sick people may deny feeling ill in order to carry on with their normal roles. Concern for financial cost of care and for being absent from work may also influence the sick person's decision (Coe 1970).

The fact that the cultural context is key to determining the recognition of the sick role means that what is recognized as a sick role in one society may not be so in another. Pregnancy is one such controversial phenomenon. McKinlay (1972), in his seminal study on illness and pregnancy, observes that there seems to be considerable intercultural and intracultural variations in the way the state of pregnancy is defined and managed. According to this author, some societies notably in non-western societies regard pregnancy as a normal life interlude through which all women at some time pass while in other societies, like in western societies pregnancy is viewed as an illness which must be handled in the same way other types of illness are handled.

In cultures where childbirth is viewed as a process for the perpetuation of a community, pregnancy is very much a cultural process and less of a biological one. In Korea, for example, Sich (1981:69) established that:

childbearing is integrated into culturally determined patterns between pregnant women and their families--- The family rules over procreation for the sake of its continuation which comes before all other obligations of its presently living members and

is mutually shared responsibility. The traditional Korean woman has been socialized to accept this as a fact and leans toward the family for comfort and support.

As to the possibility of rural Korean women assuming the sick role in pregnancy the same author avers that:

Tradition has communicated concepts and behavioural patterns of very sound health value. In the area of child bearing in Korea they include the great confidence and self assuredness of women to accept child bearing as their right and duty without desire to become 'patients'; to assume a sick role and delegate responsibility to health services (Sich 1981:69).

Sargent and Rawlins (1991) also found that pregnant women in rural Jamaica did not seek prenatal care because they did not perceive pregnancy as a disease. Studies conducted in other communities, especially among the non-western societies, indicate that pregnancy is culturally constructed, thereby, precluding pregnant women from assuming a sick role (Jayawardene 1993; Browner and Sargent 1990; Karbo 1987; Kaseje *et al* 1987).

Mckinlay (1972:564) appears reluctant to recognize any sick role for pregnancy.

His argument is premised on the following that:

1. Pregnancy is a normal phenomenon as women who conceive are considered to be normal for the purpose.
2. Pregnancy can be considered normal because it is often thought to be a necessary biological function for the survival of the species.
3. Pregnancy is normal because it is often thought to be a desirable state of affairs.

4. Majority of women who conceive experience an uneventful gestation and parturition and have no resulting delivery or obstetric problems.

As a result of these Mckinlay (1972:568) does not see why a pregnant woman should be subject to the rights and obligations attached to the sick role. He argues how pregnancy does not fit in any of the rights and obligations prescribed for the sick role by stating that:

1. Exemption from performance of normal social obligations: It is not common that a pregnant woman is exempted from the performance of normal social obligations. Exemption is only granted if a pregnant woman suffers from other diseases e.g. high blood pressure.
2. Exemption from responsibility: This cannot be the case because conception is self imposed [though not always] as opposed to disease which comes without the will of the patient.
3. Motivation to get well as soon as possible: Pregnancy unlike disease, is a desirable condition. This is a condition which needs no therapeutic action. Therefore, the desire to get well cannot apply.

Modern health care systems, prevalent in western societies, however, recognize pregnancy as a form of sickness and, thus, its medicalization. Pregnancy *per se* may not appear to be a sickness to most lay people but there is medical evidence to link pregnancy to a number of diseases that afflict women. Pregnancy is known to exacerbate anaemia, protein energy-malnutrition, hepatitis, malaria, tuberculosis, sickle cell disease, diabetes and heart disease. Complications of pregnancy may also cause a permanent damage to the pregnant woman (Tinker 1994). The failure to recognize and treat conditions that are triggered by pregnancy is believed to be responsible for the high maternal morbidity and

mortality rates in the developing world. For example, studies commissioned by the World Health Organization and World Bank have established that more than 500,000 women in developing world die each year from pregnancy related causes. This high maternal mortality is linked to the failure by women in the developing world to receive sufficient modern prenatal care (Tinker 1994). Although maternal mortality is alarmingly high in non western societies it is not enough to blame it entirely on the inadequacy of modern prenatal care. There are many other possible variables that merit consideration.

Evidence exists to show that lay people's medical beliefs and practices play a major role in the outcome of pregnancy especially in non western societies. Studies have indicated that even in those countries where prenatal services are available there have been indications that they are not used to the required capacity. Karbo (1987), as a gynaecologist in Sierra Leone, reports of an interesting study he carried out on pregnant women and their utilization of modern antenatal services. He says that although the attendance at the antenatal clinic was encouraging few of them were willing to deliver there. His analysis of the situation revealed that:

-- in fact only about 10% of the deliveries had attended our antenatal clinic. The rest were emergencies. The majority of my antenatals; including the sophisticated women of the community and even my nurses and wives of staff, went to have their babies under the Traditional Birth Attendant (TBA)(Karbo 1987:89)

This case may be given two possible interpretations. First, attendance of the prenatal care services is undertaken as a routine matter or at the urging of an

administrator or friend. Second, the choice as to where to deliver depends entirely on traditional medical beliefs and practices. The TBA is believed to be conversant with the medical practices that are acceptable to society. On the other hand, pregnancy or childbirth is not considered as a form of disease that may require cosmopolitan medicine and the study by Sindiga (1995) confirms this view. For example, among the Luo of Kenya the problems of abdominal pain during pregnancy and postpartum period are among the conditions believed not to be treatable by modern medicine. Browner and Sargent (1990) also reported that herbal remedies are used by women in the management of pregnancy and treatment of female reproductive health in several societies.

Medical beliefs and practices in most non-western societies are less likely to emphasize pregnancy as an illness thereby recognizing a sick role for a pregnant woman.

2.1.6 Utilization of Health Facilities by Pregnant Women

During pregnancy a woman takes care of herself to ensure her own health and that of the unborn baby. But this usually happens within a given cultural context (Namboze 1983; Mclean 1971). During the term of pregnancy women utilize various types of health services - both cosmopolitan and indigenous. In the developed countries the tradition of maternal and child health care is well developed and widespread. On the other hand, in the developing world efforts to operate on the western based style of maternal and child health system is still saddled with many problems. According to Benyoussef and Wessen (1974:288),

problems affecting the developing world in the utilization of modern health services can be generalised in three broad categories; namely:

1. Availability of health services in developing countries tends to be sharply limited in terms of both the facilities and manpower
2. Although the distribution of services is often spotty, health facilities and manpower are least available to the rural population which comprise the majority of most developing countries
3. While their need for medical services is regularly high, numerous sociocultural factors often act to inhibit the traditionalist and rural population of developing countries from utilizing those services which are available to them.

Benyoussef and Wesen's categorization is biased toward the utilization of the western health care system. However, our focus on the utilization of health facilities is by no means limited to western-oriented health care system. Many other health care systems exist in the developing countries which are equally utilized by populations in those countries. In the circumstances it becomes necessary to delineate the criteria used by pregnant women and their significant others in choosing one facility or facilities and not the other.

In most societies of the world pregnancy and child birth are surrounded with a lot of rituals (McLean 1971). Studies have shown that culture influences the choice of health facility utilization by pregnant women and their significant others.

According to Raikes (1990:35)

Cultural factors have been shown to be important in utilization patterns, where traditional beliefs about pregnancies, infant feeding patterns etc, as well as perception about illhealth and

well being, have been shown to influence health seeking behaviour

Pregnant women in some communities are prohibited from using any non-indigenous medicine as a measure of protecting their lives as well as that of the fetus (Mnyika 1995; Jayawerdene 1993; Kaseje *et al* 1987). In other societies women are also culturally restrained from visiting modern health facilities for fear that they may be given injections which are considered to be fatal to both the mother and the fetus (MacCormack and Lwihula 1983; Johnson and Sargent 1990). It has been found that in those countries where culture asserts more influence pregnant women are more likely to attend prenatal services at the clinic than they are to deliver there since most of them are culturally biased toward traditional birth attendants (Karbo 1987).

Access to health services affects utilization. Benyoussef and Wessen (1974) have documented the gross disparity of health services provision in developing countries between the urban and rural areas. This differential distribution of health care services affects the choice of utilization. Pregnant women, especially in the rural areas, who visit a health facility and fail to get the required services may not go back to the same facility. Their experiences will be passed on to their relatives and friends who will in turn use the information in making decisions about future utilization. It is argued that lack of access to sufficient modern health care services has made many people in the rural areas to turn to indigenous healers and self-medication (Ruebush 1995; Foster 1995; Dejong 1991; Mbura *et al* 1985).

There is also a connection between access and distance with respect to utilization. Distance, however, has other variables that impact on the utilization of health services by pregnant women. Travel is both costly and time consuming especially in the rural areas where there are numerous infrastructural obstacles (Raikes 1990; Mwabu 1984). Distance makes health facilities geographically inaccessible to the majority of the people. Women, especially pregnant and with children, are most likely to experience difficulties in reaching the facilities. Stock (1983:569) found that :

Patients living some distance from a health care facility tend to delay using its services usually preferring to use some alternative forms of treatment, including self treatment with traditional or patent medicines, western types treatment obtained from commercial sources and the therapies of traditional healers as a first choice

The World Health Organization advocates for the siting of health facilities within a four-kilometer radius; a requirement that appears unattainable in most developing countries by the year 2000. In Kenya, for example, about 40% of the rural population has no access to health services and 1/4 of the country's households are located more than eight kilometres from any form of modern health care facility (Wasuna and Korir 1997). Much as distance may appear a deterrent to the utilization of health care services people at times cover long distances in search of health services. The decision to seek health care services very far from home depends on a number of factors. People travel far when they are assured of quality health care services than the ones available locally. This characteristic affects both modern and traditional health services. Ethnicity and

religious affiliation have also been cited as factors that make people travel greater distances to seek for health care (Stock 1983).

Time taken to travel, the cost involved and the means used in travelling are important to the utilization of health services. The cost factor is important to rural populations, especially women, most of whom have meagre or no income to spare for health services. It is even more difficult for unemployed women household heads. Johnson and Sargent (1990) reported that among the Yucatec Maya community access to economic resources was the best predictor of pregnant women's decision to use traditional or biomedical practitioners. Time, on the other hand, is equally important to pregnant women seeking for health services since excessive time for both travelling and waiting for treatment may compromise a lot of opportunities. Time wasted is seen in terms of interference with the food production, water collection, food preparation, child care and sometimes money earning opportunities (Raikes 1990). Based on this Bamisaiye *et al* (1986:160) concluded that "if mothers are sure of being attended to quickly and easily a pattern of regular and frequent visits to the clinic can be established."

The level of education or awareness influences the utilization of health services. Literacy and awareness expose both men and women to the use of the mass media, employment opportunities as well as shaping their attitudes towards good health care. Studies conducted in Tanzania showed that women with a high knowledge of malaria were more likely to use antimalarial drugs for prophylaxis during pregnancy than women without any knowledge (Mnyika 1995). Similarly,

in Saradidi, Kenya, it was found that lack of knowledge and awareness contributed to the failure by pregnant women to accepting and using antimalarial drugs for prophylaxis (Kaseje *et al* 1987). Knowledge is important in endemic areas where malaria is stable. In these areas most people, including pregnant women, are asymptomatic and it requires awareness campaigns to convince pregnant women that they need antimalarial drugs to safeguard both themselves and the unborn baby.

A woman's role in the management of a family affects her utilization of health services. In most developing countries women engage in food production and some business to support family income. This is besides their reproductive roles in health care and home management. Because of this pivotal role in the family women, even when pregnant, may find themselves reluctant to accept a sick role (Litman 1974). It is common that mothers are more likely to seek medical care or advice for their children than themselves. Similarly when it comes to food production it has been found that women would always want to be out in their fields, working regardless whether they may be sick or not. This becomes more pronounced during the planting, weeding and harvesting seasons. According to Stock (1983), seasonal variations in health care utilization have been reported. Due to the pressure of work on the farms people hesitate to make trips which may include visiting a health care facility.

In most developing countries people who visit health care facilities are required to make some nominal payments. However, minimal this payment may be, it is

sometimes a deterrent to the utilization of the health care facilities. This deterrent may be attributed to two factors; one where some people are not able to raise money for the nominal payment and two people detest paying for what they feel should be rendered free.

2.2.0 Theoretical Framework

This study was based on the paradigm of cultural ecology. The paradigm is concerned with the way people use their cultural knowledge to adapt to their environment. For example the occurrence of disease and response to it among human beings can ultimately be traced to their prevailing cultural practices and beliefs, socio-economic characteristics and forms of interaction with their environment

The paradigm of cultural ecology is grounded in many studies and theories propounded by different groups and individuals (Rosen 1963). Studies carried out in Europe in the 19th century on the influence of poverty, occupation, nutrition, housing and other related factors established that health was a product of socio-environmental factors.

The beginning of the 20th century witnessed the general recognition by most communities in Europe and America of the theory that linked life and health on people's cultural adaptation to their environment. This theory had been conceived and propounded by a German medical student Alfred Grotjahn. He advanced a

number of principles that are fundamental for a systematic study of human disease from a social view point (Rosen 1963:44). He stated among other things that:

The etiological relationship between social conditions and disease may be expressed in four ways: social conditions (a) may create or favour a disposition for a disease; (b) may themselves cause disease directly; (c) may transmit the causes of disease; and (d) may influence the cause of disease.

To emphasize the role of socio-environmental factors in health, Rogers (1960:169) gives a working classification of material and non material environmental factors that either are known to affect man's health status or may do so at one time or another:

2.2.1 Environmental factors having possible effects on Health status

I The material environment

(a) Intrinsic (somatic) factors : age, sex, hereditary characteristics (genotype)

(b) Extrinsic factors

1. Physical environment : topography, climate, occupation, housing other physical aspects of both the macro and micro environment in which man lives
2. Biological environment: food, sanitation, infectious diseases agents, vectors of disease producing agents
3. Social environment: man's relations with man in terms of his manner and conditions of living

II The nonmaterial environment

(a) Intrinsic factors : inherent mentality and temperament

(b) Extrinsic factors affecting man's conscious and/or unconscious behaviour: notions, beliefs, and ideologies; values and goals; social norms, life experiences such as socialisation, education, trauma and stress, satisfactions and rewards; other cultural factors.

Studies have also shown that environment influences an individual's exposure and susceptibility to disease (Anderson 1996; Rosen 1963; and Suchman 1963). It is also true that it is by adapting to environment that individuals or societies are able to cope with health issues. People develop both cultural and genetic traits that enable them adapt to environmental health problems.

Studies also reveal that people of Sardinia, Italy, developed cultural and genetic traits that enabled them adapt to malaria parasites in their environment. According to Brown (1986:381-324) two genetic traits of Sardinia's population; namely thalassemia and glucose - 6 - phosphate dehydrogenase (G-6-Pd) deficiency provide genetic adaptations to malaria which confer greater fitness on carriers by providing protection against health by malaria. On the cultural adaptation to malaria in Sardinia the studies were based on the land use pattern of inverse transhumance and the social constrictions on the geographical mobility of pregnant women. Similar studies have been reported by Durham (1982) on sickle cell traits and malaria in tropical forests of the agricultural societies. Kawango (1995:80) states that the Luo have "their own preventive, adaptive and curative strategies to cope with ill health, drawing from their culture and the ecological environment." These strategies are no doubt valuable to the people of Bondo in as far as the adaptation to their environment is concerned. They are equally valuable in their response to disease including malaria in pregnancy.

In malarious areas like Bar Chando in order to comprehend the patterns of malaria in pregnancy it is important to look at characteristics of the environment that may

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In malarious areas like Bar Chando in order to comprehend the patterns of malaria in pregnancy it is important to look at characteristics of the environment that may

impact on the disease. The division of labour in the study area assigns women among others the role of water collection for household use. This role brings the women in touch with mosquitoes that carries the malaria causing parasite. Most of the water used in Bar Chando is drawn from stagnant ponds which are also conducive breeding grounds for mosquitoes. Bar Chando experiences two rain seasons per year. The residents of the area associate the rain seasons with the outbreak of malaria. There is a belief that with the passage of the rain season the danger of malaria outbreak diminishes. This is not true as the water that accumulates in the ponds and other receptacles around homes continues to support the breeding of mosquitoes long after the rain season has ended. Malaria infection in malarious areas like Bar Chando therefore persists throughout the year and is said to be stable. The population in such areas is exposed to the persistent reinfection to an extent that they have to develop some immunity in order to survive. The rain seasons are also associated with the times for cultivation and planting in Bar Chando. Cultivation, planting and weeding become a major preoccupation during the rain season. Most people especially women spent most of their time on the farms with little attention given to other activities including visiting health care facilities. Pregnant women are never exempted from these activities as the local people's perception of pregnancy does preclude pregnant women from assuming the sick role. Less developed infrastructure in Bar Chando is also an important socio-environmental factor to their response to malaria in pregnancy in particular and malaria control in general.

2.3.0 HYPOTHESES

In pursuance of our research objectives the following hypotheses were investigated.

1. Local people's knowledge of malaria influences their perception about the etiology of and the therapy for the disease
2. Prenatal maternal health is influenced by local people's health beliefs about pregnancy;
3. Utilization of health care services by pregnant women is influenced by social, economic and cultural factors.

2.3.1 Definition of terms

1. Local people's knowledge of malaria : The local name(s) given to malaria or malarialike diseases, the symptoms of the disease and diseases thought to be malaria.
2. Local people's health belief about pregnancy : Local people's perceptions about pregnancy as an illness : the indicators used in measuring this included the number of respondents who thought pregnancy was not an illness, those who attended or did not attend antenatal clinic. Those who used herbal medicine.
3. Socio economic factors: The position of a family in the sample population as measured against a number of indicators namely marital status, housing education, land ownership, employment or occupation, sources of energy, sources of water, and transportation
4. Cultural factors: These include the socially constructed division of labour, use of family income, and decision making process that make it difficult for pregnant women to get access to and utilize existing health care services. Indicators of this include cultural practices that bring women in touch with vectors of disease, distance to a health facility, time taken for both treatment and travel, payment for both treatment and transportation

5. Etiology of the disease : Causes of malaria as mentioned by respondents such as malaria bites, rain season, cold weather, being rained on and witchcraft

6. Therapy for the disease : Health care seeking options by the respondents against malaria : indicators to measure this included the number of respondents that visited a physician, hospital or health centre, traditional healer, faith healer, diviner or ignored the symptoms.

7. Prenatal maternal health : Local people's health beliefs that affect the health of pregnant women : indicators used included division of labour in the community, nutrition for pregnant women, exclusive use of traditional birth attendants, healer and traditional medicine

CHAPTER THREE

METHODOLOGY

3.0 Introduction

This chapter covers the description of the study site the study location and population. The problems encountered during the course of the study are also included.

3.1 Site

It is important to rationalize the choice of the present site for the study. Previous population census in Kenya indicate that infant and early childhood mortality levels are highest in areas towards the Lake Basin and towards the Indian Ocean coast (Kibet 1982). Mortality levels are highest in Nyanza and the Coast Provinces. In Nyanza, for example, Siaya, Bondo, Kisumu and South Nyanza districts have the highest mortality levels. These high mortality levels have been attributed to a number of factors the most notable being malaria.

Siaya District, is one of the districts that form Nyanza Province (see Map no. 2). It is bordered by Busia district to the north, Vihiga and Kakamega districts to the north-east, Kisumu district to the south-east and South Nyanza across the Winam Gulf to the South and to the west is Lake Victoria. It lies between latitude $0^{\circ} 26'$ South to $0^{\circ} 18'$ north and from longitude $33^{\circ} 56'$ east to $34^{\circ} 33'$ East. The total area of the district is 3528 square kilometres out of which 1005 square kilometres are under water in the Sare, Kanyaboli and Victoria lakes (Kenya, 1994).

The district is traversed by the Yala and Nzoia rivers both of which drain south-westwards through Kakamega district and enter Lake Victoria through Yala swamp. There are other small rivers and streams which are of local significance draining either into Lake Victoria direct or being mere tributaries of the two larger rivers mentioned above (Kenya, 1994).

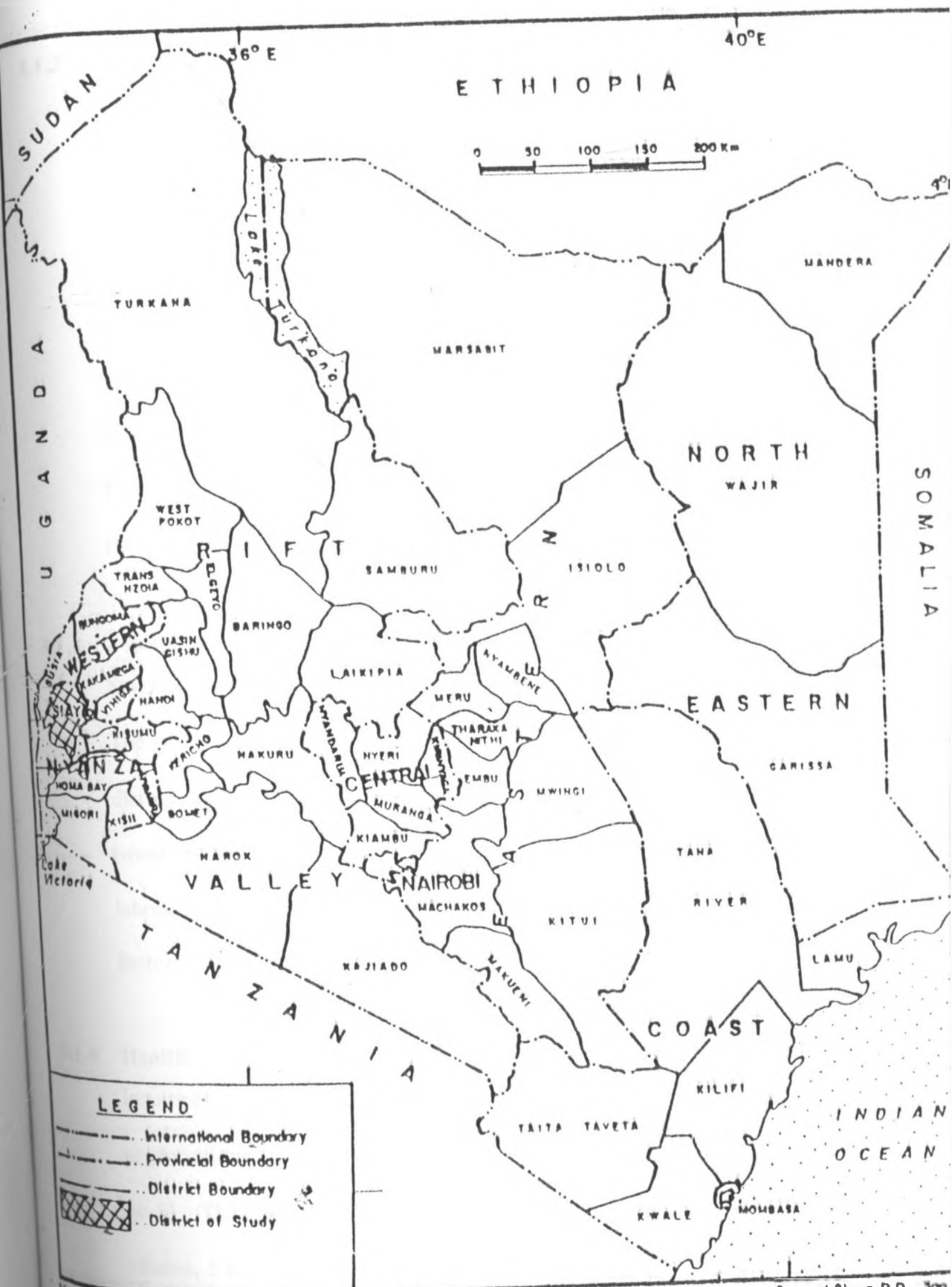
The altitude of the district ranges from about 1,140 meters above sea level on the shores of Lake Victoria in the south-west to about 13,000 meters above sea level in the north and east.

3.1.2 Climate

The district enjoys a modified equatorial climate with strong influences from the local relief and the expansive Lake Victoria. Rainfall is influenced by altitude. The long rains occur from March to June, with peak periods being in April and May. Short rains occur from October to November.

Temperature too varies with altitude rising to 12°C in the north-east to about 22.50°C along the shores of Lake Victoria in the south. The minimum temperature is :

5°C while the maximum is 30°C Humidity is relatively high (Kenya, 1994).



Source: Slaya DD, 1980

1.3 Agriculture

The district has a total agricultural area of 164,263 hectares. Most of the inhabitants practise non-cash economy by growing mainly maize, beans, cassava, sorghum and sweet potatoes. Few people are experimenting with cash crop farming. In some areas of Siaya the land is suitable for coffee, cotton and sugar cane farming yet Nearly every family keeps indigenous cattle for milk and a form of family investment as well as for the fulfilment of some cultural obligations including payment of dowry and performance of ritual ceremonies. There is a steady increase in dairy farming in Bondo and Boro divisions (Kenya, 1994).

3.1.4 Population

Siaya district has a population of 749,071 according to the 1989 national census. The district has a population density of 400 persons per square kilometer. Siaya district is predominantly inhabited by the Luo community. Due to lack of locally based industries the district is among the areas that provide the highest migrant labour in the country (Cohen and Atieno-Odhiambo 1989). As a result of this factor most of the households in Siaya are headed by women.

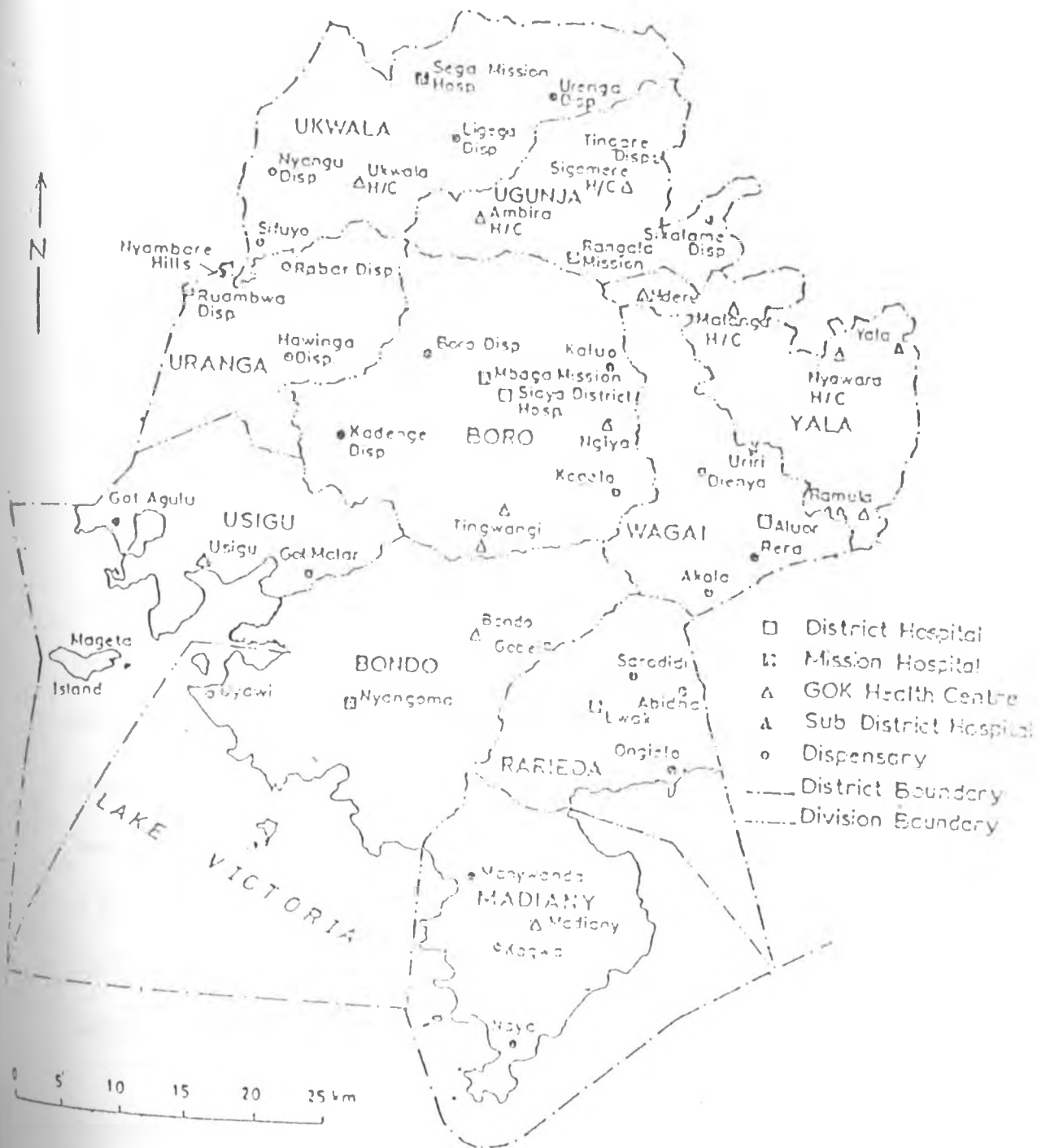
3.1.5 Health

In spite of programmes put in place by both the government and non-governmental organisations, Siaya district remains poor in terms of health status (see Map no.3). The district has 54 health facilities comprising of 4 hospitals, 15 health centres, 5 nursing homes, and 30 dispensaries. With respect to service utilization,

it is noteworthy that a significant proportion of ailments are managed at home (Kenya, 1994).

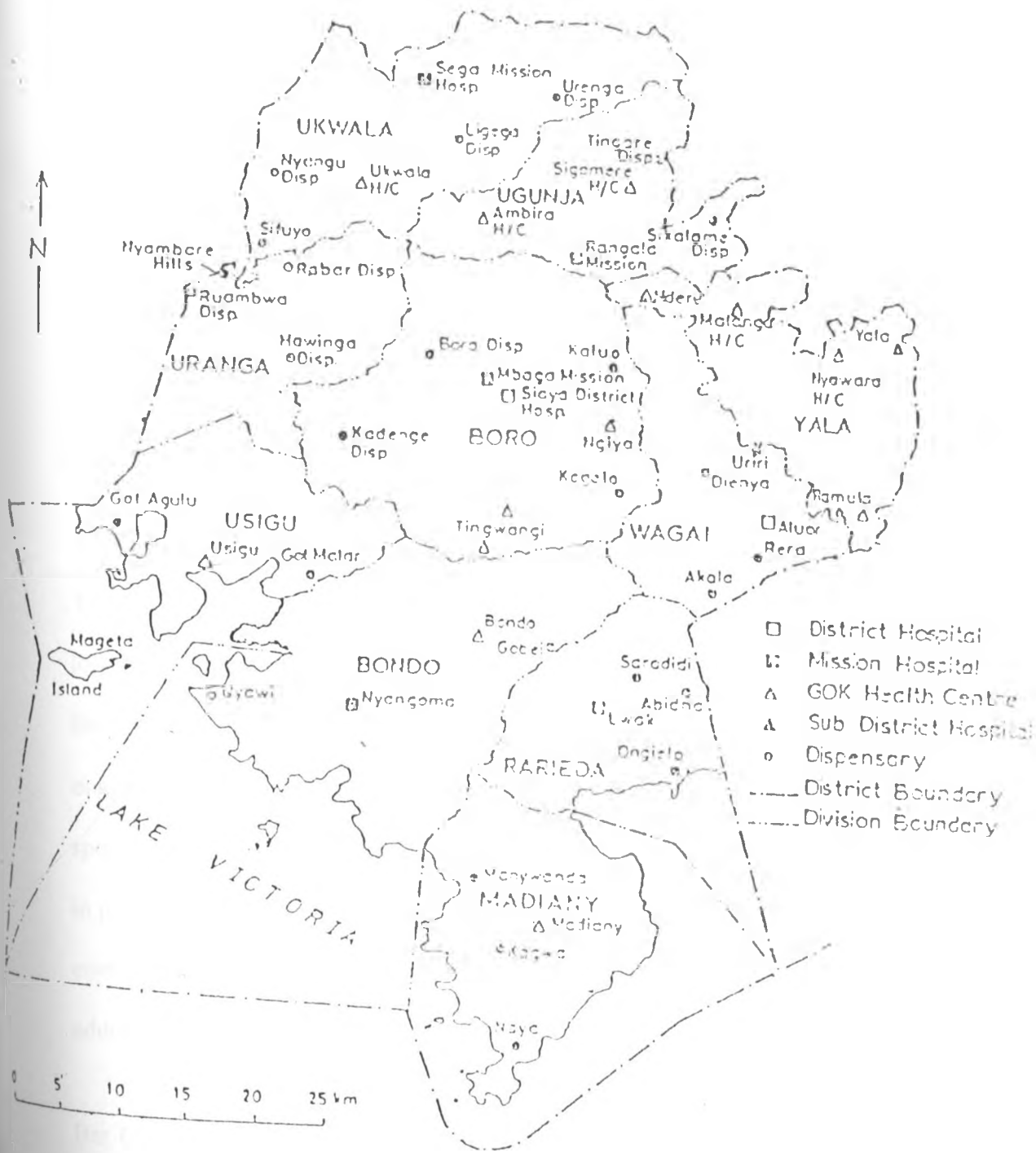
The poor state of health in Siaya district can be interpreted through the existing infant and early childhood mortality levels. The infant and early childhood mortality levels are among the highest in the country. In fact, Siaya district has the second highest mortality rates after south Nyanza district with 211 per 1,000 and 216 per 1,000, respectively (UNICEF and Kenya, 1984). Mortality rates based on returns from formal health facilities indicate that most of the health problems that affect the district are preventable since most of them are related to poor sanitation, lack of safe water, and lack of awareness about good health. Major health problems include water-borne or related diseases such as malaria, schistosomiasis and diarrhoeal diseases, malnutrition, immunizable diseases, low family planning utilization and maternal health. More recently the emergence and significance of HIV/AIDs infection has further confounded the health status of the community.

Constraints to the health care delivery in Siaya district are similar to those experienced in other parts of the country, namely, shortage of technical staff, chronic shortage of drugs and relevant consumables, non-functional and/or shortage of equipment, non-availability of transport, inadequate community participation and poor general management of the existing services (Owino and Korir 1997).



Source: Siaya D.D. Plan 1994 - 95

Map 3: Siaya District Health Facilities



Source: Siaya D.D. Plan 1991 - 90

Map 3 : Siaya District Health Facilities

THE STUDY AREA AND POPULATION

Bondo is among the six divisions that comprise Siaya District (see Map no. 4). The division covers an area of 387 square kilometres and has a population of 81,352 people (Kenya 1994). The six locations that comprise Bondo division include North Sakwa, South Sakwa, East Sakwa, Central Sakwa South-west Sakwa and Bondo township

THE STUDY SITE

This study was conducted in North Sakwa location. This location has three sub-locations namely Ajigo, Abom and Bar Chando. The actual study location was Bar Chando sub-location. This area was chosen for the study largely due to the ongoing Kenya-Danish Health Research project (KEDHR) in the area whose sponsors were kindly willing to incorporate an anthropological study on malaria in pregnancy. KEDHR is a multidisciplinary project on health which draws on contributions from the fields of anthropology, educational psychology, health education and parasitology.

Bar Chando sub-location lies on the eastern side of Bondo division, just a few kilometres from Bondo township and it is bordered by Abom in the north-west, Ajigo sub-location in the south-east and Alingo sub-location in the south-west (see Map no.5) The sub-location covers an area of 12 square kilometres and has a population of 3,238 people composed of 1,546 males and 1,692 females (Kenya 1994).

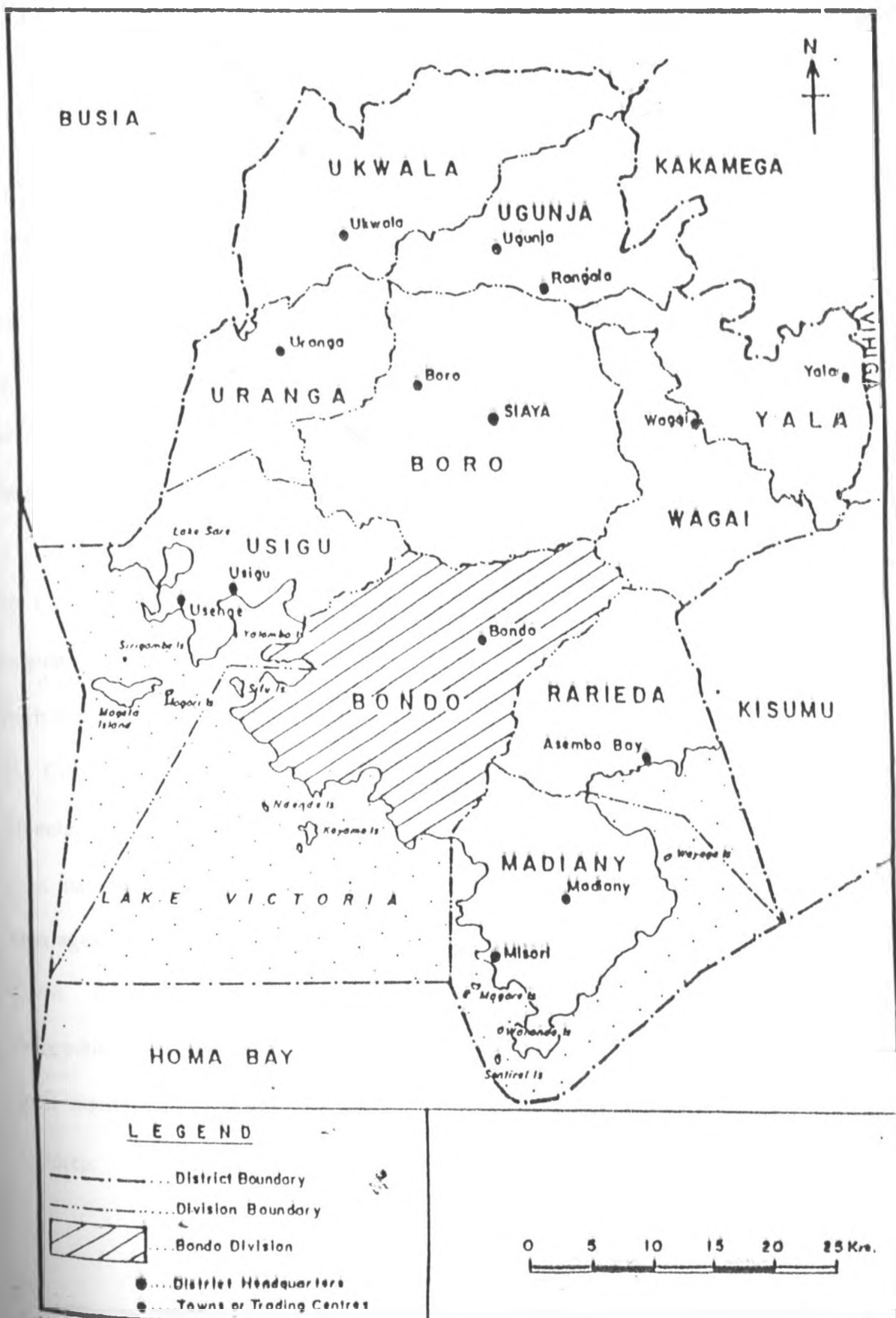
THE STUDY AREA AND POPULATION

Bondo is among the six divisions that comprise Siaya District (see Map no. 4). The division covers an area of 387 square kilometres and has a population of 81,352 people (Kenya 1994). The six locations that comprise Bondo division include North Sakwa, South Sakwa, East Sakwa, Central Sakwa South-west Sakwa and Bondo township

THE STUDY SITE

This study was conducted in North Sakwa location. This location has three sub-locations namely Ajigo, Abom and Bar Chando. The actual study location was Bar Chando sub-location. This area was chosen for the study largely due to the ongoing Kenya-Danish Health Research project (KEDAHR) in the area whose sponsors were kindly willing to incorporate an anthropological study on malaria in pregnancy. KEDAHR is a multidisciplinary project on health which draws on contributions from the fields of anthropology, educational psychology, health education and parasitology.

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Map 4 : Location of Bondo Division in Siaya District.

Source: Siaya D.D. Plan 1994-96

Bar Chando has good soil suitable for many types of tropical crops. However, water presents a big problem as there are no permanent rivers or streams. Water for drinking and domestic use is drawn mainly from seasonal rivers, streams or ponds and to a lesser extent from boreholes and rain water storage tanks. The problem of safe and clean water becomes acute during the dry season when most seasonal rivers and ponds dry up. The sub-location also lacks adequate modern health facilities. The only health facility within the sub-location is the Aro clinic which is not run by the government and therefore not easily accessible to most of the public.

Bar Chando sub-location is inhabited almost exclusively by the Luo whose major language is Dholuo. These people belong to the 18 clans that occupy this area. Each clan knows its position within the clan and kinship system that comprise the Bar Chando community. Interclan marriages exist for certain clans but where interclan marriage is prohibited cleansing ceremonies are performed to dissolve such marriages whenever they occur. It is believed that if prohibited interclan marriages are allowed the couples involved will be subject to some forms of *Chira*. Children born out of such marriages, for instance, may have certain deformities such as being deaf, dumb, cripple or blind. Similarly, any family in such marriage may experience continuous abortions or unexplained loss of children.

3.2.0 METHODOLOGY

3.2.1 Entry in the Study Area

The researcher was not familiar with the study area and its population. Therefore, arrangements were made by the KEDAIR Field Officer for the fulfilment of the necessary protocol. Both the researcher and the Field Officer travelled to Bar Chando where they met the local Assistant Chief and briefed him about the objectives of the intended research in his sub-location. The administrator was shown the clearance letter from the Office of the President.

After the briefing the Assistant Chief was requested to assist in identifying a reliable and suitable young person from the area who could be hired as a research assistant. Both the Assistant Chief and the researcher were unanimous on the suggestion that informing the community about the impending research may well be disseminated in any of the Assistant Chief's public meetings (*Baraza*) held regularly in the sub-location. The researcher attended two of such public meetings in different parts of the sub-location. During the meetings the researcher, through an interpreter (a retired school teacher) briefed those in attendance on the relevance of the study to the community. During the question and answer sessions a number of misconceptions about community-based research were dealt with. The meetings proved very valuable as the research team was to notice later.

A research assistant hired from the local community was a young man who was on holiday following an unscheduled closure of the local university he attended. He had not been involved in this type of research before.

Prior to being trained on how to conduct research interviews, the research assistant was briefed on the objectives and importance of this research. On the other hand, training stressed on punctuality, good conduct during interviewing and accuracy in recording answers given by respondents. As part of this training as well as familiarization with the questionnaire the research assistant was assigned the task of translating the questionnaire from English to the local Dholuo language. After this exercise the researcher enlisted the assistance of the KEDHR Field Officer in ensuring that the translation was correct. Except for a few words and phrases the translation was found correct and suitable for use. The research assistant was urged to stick to the questions during the actual interviewing.

The pre-testing of the questionnaire revealed a number of extraneous questions and sub-topics to the research topic. The necessary adjustments were made to the questionnaire prior to embarking on the actual interviewing.

3.2.2 Sampling Procedure

Bar Chando is sparsely populated, therefore, non-probability sampling techniques were used in collecting data. The house was the unit of analysis and the principal

informants were males and females over 18 years in Bar Chando sub-location. One hundred and ten informants were interviewed

The Kisumu-Bondo main road that runs on the eastern side of Bar Chando sub-location was used to mark the research team's entry to the study site. From the road three entry points were identified. From each entry point the research team planned to move from east to west and each homestead in the path was visited and one household head interviewed. However if the research team missed a household head during their visit they would move to the next household either in the same homestead or the next one but no return visits were made to households where the first visit had failed to find the household head. It was hoped that if the research team maintained consistency data collected by this method would yield reliable results.

3.2.3 Methods of Data Collection

The main methods of data collection included an interview schedule or standardized questionnaire and non-participant direct observation. Informal interviews were also valuable as a method of data collection

3.2.4 Questionnaire Administered Interviewing

Data were collected using a questionnaire administered by the researcher. The questionnaire used had closed-ended questions which required respondents to answer 'Yes' or 'No' while other questions required the respondents to choose from among the alternatives offered. For open-ended questions the respondents

were given an opportunity to give their opinions on given phenomena covered by the research. Our interviewing schedule comprised questions covering background study population characteristics, knowledge, perceptions and practices as they related to malaria in general, as well as in pregnancy.

3.2.5 Non-participant Direct Observation

The non-participant observation technique was used in gathering data without involving the respondent as well as the research assistant. The researcher had a checklist of items or phenomena to be noted for every household in which interview took place. These included, for example, the structure of the house, the materials used in building the house and the physical environment of the house.

3.2.6 Informal Interviews

Some data were collected through informal interviews which were more like conversations and, therefore, it was not possible to have a standard questionnaire for the interviewee. However, informal interviews can give a researcher great insight in a peoples culture (Fetterman 1990). Moreover, informal interviews are believed to present one of the best opportunities that a researcher may use to move closer to the study population. In the process of conversations people are more likely to unconsciously answer questions or give information which they would not give during a formal-interview. The data gathered by this researcher during informal interviews were always recorded in the field notebook. These data proved useful in the final analysis of the research.

3.2.7 Methods of Data Analysis

Data collected from the field were tabulated to facilitate analysis. Before this was done data were coded to make them computer readable. Each variable was assigned a unique numerical code by which it could be identified in the data file. A code book comprising all the codes plus their explanations acted as a guide to the coders. Coded data were transferred to the appropriate computer sheets for onward entry into the computer. The data were analysed using the Statistical Package for the Social Sciences (SPSS). The computer analysis broke the data into frequencies, percentage and other measures of central tendency. The researcher used these statistics in discussing data collected in the field.

3.3.0 Problems Encountered

This study was conducted between October 1997 and March 1998. The duration in the field would have been shorter than this if it were not for the disruption caused by the political campaigns during the 1997 general elections.

The biggest obstacle to this study however was funding. Application for funding from the Deans' Committee of the University of Nairobi did not yield any positive results. Although the study was later incorporated in the Kenya - Danish Health Research (KEDAHHR) project the available funds proved inadequate. This problem caused the research to compromise a number of factors which obviously may have affected the outcome of the study. For example, in our proposal it was projected that 200 respondents were to be interviewed. It was also planned that focus group discussions were to be held as part of collecting data. Key informants

were also to be identified and interviewed during our field trips. Although the researcher prepared enough ground for these activities insufficient or lack of funds could not make it possible for their implementation. The funds ran out when only 110 respondents had been interviewed.

There were a number of logistical problems. Communication in Bar Chando proved difficult and expensive. Due to sparse population there were great distances separating households where respondents resided. This was aggravated by the fact that the research team did not have their own transport and had to depend on hired bicycle riders (locally known as *boda boda*). Besides being an expensive and a cumbersome means of travel when conducting interviews these riders were sometimes unable to make it to our destinations due to the rough terrain and the rains. It is important to note that part of the field trips coincided with the time when this area experiences short rains season. The rains became problematic in two ways : first, movement in the area became difficult both when it was raining and after it has rained; and second, most people in the area are subsistence farmers and know very well that short rains are sometimes unreliable. Therefore, when the rains come everyone tries to rush out to their farms to plant and weed so as to maximise the use of the rains. This pattern of activities sometimes made it difficult to find people in their homes. It was thought rather unethical, if not uneconomical, to ask people to leave their farms and go back to their households to be interviewed. To overcome this problem we tried to change our time of going to the field. We noticed that people in Bar Chando tended to go to their farms very early in the morning and worked up to mid-day. Most of them,

especially women, leave earlier in order to go in search of water or to attend their petty businesses. Most of our interviews were conducted in the afternoon especially during the later parts of the field trip.

Although our respondents did not harbour any mistrust about our presence, thanks to the efforts of the assistant chief as well as the fact that the research assistant came from a prominent family in Bar Chando; it was evident that people had little faith in research. A number of respondents and other people we met in the study area were sceptical that research would ever improve their health. They cited past research and health campaigns which they reckoned had had no positive impact on their health. We found ourselves unable to explain, for example, why the Bamako pharmacy shops had failed yet people had been seen in the area interviewing people about the Bamako Initiative programme. On the other hand, some respondents indicated that they were more interested in talking to those who could give them medicine for the various diseases they suffered from. Some respondents did not agree with us that our research could be used to improve their health. They argued that despite the past research their health has not improved instead the government now charges them for health care services. Women, for example, were bitter that they were being discouraged to use maternity services as they are now required to buy a number of items before they can be admitted to a health facility for delivery. Others argued that they now avoided health facilities as they were forced to buy and carry exercise books if they needed any treatment at the hospital. Our investigation revealed that the exercise book every patient is supposed to buy and carry with him/her is used as

her/his hospital card. Although we could not give answers to all questions raised by respondents we were able to convince them that the data we were collecting from them would be used to redress some of the issues they were raising.

The researcher is not a Luo and, therefore, is not conversant with the local Dholuo language. This proved an impediment especially during informal interviews. It is possible that a lot of vital information may have been lost through interpretation. The researcher however, tried to learn some basic words in the language which enabled him to follow some conversations. It was also gratifying to find that most of the people talked to could communicate with ease in English Language. People in this area find it easy to learn English to the extent, that even those with only primary level of education can communicate in English. This factor was found useful in informal interviews.

CHAPTER FOUR

PRESENTATION OF DATA

4.0 Introduction

In this chapter we present the salient demographic patterns that emerged after the analysis of the data. The patterns depict phenomena that may impact on people's perceptions and practices with regard to malaria or malaria-like sickness in pregnancy in Bar Chando sub-location. The data are analysed under five topics, namely; socio-economic characteristics of the respondents, the respondents knowledge of malaria in pregnancy, prevention and treatment practices, and the obstacles to the utilization of health care facilities by pregnant women in Bar Chando sub-location.

4.1 Sex, Age and Marital status

Out of 110 household heads interviewed, 79.1% were females while 20.9% were males. The higher number of women household heads was attributed to the fact that most men in this area are migrant workers and, therefore, they do not stay at home. However, they make occasional visits to their rural homes preferably at the end of the month or year. We were, nonetheless, informed that the male migrant workers were still regarded by their wives as the household heads despite their absence from home. A majority of the respondents (57.2%) were aged 35 years (Table 1). Twenty respondents (18.2%) were above 35 years of age while 19.1% were above 44 years with the rest (5.5%) being above 54 years.

Table 1. : Age of respondents

Age	Frequency	Percentage
15 – 24	27	24.5
25 – 34	36	32.7
35 – 44	20	18.2
45 – 54	21	19.1
Over 54	6	5.5
Total	110	100.0

The marital status indicated that 80% of the respondents were married, 18.2% were widows while only two (1.8) were widowers. The smaller number of widowers as compared to widows may be attributed to the fact that men who lose their wives feel obliged to remarry. On the other hand the growing number of widows may be attributed to either old age or perhaps be an indication of some emerging fear about AIDs which now tend to discourage the hitherto widespread levirate practice in the community.

4.2 Religion

The data collected revealed that a majority of the respondents were Christians (53.6%), followed by those who espoused traditional (Christian) religion. Fifteen respondents (13.6%) declined to disclose their religious affiliation. Religion was noted to have an impact on health issues in this area as some health care services, for example, were operated by religious organisations such as the Anglican Church (formerly Church of Province of Kenya). Faith or spiritual healing in the area was indicated by the high number of faith healers. Informal interviews with three faith healers revealed that they were consulted on numerous illnesses which

they claimed to treat through prayers. One faith healer, however, informed us that although her prayers could overcome disease she also advised those who were sick to go to hospital. Respondents were reluctant to admit that they consulted diviners and/or magicians on health issues. Our triangulation on this issue, however, revealed that 73% of the respondents knew of the presence of a diviner or magician in the neighbourhood, else where in the study area or beyond.

4.3 Education

The education level of the respondents was generally encouraging as 24.5% had attained secondary school education, while 44.5% had primary school education and the rest (30.9%) had had no formal education. A majority of those who had had formal education could speak and understand the English language. This aspect proved useful during informal conversations and interviews. The existing level of literacy offered good opportunities for health education messages especially if they were suitably repackaged and effectively delivered.

4.4 Occupation and Income

Over half of the respondents (54.5%) indicated that they were involved in some form of petty trade, twenty eight of them (25.5%) were farmers, seventeen (15.5%) said they were housewives, and four (3.6%) were involved in business. It was, however, found out by the researcher that those who had said that they were either house-wives or farmers could also be found to be involved in business or petty trading. In such circumstances it becomes impossible to identify people with any particular occupation.

Bar Chando is not endowed with any industries or large cash crop farming as a result most people are engaged in occupations that in most cases have low income (Table 2)

Table 2 : Household income per month

Income in shillings	Frequency	Percentage
0 - 200	41	37.3
201 - 400	2	1.8
401 - 600	20	18.2
601 - 800	2	1.8
Over 800	45	40.9
Total	110	100.0

From the table it is evident that a majority of the respondents (57.3%) had a monthly income of below eight hundred shillings. Forty seven (42.7%) had an income above eight hundred shillings. We noted that those who had income of more than eight hundred shillings were mostly teachers or female household heads whose husbands were migrant workers and normally remitted to their wives some of their earnings on a monthly basis. On the other hand it was not possible to give a respondent's exact income as a majority of them were subsistence farmers who viewed their farm produce as part of their income. A majority of them (83.7%) planted maize, sorghum, millet, beans, cassava, sweet potatoes and varieties of vegetables and fruits. For a majority of respondents the harvest realized from their farms constituted both their food supply as well as income. For example, 47% of the respondents told us that they sold some of their farm produce to meet expenses for urgent family needs such as payment of school fees,

transportation costs to hospital or funerals, payment for health care and many others. Twenty respondents (18.2%) revealed that due to dependence on farm produce to meet both food supply and family expenses they sometimes experienced food insufficiency between harvests.

4.5 Family Size

This study used the number of children in each household visited as an indicator of the size of the family. It was, however, noted that most households also catered for relatives who were regarded as bonafide members of the household. The majority of the households (66.4%) had three children and above. Nineteen household (17.3%) had three children, thirteen (11.8%) had two children each, twenty (18.2%) had one child each while four households (3.6%) had no children. It was noted that households that had (no) less than three children normally belonged to younger families while mature families had more than three children. On the other hand households with no children were those belonging to very old families. The fact that there were no children in these households did not mean that couples occupying the households had no children. These households had no children as most of them were grown up and had probably married and no longer stay with their parents.

4.6 Water Supply

A majority of the respondents (65.5%) obtained their water from ponds while the rest got their water from either boreholes (6.4%), streams and rivers (20%) or rain water storage tanks (8.2%). During the rain season water accumulates in natural

and man made ponds. This is the main source of water used in Bar Chando. We were informed that water becomes a real problem during the dry season when most ponds and seasonal rivers and streams dry up forcing people to make long journeys in search of water. There is only one pond in Bar Chando that rarely dries up and therefore remains the only source of water during the dry season.

4.7 Housing

Direct observation on the types of houses inhabited by the respondents showed that most of them were semi-permanent with a majority of them (72%) built of grass thatched roofs, mud walls and earth floors. Houses with iron roofs, mud walls and earth floors comprised 23% of the households visited while those built with iron roofs, cemented walls and floors accounted for 5%. The common trends which had implications for malaria control included unscreened windows and wide eaves both of which made entry easy for malaria parasites mosquito carriers.. On the other hand it was observed that most houses (87.1%) were situated in environments that provide conditions ~~were~~ conducive to presence of mosquitoes. For instance, tall grass, maize plantations and vegetables growing were common features around most of the houses visited. In twenty one homes (19.1%) we noted some scattered broken pots and cans which had accumulated some rain water. Surprisingly most respondents when asked how malaria could be prevented mentioned the cleanliness of the compound.

4.8 KNOWLEDGE OF MALARIA

4.8.1 Local Name and Symptoms

The research findings revealed some local variations in the local name for malaria (Table 3)

Table 3 : Local name for malaria

Name	Frequency	Percentage
<i>Midhusi</i>	56	50.9
<i>Wich bar</i>	10	9.1
<i>Malaria</i>	24	21.8
Don't know	9	8.2
Other (specify)	11	10.0
Total	110	100.0

Midhusi (some pronounced it as *midhusu*) was mentioned by 56 (50.9%) of the respondents as the local name for malaria while *malaria* was mentioned by 21.8%. Ten (9.1%) respondents gave *wich bar* as the local name while the rest (10%) gave different names they thought to be the local name of malaria.

The most important point about the local name for malaria was the intracultural variation when respondents were asked to explain the meaning of the terminology they had given. For example *midhusi*, which was mentioned by almost half of the respondents, seemed to be the most controversial as various explanations were given for its meaning. *Midhusi* was variously defined as a disease which combined fever, restlessness and vomiting (15.5%); a disease related to a period when people start eating green maize (7.3%); a disease related to cold, vomiting and pain in the body (8.2%); a disease related to cold weather (4%); a disease

related to cold and high body temperature (8.2%); a disease related to mosquito bites, cold and being rained on (6%); as well as disease related to the diarrhoea of blood. The other terms were less controversial for example, *wich bar* simply means headache in the local parlance while *malaria* is the local corruption of the English term malaria. The difference here, however, is that their *malaria* is not the same clinical malaria as we came to discover when we asked them to describe the symptoms of the disease they termed *malaria*.

The knowledge of malaria was further tested when respondents were asked to mention symptoms presented by what they perceived to be malaria. Variations were also evident. Although fever and headache were mentioned by all the respondents as symptoms of malaria there were variations among respondents in recognizing other well known biomedical symptoms of malaria. Research findings showed that eighty nine (80.9%) of the respondents mentioned rising body temperature, 69.1% mentioned chills and shivering, 53.6% mentioned joint pains, while 44.5% mentioned vomiting. Respondents were also asked if they knew of local diseases that presented as malaria. Seventy (63.6%) and twenty two (20%) of the respondents indicated that symptoms for measles and typhoid fever, respectively, were similar to those of malaria, while fourteen (12.7%) linked malaria symptoms to diseases such as diarrhoea, stomachache, epilepsy, cough and high blood pressure.

4.8.2 Transmission of Malaria

People's knowledge on the cause or transmission of malaria and its control also varied. A majority (46.3%) of the respondents thought that malaria was caused by cold weather while 27.3% and 10% cited the rain season and rain floods, respectively, as causes of the disease. Only 3 (2.7%) respondents thought that malaria was caused by witchcraft (*juok*) while 5.4% mentioned other causes including *nyawawa*. *Nyawawa* is believed to be an evil wind which brings epidemics such as typhoid fever, cholera and malaria in Luo land. We noted with interest the low rating respondents assigned to mosquito bites (8.2%) as the cause of malaria (Table 4)

Table 4 : Transmission of malaria

Cause	Frequency	Percentage
Mosquito bites	9	8.2
Walking in floods	11	10.0
Being rained on	30	27.3
Cold weather	51	46.3
Witcraft	3	2.7
Other	6	5.4
Total	110	100.0

According to Table 4 above the rain and rain-related phenomena (83.6%) emerged as the major perceived causes of malaria in the study area. This was confirmed when respondents were further asked to mention the months of the year when malaria is most prevalent in the area. The intensity of malaria prevalence was indicated by 54.5% of the respondents to fall between April and June while

the period between October and November was mentioned by 40 respondents (40%). These findings give strong links between rain seasons and malaria causation as the two periods of the year mentioned by the respondents represent the long and short rain seasons, respectively, in the study area.

The respondents' knowledge of malaria transmission were tested further when they were asked whether the disease could be communicated from one person to another. An overwhelming majority (87.3%) thought that the disease is communicable, and only 10% thought the opposite while 2.7% did not know whether or not it was communicable. Those who thought that the disease was communicable (87.3%) mentioned the sharing of houses, beds, food, breath, cough, mosquito bites and utensils as means of communicating malaria from one person to another.

The study revealed that malaria attack was less discriminative. Sixty one (55.5%) of the respondents thought that everybody was susceptible to malaria, 36 (32.7%) respondents thought that children were more vulnerable to malaria, 2 (1.8%) mentioned women as more vulnerable and only 0.9% thought that men were susceptible. Ten (9.1%) of the respondents gave no answers. These findings are important in understanding people's perceptions about malaria in pregnancy. Respondents did not seem to link malaria with pregnancy-related diseases and complications. A majority of the respondents (79.1%) did not agree that malaria was a threat to pregnancy, 20% thought malaria affected pregnancy while 0.9% did not know if malaria affected pregnancy

4.9 Prevention and Treatment Practices

4.9.1 Prevention of Malaria

Eighty one (73.6%) of the respondents felt that malaria can be prevented while 26.4% thought malaria was difficult to prevent. Prevention strategies were as indicated in the table below:

Table 5 : Methods of preventing malaria in pregnancy

Method	Frequency	Percentage
Avoid rain	11	10
Mosquito net	57	51.8
Cleaning compound	30	27.3
Taking medicine	4	3.6
Use insecticide	8	7.3
Total	110	100.0

It is evident that a majority of the respondents (51.8%) thought that the most effective method of malaria prevention was the use of mosquito nets while for 27.3% the cleanliness of the home compound was an effective method of prevention, only 3.6% thought medicine to be effective while eight (7.3%) mentioned the use of insecticides as a method of malaria prevention. The high frequency attributed to the use of mosquito nets and the cleanliness of compounds (79.1%) as malaria prevention methods was a rather curious outcome as observation had shown that many households visited did not have mosquito nets. Similarly, most of the homes visited lacked the requisite cleanliness that was less conducive to mosquito breeding. On the other hand, those who thought that the prevention of malaria was difficult argued that malaria is seasonal and, therefore,

everybody was susceptible during the appropriate season. Malaria was likened to *nyawawa* - an evil wind that brings epidemics and is difficult to prevent since its origin and likely occurrence is unknown and, hence, unpredictable.

The use of medicine as a preventive measure was not widespread and this may perhaps be attributed to the fact that the use of medicine is limited to a response to perceived biocultural symptoms of a disease. In any case, therefore, no attempts are normally made to prevent or to treat a disease whose biocultural symptoms are yet to manifest themselves. On the other hand the use of insecticides is mainly aimed at the mosquitoes. Respondents mentioned using both modern and indigenous insecticides. Modern insecticides used included Johnson's IT and a variety of mosquito coils. Three respondents indicated that they used indigenous insecticides such as *mweny*, and *osimo* (see botanical names in Appendix B). Burning of dry cowdung to repel mosquitoes was mentioned by six respondents.

4.9.2 Treatment of Malaria in Pregnancy

Both modern and traditional medicines were used in the treatment of malaria in pregnancy (Table 6)

Table 6: Type of medicine used for malaria treatment

Type	Frequency	Percentage
Modern	57	51.8
Traditional	25	22.7
Modern + Traditional	15	13.6
No medicine	13	11.8
Total	110	100.0

A majority of the respondents (51.8%) used modern medicine for the treatment of malaria episodes. Traditional medicine was used by 22.7% of the respondents, 13.6% used a combination of both traditional and modern medicine while 11.8% indicated that they used no medicine. Modern antimalaria drugs mentioned by those who used them included chloroquin, aspirin, malarquin, dawanol, headex, aspro, hedex, septrin, panadol, quinine, fansidar, 'capsules' and indocid. Out of the 57 respondents who indicated they had used modern anti-malaria drugs 27 (47.4%) of them said that they bought them from the local shops, 19 (33.3%) said they had obtained their drugs from the hospital or health centre, 7 (12.3%) had got their drugs from relatives or neighbours while 4 (7%) had obtained their drugs from the local "doctor" (*daktari*). It became evident that some of the drugs used by respondents were obviously not the biomedically approved anti-malarials. This did not, however, seem to matter so much if these drugs had once been used successfully by a neighbour or family member suffering from what was perceived to be malaria.

Traditional medicines used for the treatment of malaria were concocted from various herbs. Single herbs or a combination of herbs had either their leaves, roots or bark pounded and/or boiled. The resultant concoction was dispensed to malaria patients either orally, as an inhaler or balm. The knowledge of traditional medicine for the treatment of malaria appeared to be widespread among the respondents that reported to have used traditional anti-malaria medicine. Out of the twenty five respondents who said they used traditional antimalarial medicine,

20 (80%) concurred on the most common herbs used in concocting anti-malaria medicines. The herbs mentioned included *dwele*, *ombasa*, *ochuoga*, *ochol*, *olemo*, *rahongo*, *nyabungu odide*, *olandra*, *ober*, and *pedo*, whose roots are boiled and the resultant solution administered orally. Those herbs whose bark is pounded or boiled include *knogo*, *sigiria* and *yago*. *Mwarobaine* was mentioned as the herb whose leaves were used in making anti-malaria medicine.

4.10 Impact of Lay perceptions on Malaria in Pregnancy

4.10.1 Prenatal Maternal Health

Out of 87 female respondents, 56 (64.4%) had attended antenatal clinic services (ANC) while 31 (35.6%) had never attended the services. Twenty two (39.3%) of the respondents had attended ANC services regularly while a majority of them (60.7%) indicated that they had either never attended ANC services or had been irregular in their attendance. All respondents were asked if attendance of ANC services by pregnant women in the area was important. Sixty two (56.4%) of the respondents did not think it was important while 43.6% supported the idea.

The minimal use of modern prenatal health services could perhaps be attributed to people's perceptions about pregnancy-related health of both mother and child. Out of 62 respondents who opposed the medicalization of pregnancy a majority of them (61.3%) indicated that pregnancy-related health is better managed by traditional birth attendants as well as the use of traditional medicine. They informed us that *mbunda* and *yamo* were the most common categories of diseases associated with pregnancy in the area. These infections were believed to be

sensitive only to traditional medicine. Traditional birth attendants (*nyamrerwa*) are believed to be knowledgeable in the diagnosis and treatment of both *mbunda* and *yamo*. When a woman becomes pregnant she chooses a *nyamrerwa* who takes care of her throughout the term of pregnancy and delivery. *Nyamrerwa* is depicted as a respected woman who has borne many children of her own and has worked under another experienced *nyamrerwa* before starting on her ^{own} ~~won~~. *Nyamrerwa* must always be well known to the families she serves and also lives close to them. Her proximity to her client(s) means that she is available for consultations at any time thereby enabling the pregnant woman to utilize her services while at the same time performing her normal roles in the home. We were further informed that young pregnant women usually had *nyamrerwa* chosen for them by close members of the family but preferably the mother in law.

Our findings also revealed that there were beliefs that were perceived to be important to the outcome of pregnancy. A pregnant woman was supposed to observe such beliefs as breach of the beliefs may invoke *chira* which could be dangerous to the outcome of pregnancy. Twenty seven (43.5%) of the respondents concurred on the most important cultural practices to be observed by a pregnant woman. According to these respondents, a pregnant woman was not supposed to:

- a) be dishonest to the husband
- b) plant and harvest vegetables or farm produce before her mother-in-law.
- c) harvest vegetables on someone's farm
- d) allow dowry to be paid

- e) eat meat from pregnant and dead animals
- f) go near a grave
- g) move to a new house

Most respondents did not seem to perceive the severe effects of malaria in pregnancy. We asked respondents if they had had or witnessed, a low birth weight (LBW) baby. Forty (36.4%) of the respondents had had or witnessed LBW babies while 49.1% had not. Eighty three (75.5%) of the respondents attributed LBW babies to lack of sufficient food when the mother was pregnant, *mbunda* or *hima*. *Mbunda* is a disease of the womb which affects both the mother and foetus while *hima* is an illness that attacks the foetus and affects its proper development. We also asked respondents if they had had or witnessed a miscarriage. Twenty (18.2%) of the respondents had had or witnessed a miscarriage. Respondents attributed miscarriages to lack of blood (32.7%), stomach problems (28.2%), *chira* (15.5%), heavy work (14.5%), witchcraft (3.6%), and family planning (5.5%). The death of children below five years had been experienced by 59 (53.6%) of the respondents, 33.6% had not lost infants below five years while the rest (12.7%) could not recall. Death of infants below five years was attributed to measles (27.1%), *chira* (22.0%), cholera (22.0%), witchcraft (15.3%) and malaria (13.6%).

10.2 Nutrition during pregnancy

Fifty one (46.4%) of the respondents did not think that pregnant women deserved a special diet but 41.8% recommended a special diet while 13 (11.8%) respondents did not know if pregnant women deserved a special diet. Asked what

special diet could be recommended for pregnant women over half of the respondents (59.1%) mentioned fish but 40% mentioned beef. Most of the respondents were, however, quick in observing that although these foods were good for pregnant women they were too expensive to be afforded by a majority of households in the study area. On the other hand, there were few food taboos for pregnant women. A majority of the respondents (77.3%) mentioned the prohibition of the consumption by pregnant women of meat from most of wild animals as well as pregnant domestic animals. Twenty five (22.7%) respondents mentioned the prohibition of eating eggs by pregnant women but according to an informal interview with a retired police officer the prohibition of consumption of eggs by women was a dying taboo. Although some foods were not prohibited we learned that pregnant women ate them in moderation or avoided them altogether for fear of delivering overweight babies. The foods mentioned in this category included ripe bananas (25.5%), sugar cane (7.3%) and fatty foods (16.4%). We asked respondents about the common foods consumed by pregnant women in the area. All respondents confirmed that pregnant women ate the same food eaten by other members of the household which in most cases included *ugali* and vegetables, cassava, sweet potatoes, and a mixture of maize and beans (*nyoyo*).

4.10.3 Division of labour

A majority of the respondents (78.2%) did not think that there was a need for any reduction in the workload of pregnant women, but 21.8% thought that there was need a in the reduction of the workload to be performed by pregnant women. Out of 86 respondents who opposed reduction in the work-load for pregnant women,

61 (72.1%) did not perceive pregnancy as a sickness that would prevent a pregnant woman from performing her normal roles in the home. Seventy two (84%) of the respondents saw women as major providers for their families and relieving them from this role would bring disorganization and suffering to the families. In Bar Chando women are heavily involved in food production, collecting of water for family use, cooking, caring for the health of the family, and involvement in some petty business to boost family income.

4.11 OBSTACLES TO UTILIZATION OF HEALTH FACILITIES

Sixty five (59.1%) of the respondents did not know the existence of maternal and child health care (MCH) facilities in the area, but 40.9% knew of the existence of such facilities. When asked to estimate how far any MCH and/or health facilities they knew were located a majority (55.4%) of those who knew of the existence of such facilities estimated the facilities to be between six and eight kilometres away, 23.1% estimated the facilities to be seven kilometres away, 8 (12.3%) of the respondents thought them to be four kilometres while 6 (.2%) thought they were less than four kilometres. Our observation, however, revealed that most of the estimates were inaccurate as the nearest MCH and/or health facilities are more than eight kilometres away from any household in Bar Chando. The nearest MCH/health facilities should have been the Aro Clinic which is located within Bar Chando sub-location but this facility is privately owned apart from lacking the facilities that are necessary in discharging effective MCH/health services. In the circumstances we noticed that people in the study area, especially women, make long journeys on foot, bicycle or by public means in search of health care

services at Gobei and Ndori health centres or at Bondo sub-district hospital which are about 11 kilometers from Bar Chando

Fifty four (49.1%) of the respondents indicated that they had not visited MCH/health facilities during the last six months due to distance but 51% did not find distance an obstacle to utilization of health care facilities. Out of 56 respondents who indicated to have visited MCH/health facilities during the last six months a majority of them (55.4%) had used bicycles, 10 (17.9%) walked, 9 (16.1%) paid sixty shillings return journey, and 6 (10.7%) paid more than sixty shillings return journey by public means. Research findings revealed that respondents paid for health care services. A majority of the respondents (51.8%) indicated that they had paid between 10 and 20 shillings, 18 (32.1%) had paid more than 20 shillings while 16.1% paid nothing. Women attending MCH services are required to make extra payment for blood tests as this service is not part of free services offered at MCH service point.

Time taken before one is attended to at a health care facility was one of the indicators used by respondents in evaluating the services offered. Respondents who had visited the MCH/health facilities during the past six months were asked how long they waited before they were attended to. Thirty (53.6%) of the respondents told us that they had waited for more than one hour, 17 (30.4%) waited for less than one hour, while the rest (16.1%) indicated that they were attended to immediately. When asked to rate the actual health care services received a majority of the respondents (67.9%) thought the service they received

was unsatisfactory, but 12 (21.4%) of the respondents thought the service to be satisfactory while 6 (10.7%) of the respondents remained non committal. When asked for reasons for rating the services unsatisfactory a majority of the respondents (53.6%) complained of the long time they had to wait before being attended to. There were also complaints pertaining to the negative attitude of the personnel at the health facilities; lack of drugs and other necessities which resulted in patients being asked to go and buy them from pharmacies, and payment for health care services which should be offered free.

Eight (14.3%) respondents complained of the inappropriate times of attending the MCH clinic at Bondo sub-district hospital. The respondents argued that scheduling MCH clinic attendance on market days was inconveniencing to them as they were traders who wanted to maximise their trading activities on market days. The respondents also complained of the schedule a pregnant mother was required to follow in attending ANC services. They informed us that women attending ANC services at Bondo sub-district hospital were required to make visits as follows: 12 to 28 weeks pregnant women are required to visit the clinic every four weeks (months); those with 29 to 35 weeks are told to make visits fortnightly; and 36 to 40 weeks pregnant women are required to visit ANC weekly. The respondents felt that this schedule was not necessary since most of them only visited the clinic to ascertain the position of the foetus in the womb.

On the other hand, 11 (19.6%) of the respondents who thought the service at the MCH/health facilities was satisfactory talked of the health facilities being the only

places where pregnant women were given drugs for anaemia and the tetanus immunization. They were also satisfied with the staff being kind to them. One respondent praised the staff at the Bondo sub-district hospital for providing her with a bednet as well as their frequent visits to her home to monitor her pregnancy. We learned later, however, this respondent had received these services as part of a malaria monitoring project that was based in Bondo sub-district hospital in which she was among the population sample.

The research findings also revealed that respondents, especially pregnant women, had consulted traditional healers (*ajuoge*) for pregnancy-related sickness. Out of 87 female respondents, 46(52.9%) had consulted traditional herbalists (*joyath nyahuo*), 12 (13.8%) had consulted faith healers (*joulo*) and 7 (8%) indicated to have consulted diviners/magicians (*jokoro/jobilo*), the last time they were pregnant. The large number of pregnant women who used non-biomedical health care was attributed to the fact that once most women noticed that they were pregnant there was tendency to regard any ill-health thereafter as pregnancy-related. Most of the interpretations tend to be personalistic, thus the variation in therapeutic remedies. There were, however, other reasons given by the population sample for consulting non-biomedical health care systems. Seventy (63.6%) of the respondents indicated that they knew of a traditional healer in the neighbourhood, 18 (16.4%) knew of a traditional healer less than one kilometer away, and 9 (8.2%) visited a traditional healer more than one kilometer away while 13 (11.8%) visited no traditional healer. The proximity of traditional healers had implications for expenses on transportation and the time taken for

both travelling to the health facilities and waiting for treatment. Payment for services rendered by traditional healers was viewed to be affordable and flexible. Twenty one (19.1%) of the respondents indicated that they had paid nothing, 29 (26.4%) paid between 20 and 30 shillings, 21 (19.1%) said that they were able to negotiate for payment. We were informed that negotiation for payment took several forms. A patient, for example, may not be required to pay anything until full recovery from an ailment is achieved. In such a case a healer decides what the patient has to pay or the matter is left to the patient so that he/she pays what he/she considers to be commensurate to the treatment and/or care received.

Efficacy of traditional medicine and treatment was considered to be more effective than modern or western-medicine especially during pregnancy. A majority of those who responded to this question (43.6%) did not use or encourage the use of modern medicine as they considered it to be harmful to both the pregnant woman and the foetus. Thirty four (30.9%) of the respondents indicated that they used or encouraged the use of modern medicine during pregnancy except chloroquine or any bitter medicines which most of them thought to be harmful to pregnancy. The rest of the respondents (25.5%) did not think there was any harm if a pregnant women used either traditional or modern medicine. Research findings also revealed that consultation with the traditional healers involved more than getting medicine and treatment. Out of 7 respondents who indicated they consulted diviners during their last pregnancy 4 (57.1%) said that they had either lost their children immediately after birth or they had miscarriages. They considered this to be less of a medical problem. On the other

hand, 3 (42.9%) of the respondents consulted diviners when their pregnancies continued to be threatened despite having received the necessary treatment for *yamo* and *mbunda*. Our informal interview with a diviner in the study area indicated that whenever he is consulted he uses his knowledge and tools of practice to decipher the patient's problems. The patient and her significant others are advised accordingly. He informed us that most of the problems he deciphers are commonly linked to the breaching of certain taboos or *chira* and or evil spirits "sent" by enemies

The research findings revealed that a majority of the households visited had more than two children. When asked where the children were delivered a majority of the respondents (62.7%) indicated that the children were delivered at home while the rest (37.3%) delivered in the hospital. Among those who delivered in the hospital 25 (61%) said that since they had attended the ANC they felt it necessary to deliver at the hospital while 3 (7.3%) had been advised by the ANC staff to deliver at the hospital since some complications had been identified which were bound to present some difficulties during birth. Four (9.8%) of the respondents said that they had delivered at the hospital as emergency cases while 9 (22%) indicated that they delivered at the hospital since they were residing in the urban areas where maternity facilities were more easily accessible. A majority of those who did not deliver at the hospital (43.5%) claimed that delivery time came unexpectedly thus leaving them no time to go to the hospital; 21 (30.4%) indicated that the traditions prohibited the delivery of children outside the home

stead especially by the first women to be married in the homestead. They talked of the "spilling of blood" in the home in order to forestall any *chira* that may befall subsequent births in the homestead. Ten (14.5%) of the respondents delivered at home because they feared the treatment meted out to pregnant mothers by the hospital personnel. They also mentioned the unaffordable cost of delivering at the hospital. We were informed by some of the respondents that a pregnant woman who went to deliver in the hospital was required to go with many items that included sanitary pads, gloves, syringes and needles, a toilet soap, baby ointment, towels, clothes for the baby and her own, and many others as the nurses may decide. These items were estimated to cost five hundred shillings. The rest of the respondents (11.6%) did not find it necessary to deliver in the hospital since they had had no complications during their previous birth. It was noted that some of the respondents who indicated that they had not delivered in the hospital had actually attended the ANC with some of them having fulfilled all the required appointments.

CHAPTER FIVE

DISCUSSION AND CONCLUSIONS

5.0 Introduction

This chapter covers discussion and conclusions of the study. Recommendations for alleviating the *status quo* are also given.

5.1 DISCUSSION

The research findings revealed that the people of Bar Chando identified malaria as one of the prevalent febrile illnesses. There were, however, local variations in their knowledge about the local name for, as well as etiology and transmission of, malaria. A majority of the respondents gave *midhusi* as the local name while the remainder of the sample gave different names some of which had no resemblance to the disease clinically known as malaria. Participant observation suggested that the differential perception of the disease was based on traditions, age and the level of formal education. A majority of the older respondents who appeared to lean on traditions gave *midhusi* as the local name and based their definitions of the disease on its etiology while the young respondents gave names whose definitions tended to point at the symptoms perceived to be that of malaria. For example, *wich bar* (headache), *homa* (fever or cold), or *maleria* (malaria) were some of the local names mentioned by those who were young and had some form of formal education. The variations in the knowledge about etiology and transmission had implications for effective use of anti-malaria treatment. This confirms the findings made by Spradley and McGurdy (1975). People in the study area tended to use different antimalaria medicines some of which were not meant for malaria

treatment such as indocid, aspro, panadol and asprin. On the other hand, some people ignored the symptoms of malaria as they perceived the disease to be seasonal and expected it to pass away with time.

The mosquito as the vector carrier of malaria parasites was not highly rated as a causal agent. Zimicki (1996) also found during a research on the use of nets that information from several surveys indicated little correlation between net use and the perceived role of mosquitoes in the transmission of malaria. In Bar Chando, a majority of the respondents associated malaria etiology with rain related phenomena. It was equally perceived by a majority of the respondents that malaria was communicable and everybody was susceptible to its attack but children being more vulnerable. Many respondents did not think malaria had an influence on pregnancy as their perception of malaria did not associate it with pregnancy-related illness. This implied that anti-malaria control measures among pregnant women and their significant others were not considered important. This condition was likely to have significant repercussions on the health of pregnant women as well as the outcome of the pregnancy.

Prevention of malaria was considered possible by a majority of respondents. Most of them mentioned the use of mosquito nets and the keeping of the home compounds clean as the most widely used preventive measures in the area. This, however, contrasted sharply with the answers received when respondents gave a very low rating to mosquitoes among the causal agents of malaria. This discrepancy may perhaps be attributed to some health education messages that

depict mosquito nets among the most effective methods of malaria prevention. Participant observation established that the answers that were given by respondents were meant to impress the interviewer as he was thought to belong to the government and, therefore, party to the health education messages they had received through Community Health Workers about malaria prevention. These answers did not portray the true picture since only a few homes had mosquito nets and not many households visited had their compounds well kept for the purpose of mosquito prevention. Both traditional and modern insecticides were used for mosquito prevention but we observed that these methods could not have been effective as most houses in which they were used had wide eaves as well as unscreened windows.

The use of drugs as a preventive measure was not widespread in Bar Chando. A majority of the respondents indicated that they did not normally take drugs as a prevention against disease. Drugs were apparently taken following a manifestation of bioculturally recognized symptoms of a given disease. Medicine as a prevention measure was, however, apparently taken only when a person suspected that his/her enemy or enemies could employ sorcery to cause them suffer ill health or misfortune. An aversion to the use of preventive medicines has implications for the use of antimalarial drugs for prophylaxis by pregnant women in Bar Chando.

Research findings revealed, that people were widely knowledgeable about anti-malarial medicines and treatment. Both cosmopolitan or modern and traditional

medicines were widely used in the treatment of what was perceived by the people to be malaria. The generous distribution of knowledge about antimalaria medicine made it almost unnecessary for people to consult specialists such as herbalists (*joyath nyahu*), magicians (*jobilo*), diviners (*jokoro*), faith or spiritual healers (*joulo*) and physicians (*dactari*). These specialists were, however, consulted if what had been perceived to be malaria failed to respond to known antimalaria treatment. This means that the cause of the disease tended to take what Anderson (1978) terms 'personalistic interpretation'. It was observed, however, that such situations arose as a result of underdosing, commencing treatment late when the infection had advanced to more acute stages, such as cerebral malaria, and using drugs that are not meant for malaria treatment (Ringsted and Ringsted 1996). The use of anti malaria medicine and treatment was noted to be liberal in the study area to an extent that a patient could use both modern and traditional medicine for the treatment of a single episode of malaria infection. The general widespread knowledge about malaria in Bar Chando implies that self-medication is a common practice in this area and this some times leads to the wrong use of medicine and has perhaps been an obstacle to malaria control programmes.

People's perceptions of pregnancy were among the factors that influenced the noted minimal utilization of modern prenatal health care services in Bar Chando. Most respondents conceptualized pregnancy as a life cycle event rather than a pathological state. A good number of those who indicated to have attended the ANC services claimed that they did so mainly to check on the position of the

foetus in the womb. The reluctance by pregnant women and their significant others to attend ANC could be attributed to the belief that pregnancy-related diseases such as *yamo* and *mbunda* were less sensitive to modern medicine. This was possibly responsible for the widespread use of services of the TBAs (*nyamrerwa*), traditional medicine, and the strict observation of pregnancy related taboos. It is significant to note, however, that even those who claimed to have attended the ANC services regularly also admitted of the simultaneous use of traditional medicine as well as consulting the TBAs.

There was a general ignorance among respondents concerning the fatal effects of malaria in pregnancy. Apparent malaria-related low birth weight babies, miscarriages, abortions, maternal and prenatal deaths were rarely attributed to malaria by respondents. The implications of these findings are that in an area like Bar Chando where malaria is stable and most pregnant women may be asymptomatic such ignorance impedes programmes aimed at promoting the use of antimalaria drugs for prophylaxis. Similarly the same ignorance would be responsible for the failure of women to benefit from the services offered by the MCH facilities.

The results of the study suggested that prenatal maternal health in Bar Chando was adversely affected by undernutrition. Most of the respondents recognized the need for a special diet for pregnant women and at the same time there were no strict taboos. The low income realized by the majority of the population in the

study area was however an impediment to providing a requisite diet for pregnant women. The commodities that were considered as ingredients for a suitable diet for pregnant women were thought to be unaffordable by most of the respondents. As a result pregnant women fed on normal diet that was less balanced and, therefore, lacked the necessary nutrition status. This situation was likely to render them vulnerable to infection that could affect the outcome of the pregnancy.

The findings of this study imply that a majority of the respondents did not regard pregnancy as a sickness. Participant observation confirmed that women in Bar Chando continued with their occupational and domestic responsibilities throughout the term of pregnancy and did not expect to be treated as being sick. This is in agreement with the observations made by McKinlay (1972) that pregnancy is more of a cultural process than a pathological one and as a result a pregnant woman in most non western societies does not assume a sick role. Similar findings were made by Sich (1981), Sargent and Rawlins (1991), Jayawardene (1993), Browner and Sargent (1990) and Karbo (1980). The failure to reduce the workload of women when they were pregnant was bound to affect their physical health as well as the outcome of the pregnancy. Moreover this left them with no time to attend any pregnancy-related health care programmes, especially those offered at modern health care facilities. The same crowded schedule was perhaps responsible for most female respondents' ignorance about the existence of maternal and child health care facilities.

The results of the study suggested that the location of health facilities was a determining factor in their utilization. Over half of the respondents mentioned the distance to the health care facilities as one of the factors that influenced their decision to use them. Most of the existing health facilities were observed to be located more than eight kilometers from Bar Chando (Wasuna and Korir 1997)

The location of health facilities far away from the people of Bar Chando means that those who went to these facilities only did so when they had exhausted all the options within their reach. This is in agreement with Raikes (1990), Mwabu (1986), and Stock (1983). A condition like this was likely to encourage people to resort to non prescription patent medicines obtained from the local shops or given out by a neighbour or visit the injectionists or traditional healers who lived within the community and were therefore easily available and accessible. The services offered at the health care facilities were cited as obstacles to their utilization.

Those who had visited the health facilities based their decision for a return visit on whether they had been supplied with the necessary drugs, whether the health facilities had qualified personnel as well as the conduct of the personnel and if the programming of attending the health facility was compatible with their own domestic schedules. Most respondents thought that health facilities did not meet these requirements with the result that they failed to continue using them. The failure by health facilities to provide the necessary services tended to force many people, especially pregnant women, to resort to traditional healers and medicine. Traditional healers lack the necessary knowledge, facilities and equipment to deal with some pregnancy-related complications. Cultural constraints were found to

affect the utilization of modern health facilities by pregnant women in the study area. Raikes (1990) observed similar practices among the Kisii of Nyanza Province, Kenya. The study findings revealed that some pregnant women were constrained by members of their families from visiting modern health care facilities and were instead required to use the services of the traditional birth attendants. Similarly some pregnant women could not give birth at modern health facilities as they did not want to breach some traditions. This is in agreement with the observations made by Karbo (1987). The sociocultural conditioning of pregnancy and child birth implies that pregnant women were not able to have access to sufficient prenatal health care. This was likely to expose them to severe pregnancy related infections such as malaria and tetanus. They would also remain ignorant about any likely dangers or complications to their health and the outcome of pregnancy as the traditional birth attendants lacked the knowledge to detect this.

5.2 CONCLUSIONS

People's response to malaria in pregnancy in endemic areas was the main subject of this study. The study set out to investigate people's knowledge about malaria in general and in pregnancy in particular, their perceptions about pregnancy and the implications for maternal prenatal health, and the obstacles to the utilisation of prenatal health care services by pregnant women.

1. There were significant intracultural variations in people's knowledge about malaria, its etiology and therapy in the study area. This was attributed to both the socialization process and other relevant factors within the community. According to Kleinman (1980:24), the knowledge about disease in any community is embedded in its culture whose health components include "patterns of belief about causes of illness, norms governing choice and evaluation of treatment." The socialization process may have influenced the respondents in as far as their knowledge pertained to the local name of malaria, its causes and symptoms but this did not seem to apply strongly to their knowledge about therapeutic options. The choice of therapy appeared to be influenced by factors other than the socialization process. The absence of strong and viable primary health care programmes for malaria control in Bar Chando was a great influence on the people's choice of therapy for malaria treatment. This implies that people varied in the ways they responded to what they perceived to be malaria infection. This confirms our working hypothesis that people's knowledge of malaria influences their perception about the etiology of and the therapy seeking options.

Preventive medicine for malaria is not culturally recognized in Bar Chando. This was an important finding for the use of antimalarial drugs for prophylaxis in a malaria holoendemic area. In endemic areas where malaria is stable most adults are asymptomatic and the presence of malaria parasites in the blood can only be established by a blood test. Bar Chando, like many other rural areas in Kenya, lacks health facilities where blood tests may be carried out to ascertain the presence of malaria parasites in an asymptomatic person. This implies that people

lack knowledge about the chronic nature of malaria and this becomes a great obstacle to malaria control programmes as people may be unwilling to accept antimalarial drugs for prophylaxis. Pregnant women in particular were noted to be averse to taking any medicines without any symptoms. Moreover modern medicines for the treatment of malaria were considered harmful to the foetus. Pregnant women were only willing to take or use medicines that were perceived to treat *mbunda* and/or *yamo*. The reluctance by pregnant women to accept chemoprophylaxis programmes has been documented elsewhere (Mnyika 1995; Jayawardene 1993; Johnson and Sargent 1990; Kaseje *et al* 1987; MacCormack and Lwihula 1983).

2. The study revealed that pregnancy is not culturally perceived as a sickness by the people of Bar Chando and, therefore, pregnant women are expected to continue performing their normal roles. The cultural construction of pregnancy in Bar Chando like in most non-western societies tends to preclude pregnant women from assuming a sick role (McKinlay 1972; Sich 1981; Sargent and Rawlins 1991). People's perceptions of pregnancy in Bar Chando led to their ignorance about the debilitating effects of malaria in pregnancy. Some obvious biomedically known malaria-related effects on pregnancy such as maternal morbidity and mortality, low birth weight babies, miscarriages, still births and abortions were through cultural perceptions attributed to the failure by pregnant women to observe the relevant taboos. According to Kawango (1995) a pregnant woman is expected to observe certain taboos and regulations to protect herself and the unborn baby.

The lay perceptions about pregnancy had implications for the health of a pregnant woman. The resulting failure by some pregnant women to utilize modern prenatal health care services tended to deny them the opportunity for preventive health care that would benefit the health of both the mother and the foetus. The regular utilization of modern prenatal health care services helps in detecting and managing some pregnancy-related complications such as malaria infection. The pregnant women are also educated about the danger signs, potential complications and where to seek help.

3. The study also revealed that a number of factors were responsible for the under-or non utilization by pregnant women of modern health care facilities in the study area. The factors were identified to be socio-economic, cultural and environmental in their perspective. The findings of the study revealed that there are no modern health facilities located in Bar Chando. Those who must use modern health care facilities must, therefore, travel long distances to the facilities found away from their homes. Similarly, Bar Chando has communication problems due to the underdeveloped infrastructure. The poor roads and the transportation costs to the health facilities are a major deterrent factor to many who would have the desire to utilize modern health care services.

A majority of the households in Bar Chando were found to have meagre incomes. This had implications for the requirement to pay for both transportation to, and the treatment at, the health facility. The other socio-economic factor concerned

the low level of formal education attained by the majority of women in the study area. This has implications for their knowledge about reproductive health and, therefore, awareness for the importance of sound maternal and child health. The social network to which a pregnant woman belongs is important in the decision making about utilization. Decision making on matters affecting pregnancy was never left to the woman alone. The family, relatives and other social contacts play an important role and were found to influence the decisions on the utilization of modern prenatal health services. On the other hand, a pregnant woman who had used a modern prenatal health care service tended to use her past experiences to make decisions on further utilization. She also influenced her close contacts in decision making on whether or not to use the health facilities.

Local beliefs about malaria portrayed it as a less serious disease which readily responded to locally available therapeutic options. Self-medication using both modern and traditional medicines tended to discourage people from visiting health care facilities for what they perceived to be malaria attack. On the other hand, malaria in pregnancy is never distinguished from pregnancy-related diseases which are normally treated with traditional medicine.

In conclusion it can be stated that according to the findings of the study the people of Bar Chando recognize malaria as one of common diseases in the area. There is evidence, however, that most people in the area remain ignorant about the chronic nature of malaria in a holoendemic area like Bar Chando and the dangers of

malaria infection in pregnancy. The study has also established that the endemicity of malaria in the area is also influenced by socio economic, cultural and environmental factors.

5.3 RECOMMENDATIONS

1. The findings of the study revealed that people of Bar Chando have their own ways of responding to pregnancy related diseases. Some of the strategies employed in responding to malaria in pregnancy were, however, found to be inimical to the health of both the pregnant woman and the unborn baby. There is a need for public health education so that people can be enlightened about the effects of malaria in pregnancy and the methods for prevention and control. Health education messages should aim at bringing about convenient, affordable and culturally acceptable change. Health education must focus on both men and women since both of them become active players in health seeking processes on matters relating to ill health in pregnancy. It is recommended that health education in Bar Chando should, among others, promote the acceptance of antimalaria drugs for prophylaxis especially for pregnant women and children below five years. It should also promote the need for regular utilization of modern health care services. It is suggested that health education on malaria in pregnancy in Bar Chando should be entrusted to the Ministry of Health through a team of well trained and culturally acceptable Community Health Workers, the provincial administration through the Chief's and Assistant Chief's *baraza* (public meetings), religious institutions, women groups, traditional healers such as

traditional birth attendants and many others that may be deemed relevant to the task.

2. People should be mobilized to initiate community development programmes aimed at the amelioration of those conditions that may impact on malaria in pregnancy. There is a need for leaders at all levels within the community to sensitize people on the importance of taking initiative in identifying appropriate local and culturally acceptable solutions to problems that affect their health or any other aspect of their lives. This is in keeping with the District Focus for Rural Development Strategy (Kenya 1985) which focuses, *inter alia*, on broadening the base of rural development efforts by encouraging local participation in problem identification, resource mobilization and project implementation. Such local initiatives are believed to improve the local capacities that in turn lead to improved standards of living for most members of the community. It is, therefore, recommended that the following programmes are needed for health improvement among pregnant women in particular and the community in general.:

a) The programmes for the provision of adequate food, boosting of household income, and improved nutrition will be achieved by adopting improved methods of food production.

b) Self-help projects should be started to cater for the provision of safe drinking water and sanitation.



c) Although the literacy level of the study population was generally encouraging there is need to have a programme aimed at enhancing formal education. This will empower people with the relevant knowledge to enable them to understand and appreciate the need for reproductive health especially for women.

d) Community-based maternal and child health care services were evidently insufficient in the study area. There is need to enhance the existing primary health care programmes currently carried on under the auspices of the Bamako Initiative. This will ensure better delivery of health care services up to the household level. The community approach to health improvement is likely to minimize the incidence of malaria in pregnancy even without the use of antimalaria medicine.

3. Self-medication by using both indigenous and non-prescription patent medicine as well as the of indigenous methods of malaria and mosquito control need to be accorded official recognition as part and parcel of the existing health care system in Bar Chando. The recognition should be reinforced by consultations between the indigenous medical personnel and biomedical scientists on the existing traditional antimalaria medicines. This will be aimed at establishing the efficacy of the medicine for antimalaria treatment as well as recommending the conditions under which they may be dispensed in order to safeguard the users. The Kenya Medical Research Institute has enough structures that can be put in use when such collaborative efforts are put in place. On the

other hand, the local shopkeepers who sell most of the non-prescription patent medicine, need to be educated about the recommended antimalaria medicines so that they can advise their customers on the right use of the medicines.

4. There is a need for a multidisciplinary approach to research on people's response to malaria in pregnancy in holoendemic areas like Bar Chando. Past research on the subject, which has been mostly biomedical, has tended to investigate the problem in isolation of other variables that possibly impact on the etiology of and response to the disease. A holistic approach becomes of great importance in the designing and implementation of anti malarial programmes. Such an approach is likely to put emphasis on horizontal linkages in health actions as opposed to the existing vertical programmes.

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APPENDIX A

INFORMANT NO _____

QUESTIONNAIRE

GREETINGS : I am a postgraduate student from the University of Nairobi doing research on malaria among pregnant women and those who have been pregnant before. I am not a medical student. The findings of the research may be used by the government or any other interested parties in setting up programmes of alleviating the problem of malaria in this area.

The information you give will be treated in strict confidence and no names of people interviewed will appear in my report.

I SOCIO-ECONOMIC STATUS

1. Sex of respondent (observe)
Male _____
Female _____
2. How old are you? _____ years
3. Marital Status:
Married _____
Widow(er) _____
Other (specify) _____

4. Who is the head of this household?
 Husband _____
 Wife _____
 Other(specify) _____
5. How many children do you have alive? _____
6. How many people live in this house? (Indicate number of each category)
 Men _____
 Women _____
 Boys _____
 Girls _____
7. What level of formal schooling did you attain?
 None _____
 Primary _____
 Secondary _____
 College _____
 Others (specify) _____
8. What is your religion? _____
9. What is your main occupation?
 Farmer _____
 Housewife _____
 Employed for cash _____
 Business _____
 Other (specify) _____
10. Approximately what is the income per month from this occupation?
 Kenya Shillings _____

11. What crops do you usually grow for food?

12. Where do you get your water for drinking and other domestic use?

River _____

Stream _____

Well _____

Pond _____

Other (specify) _____

13. (a) Do you have a latrine?

Yes _____

No _____

(b) If no, where do you relieve yourselves?

14. What supplies the family with light?

Firewood _____

Mkebe lamp _____

Hurrican lamp _____

Other (specify) _____

15. Do you own any of these? (tick as mentioned)

Watch _____

Clock _____

Bicycle _____

Motorcycle _____

Radio _____

Television _____

II DISEASE LABELLING

1. What is the local name for malaria?

2. What does that mean?

3. What are the major symptoms of malaria?

(i) _____

(ii) _____

(iii) _____

(iv) _____

(v) _____

(vi) _____

4. What other diseases in this area present as malaria?

5. Give the symptoms of the diseases you have mentioned

6. Give the causes of the diseases you have mentioned

III KNOWLEDGE OF CAUSE AND TRANSMISSION OF MALARIA

1. What causes malaria?

(i) _____

(ii) _____

(iii) _____

(iv) _____

(v) _____

(vi) _____

2. During which months of the year is malaria prevalent in this area? _____

3. (i) If a person is infected with malaria can he/she pass it to someone else?
Yes _____

No _____

- (ii) If yes, state how this happens

- (iii) Who are affected most by malaria in this area?

Men _____

Women _____

Children _____

Everybody _____

4. (i) Is there or has there been a pregnant women in this house?

Yes _____

No _____

(ii) If yes, when did she last have malaria?

Presently _____

Two weeks ago _____

Three months ago _____

Cant recall _____

5. (i) Have you ever had or witnessed a miscarriage in this house?

Yes _____

No _____

(ii) If yes, how many times?

(iii) What are the causes of miscarriages in this area?

8. (i) Have you ever had or witnessed a low birth weight baby in this house?

Yes _____

No _____

(ii) If yes, did the baby survive?

Yes _____

No _____

9. What are the causes of low birth weight in this area?

10. (i) Have you lost any child under five years of age?

Yes _____

No _____

(ii) If yes, what was the cause of death?

(iii) How did you know it?

IV PREVENTION AND/OR TREATMENT OF MALARIA

1. In this area malaria is the most serious disease

Strongly Agree _____

Agree _____

Not sure _____

Strongly disagree _____

Disagree _____

Don't know _____

2. If malaria is not the most serious disease please mention the most serious disease in this area.

3. Malaria is a big threat to pregnant women

Strongly Agree _____

Agree _____

Not sure _____

Strongly disagree _____

Disagree _____

Don't know _____

4. (i) Can malaria be prevented?

Yes _____

No _____

(ii) If no, give reasons

(iii) If yes, explain how it can be prevented.

5. (i) Is malaria a difficult disease to treat?

Yes _____

No _____

(ii) If no, give reasons

(iii) If yes, mention some of the medicines used.

6. (i) Is malaria treatment recommended for pregnant women in this community?

Yes _____

No _____

(ii) If no, give reasons

(iii) If yes, mention the type of treatment

V CULTURAL PERCEPTION OF SICKNESS IN PREGNANCY

1. (i) Are pregnant women more affected by malaria than women who are not pregnant?

Yes _____

No _____

- (ii) Give reasons for your answer

2. (i) Is pregnancy regarded as sickness in this community?

Yes _____

No _____

- (ii) If no, give reasons

3. What diseases afflict pregnant women in this area?

4. How are the diseases you have mentioned treated?

5. (i) (To female respondents) Have you ever attended any antenatal clinic?

Yes _____

No _____

- (ii) If yes, give reasons

- (iii) If no, give reasons.

6. How regular were your visits to the antenatal clinic?

Regular _____

Irregular _____

Can't recall _____

7. (i) Were you given any treatment and medicine at the clinic?

Yes _____

No _____

(ii) If yes, give details about treatment and medicine given

(iii) If no, give reasons

8. (i) Do traditional birth attendants in this area treat any diseases of pregnancy?

Yes _____

No _____

(ii) If yes, mention the diseases treated

(iii) If no, give explanation

9. (i) How many children have you ever given birth to?

(ii) Where were they delivered?

Hospital _____

Home _____

(iii) Give reasons why you delivered at the place already mentioned

10. (i) Is there any variation in the workload for pregnant women and those who are not pregnant in this area?

Yes _____

No _____

11. (i) Are there any special foods consumed by pregnant women in this area?

Yes _____

No _____

(ii) If no, give reasons

(iii) If yes, mention the special foods

- 12 (i) Are there any food taboos for pregnant women?

Yes _____

No _____

(ii) If yes, give reasons and mention the foods.

VI ACCESSIBILITY TO HEALTH CARE FACILITIES

1. (i) Do you have a health centre/hospital for pregnant women and children in this area?

Yes _____

No _____

- (ii) If yes, how far is it located from your home? _____ kms

- (iii) What is the mode of transportation to the health facility?
- _____

- (iv) If by public means what are the transportation costs?

Kenya shillings _____

2. (i) Have you ever visited the facilities?

Yes _____

No _____

- (ii) If no, give reasons
- _____

- (iii) If yes, how many times during the last six months?

3. How much did you pay for treatment on each visit?
- _____

4. How long did you wait before receiving treatment?
- _____

5. (i) How did you rate the treatment you received?

Satisfactory _____

Unsatisfactory _____

(ii) Give reasons for the answer

6. (i) Do you have special health experts in this area who attend to pregnant women

Yes _____

No _____

(ii) If yes, what are they called?

7. When you were pregnant did you use the services of these experts?

Yes _____

No _____

If no, give reasons

(ii) If yes, did they treat you for malaria?

Yes _____

No _____

8. When you (are) were pregnant did you consult traditional
(i) healers?

Yes _____

No _____

(ii) If no give reasons

(iii) If yes, explain the type of treatment and medicines by the traditional healer

9. What was the mode of transportation to the traditional healer?

10. If by public means what were the transportation costs?

11. How long did you wait before you were treated?

12. How much did you pay for treatment on each visit?

13. (i) How did you rate the treatment received?

Satisfactory _____

Unsatisfactory _____

(ii) Give reasons for the rating

14. (i) Do pregnant women in this area consult faith healers?

Yes _____

No _____

(ii) If yes, explain

(iii) If no, give reasons

VII DIRECT OBSERVATIONS
(To be filled by the researcher)

1. House roof made of

Grass _____

Iron _____

Other (specify)

2. House walls made of

Mud _____

Cement _____

Block _____

Stone _____

3. House floor made of

Earth _____

Cement _____

Other (specify)

4. Number of doors

5. Number of windows

6. House with eaves

Yes _____

No _____

7. House with screened windows

Yes _____

No _____

8. Number of rooms

9. Vegetation around the house

Yes _____

No _____

10. Broken tins and pots in the compound

Yes _____

No _____

11. Cleanliness of the compound

Satisfactory _____

Unsatisfactory _____

12. Estimated distance from household to nearest water point

APPENDIX B

BOTANICAL NAMES FOR TRADITIONAL MEDICINAL HERBS

LUO NAME	BOTANICAL NAME
<i>Dwele</i>	<i>Melia azedarach</i>
<i>Kuogo</i>	<i>Lannea stuhlmannii</i>
<i>Mweny</i>	<i>Ocimum basilicum</i>
<i>Nyabungu Odide</i>	<i>Microglossa pyrifolia</i>
<i>Oher</i>	<i>Carissa edulis</i>
<i>Ochol</i>	<i>Cissampelos mucronata</i>
<i>Ochuoga</i>	<i>Ximenia americana</i>
<i>Olandra</i>	<i>Albizia coriara</i>
<i>Olemo</i>	<i>Tylosema fassoglensis</i>
<i>Ombasa</i>	<i>Leonitis spp</i>
<i>Pedo</i>	<i>Harrispamoa abyssinica</i>
<i>Rabongo</i>	<i>Rhoicissus revouilii</i>
<i>Sigiria</i>	<i>Acacia macrothyrsa</i>
<i>Yago</i>	<i>Kigelia africana</i>

Source : Kokwaro, J.O. 1972

UNIVERSITY OF NAIROBI