


MALARIA IN NAMIBIA: A COMMUNITY STUDY

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DECLARATION

I, the undersigned, hereby declare that the work contained in this thesis is my own original work and has not previously in its entirety or in part been submitted at any University for a degree.

Signature

12 February 2001

Date

SUMMARY

The researcher has identified several problems in the North West Health Directorate community of Namibia regarding malaria and malaria related deaths.

Against this background the study was undertaken to:

- Identify the attitude(s) of the community towards malaria.
- Determine the community's knowledge of malaria.
- Determine the prevention strategies the community employed to guard against malaria.
- Make recommendations.

Methodological triangulation was used to obtain data and the findings reflected the following:

- Lack of knowledge about malaria, its causes, management and prevention due to lack of adequate health information.
- Socio-cultural factors have an influence on the community's knowledge of malaria, their attitudes towards malaria and on strategies employed by the community to prevent malaria.

Recommendations included provision of proper and adequate health information to the community by health workers, increasing community participation in order to enhance attitude change and co-ordination and collaboration between traditional healers and the Ministry of Health and Social Services.

Keywords: malaria / community / prevention / knowledge / attitudes

OPSOMMING

Die navorser het verskeie probleme rakende malaria en malaria verwante sterftes in die gemeenskap van die Noordwes Gesondheidsdirekoraat van Namibië geïdentifiseer. Teen hierdie agtergrond is die studie gedoen om:

- Die houding van die gemeenskap teenoor malaria te identifiseer.
- Die gemeenskap se kennis omtrent malaria te bepaal.
- Die voorkomende strategieë wat die gemeenskap toepas om malaria te voorkom te bepaal.
- Aanbevelings te maak.

Metodologiese triangulasie is gebruik om data te verkry en die bevindinge het die volgende gereflekteer:

- Gebrek aan kennis aangaande malaria, die oorsake, hantering en voorkoming van malaria as gevolg van 'n gebrek aan voldoende gesondheidsinligting.
- Sosio-kulturele faktore beïnvloed die gemeenskap se kennis van malaria, hul houding teenoor malaria en die strategieë wat hul toepas om malaria te voorkom.

Aanbevelings sluit in die voorsiening van korrekte en voldoende gesondheidsinligting aan die gemeenskap deur gesondheidswerkers, verhoging van gemeenskapsdeelname om houdingsveranderinge teweeg te bring asook om die koördinasie en samewerking tussen tradisionele helers in die Ministerie van Gesondheid en Welsyn te verbeter.

Sleutelwoorde: malaria / gemeenskap / voorkoming / kennis / houding.

DEDICATION

Dedicated to the memory of my late son Jason Omwene Tupopila. To my adorable daughter, Nangula, let this be a source of inspiration. A special thanks goes to my youngest sister, Liina Oshoveli, for her continuing encouragement and support.

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CHAPTER 1

INTRODUCTION

1.1 BACKGROUND TO THE STUDY

Malaria is a common yet serious tropical disease. Malaria kills an estimated 1.5 to 2.7 million people each year and 300-500 million people suffer from the disease every year. 90 % of malaria deaths occur in Africa, south of the Sahara. Malaria is firmly rooted in 103 countries worldwide (World Health Organization, 1997).

Malaria is caused by a parasite and is transmitted from person to person by the bite of an infected *Anopheles* mosquito. Malaria can also be transmitted by blood transfusion and by contaminated needles and syringes. In congenital malaria, parasites are transmitted from mother to child before and/or during birth.

In many endemic areas of Africa, it is a year round problem with seasonal increase occurring with the onset of the rainy season. Although primarily a rural disease, malaria has become increasingly urban, mostly due to increased mobility.

Studies by United Nations Educational, Scientific and Cultural Organization in rural Africa have shown that over one-sixth of primary school children have had two or more attacks of malaria in one school term, typically missing a week or more of school attendance (Bradley, 1995). According to the World Health Organisation (World Health Organization, 1997) reports, malaria infects more than 10.000 American travellers in Africa annually.

A malaria infection also poses a threat to a pregnant woman and her unborn baby. The disease increases the risk of adverse pregnancy outcomes, including prematurity, abortion and still births. Hence, it is vital for pregnant mothers living or travelling to malaria areas to be well-informed about the disease and to adhere to prophylactic measures in order to prevent malaria.

A study by Gerner and Gulmezoglu (1997) on pregnancy and malaria prevention has shown that the taking of anti-malaria drugs during pregnancy is associated with fewer episodes of fever and maternal illness in the mother and high birth weight in the infant.

In Namibia, malaria is the leading cause of ill health and deaths among children and adults, particularly in the northern regions where about 60% of the population lives. As in most parts of Africa, malaria in Namibia is seasonal with the potential for epidemic outbreaks, which are related to exceptional rainfall. In a typical year, there are some 120,000 new cases of malaria in children under five years, accounting for some 20% of all out-patient diagnosis in this age group. Malaria accounts for approximately 14% of all deaths recorded in children's wards, second only to diarrhoea (Minister of Health and Social Services, 1995).

In 1998, the disease was the third largest killer after AIDS and Tuberculosis in Namibia, as it claimed about 486 lives nation wide, with a death rate of 54 for every 1000 people (5,4%). Of the 388297 Malaria patients who visited health facilities, 368551 (94,9%) were treated as out patients, while the other 19746 (5,1%) were hospitalized (The Namibian, 1999).

Of the whole Namibia, the North West Health Directorate had the highest rates of malaria illness and deaths in 1998. Approximately 194 malaria deaths were recorded in this Directorate, with Oshakati district recording the highest incidence with 72 deaths (North West Health Directorate Statistics, 1998).

Malaria, if poorly diagnosed, late treated or untreated, can result in severe complications including jaundice, renal failure and severe anemia. Malaria has

severe implications for the health, economic and political situations in a country. The treatment of malaria is expensive for both the individual patient and the health service provider. As malaria affects all age groups, it results in many days of workloss which results in poor productivity.

However, malaria is preventable and curable. In recognition of the role that education can play in malaria prevention, the World Health Organization and United Nations Educational, Scientific and Cultural Organization signed a memorandum of understanding in 1997, whereby both organisations will collaborate in assisting countries to implement the Global Malaria Control strategy. Through health education, World Health Organization and United Nations Educational, Scientific and Cultural Organization aim to mobilize schools, parents and the entire community to play a part in promoting malaria safe behaviours (World Health Organization, 1997).

Since independence in 1990, Namibia's health services have become primary health care orientated, whereby primary prevention of diseases is the most important component. At the primary prevention level, measures are taken to promote optimum health or to provide specific protection of target groups against diseases. This can be achieved mainly through the provision of health education.

In the same light the Ministry of Health and Social Services, in collaboration with other sectors, has been embarking upon malaria awareness campaigns with the aim of educating the community with regard to malaria related issues, such as the cause, the signs and symptoms and most importantly the primary prevention of the disease. In spite of the Minister of Health and Social Services's goal to promote the use of personal protection and eradication of mosquito breeding sites, the observations made by the researcher and other health workers show that the community, specifically in the North, does not apply the protective measures which are promoted. Health workers have also observed the tendency among community members to take patients who are showing malaria symptoms to health facilities at least three to four days after the patient has presented with symptoms. This could be the cause of the alarming statistics regarding malaria-

related deaths in the Northwest Health Directorate. It seems as if the community in this Directorate lacks information and knowledge regarding malaria or they have developed a "don't-care-attitude" towards the disease.

The researcher's, practical experience, supported by observations and statements by health workers indicated a need for information about the knowledge and attitudes of the community in the North West Health Directorate towards malaria as well as the preventative strategies employed to guard against malaria.

1.2 PROBLEM STATEMENT

The information referred to above led to the following questions as an indication for the research:

- 1) What are the attitudes of the community towards malaria?
- 2) What is the knowledge base of the community with regard to malaria?
- 3) Which prevention strategies are employed by the community to guard against malaria?

1.3 RESEARCH OBJECTIVES

With reference to the research questions stated, the following objectives have been set for the research:

- 1.3.1 To identify the attitude of the community towards malaria.
- 1.3.2 To determine the community's knowledge of malaria
- 1.3.3 To determine the prevention strategies employed by the community to guard against malaria.
- 1.3.4 To make recommendations where applicable.

1.4 ETHICAL CONSIDERATIONS

Permission to conduct the study will be requested from the Governor of Oshana region. The purpose of the study shall be explained to participants and their consent elicited. Participants will be informed about their rights. Total anonymity and confidentiality will be assured.

1.5 RESEARCH METHODOLOGY

Uys and Basson (1991) define research methodology as the total strategy for the study, from problem identification to the final plans for gathering data.

1.5.1 Research approach

In this study, the approach is descriptive and non-experimental by nature. This approach is used to explore and investigate certain aspects of the community's knowledge and attitudes regarding malaria and strategies employed to prevent malaria.

1.5.2 Research design

For this study, methodological triangulation will be used. According to De Vos (1998), methodological triangulation is the use of two or more methods of data collection procedures within a single study. In this study, qualitative and quantitative methods will be used. Cresswell (1994) pointed out that it is advantageous to a researcher to combine methods understand a concept being tested or explored more clearly. The integration of two or more methods can also provide an expanded to understanding of the scope of the phenomenon of interest and increased confidence in the generalization of results (Polit and

Hungler, 1993).

1.5.3 Sampling

A systematic sampling targeted specifically at mothers has been used for inclusion of the Oshakati Health District community. Mothers form the centre of the family in the community and they are in a better position to identify and observe abnormalities in any family or community than anyone else is.

1.5.4 Data collection

Data collection has been done over a period of one year. The researcher was the primary data collector. Structured interviews with open and closed-ended questions have been held. In addition to the structured interview, focus group discussions have been conducted.

Before the actual collection of data, a pilot study has been undertaken in two villages within the Oshakati Health District. These villages is excluded from the final study.

1.5.5 Data analysis

Data analysis will be done with the help of a computer and a statistician.

1.6 PARADIGMATIC PERSPECTIVES

Paradigms or research traditions characterize research. The researcher believes in:

- 1.6.1 The theory of Holism
- 1.6.2 The System theory
- 1.6.3 The Health Promotion theory

1.6.1 The theory of Holism

George (1990) views holism as a theory that the universe and especially living nature are correctly seen in terms of an interacting whole and not as a mere sum of individual parts. This means that human beings are viewed as unified wholes, not as parts. The researcher also supports Rogers's Model of Unitary Human Beings which emphasizes that human beings can only be understood in their wholeness and in relation to their environment because according to Rogers (1986) human beings and their environment are seen as mutual and continuous.

The Oshakati community should not be viewed in isolation, but as a whole. The community is inter-dependent and inter-related and should be understood in the context of its environment.

1.6.2 The system theory

The researcher identifies herself with Neuman's system theory by which the client is viewed as a system functioning harmoniously in relation to environmental influences. The client system comprises of five interacting variables namely: physiological, socio-cultural, developmental and spiritual variables (Oerman, 1991).

In light of Neuman's system theory, the Oshakati community can be understood if we take their physiological, social, cultural, spiritual and developmental aspects into account.

1.6.3 The Health Promotion Theory

The researcher also believes in Pender's health promotion theory (George, 1990), which has the following assumptions:

- Individual perceptions of health that include beliefs, values and culture could influence decisions taken by people to promote health.
- People's perception of the benefits of health promoting action may also influence their willingness to take the necessary measures.
- Modifying factors that influence health behaviour include age, level of education, socio-economic status, and interaction with health professionals and prior experience with health-promoting behaviour.
- Perceived barriers such as unavailability of health facilities also influence the likelihood of taking action. People's previous experiences with health care services also have a strong influence on the decisions they make regarding the utilisation of health services.

In the light of Pender's health promotion theory, the researcher who is also a health worker, can identify perceptions that may have a negative influence on the Oshakati District community's health promoting behaviours. Having identified these perceptions, the researcher in collaboration with other stakeholders, will be able to make a nursing diagnosis and plan relevant intervention.

1.7 OPERATIONAL DEFINITIONS

Accessibility

The degree to which health care services and supplies may be obtained at a level of effort and cost that is both acceptable and within the means of a large majority of the population (Betrand, Hardee, Magnani and Angle, 1995).

Abortion

Termination of pregnancy before the fetus is capable of survival outside the

uterus (Miller and Keane, 1987).

Anemia

A reduction in the number of red blood cells or in the quantity of hemoglobin in the blood (Brunner and Suddarth, 1986).

Attitude

It is a learned predisposition to think, feel, and act in a particular way towards a given object or a class of objects (Gagne, 1985).

Beliefs

These consists of knowledge, opinions and faith that dispose persons towards a certain kind of behaviour (Gagne, 1985).

Community

A group of people living in the same geographical area, who share the same norms, values, beliefs and culture (De Vos, 1998).

Culture

Is a set of rules, values and beliefs shared by members of a society which, when acted upon by the members, produce behaviour that falls within a range of variance that members consider proper and acceptable (Haviland, 1996).

Endemic

Implies the habitual presence of a disease or agent of disease within a given area (Baker and Hall, 1991).

Environment

Refers to all conditions, circumstances and influences surrounding and affecting the development and behaviour of persons or groups (George, 1990).

Health

A state of physical, mental and social well-being and not only the absence of



disease or infirmity (World Health Organization, 1986).

Holism

A theory that the universe and especially living nature are correctly seen in terms of an interacting whole that is more than the mere sum of individual parts (George, 1990).

Household

In the Owambo culture, more than one mother with children belong to a household. The mother to whom the house belong, forms the head of the household, and is in the best position to identify and observe any abnormalities in the family, than anyone else. The household is her responsibility.

Jaundice

Yellowness of skin, sclera, mucous membranes and excretions due to increased bilirubin in the blood (Miller and Keane, 1987).

Malaria

It is a protozoa infection transmitted to human beings through the bite of an infected mosquito. It is mainly characterized by fever, headache, malaise and muscular pains (Miller and Keane, 1987).

Mother

The mother is seen as the person to whom the house belongs. She forms the center of the family. Only mothers 20 years of age and older was included.

Renal failure

Is a decline in renal function caused by failure of the renal circulation or by glomerular or tubular damage (Brunner and Suddarth, 1986).

1.8 LIMITATIONS OF THE STUDY

Uys and Basson (1991) and Burns and Grove (1993) state that limitations are restrictions in a study that may decrease generalibility of findings. The limitations in this study are that it is being done on rural and peri-urban mothers, thus generalization to urban residents is impossible. However, the findings are applicable in the North West Health Directorate.

1.9 ORGANIZATION OF THE REPORT

Chapter 1

Serves as an orientation to the study. It covers the background of the study, problem statement, research objectives, research methodology, paradigmatic perspectives, operational definitions and limitations of the study.

Chapter 2

It describes factors that can have an influence on knowledge, attitude and strategies employed by the Oshakati health district community to prevent malaria, complications of malaria as well as prevention and control of malaria.

Chapter 3

Describes the Research Methodology of the study.

Chapter 4

Describes Data Analysis and discussion of Research findings.

Chapter 5

Conclusion and Recommendations.

1.10 CONCLUSION

The existing problem has indicated the need for more information in respect of the community's knowledge, attitude regarding malaria and malaria prevention strategies. This information will assist all stakeholders to devise new strategies that could produce an informed and empowered community who can actively participate in decision making with regard to malaria prevention.

CHAPTER 2

FACTORS THAT CAN HAVE AN INFLUENCE ON KNOWLEDGE, ATTITUDES AND ON PREVENTION STRATEGIES RELATING TO MALARIA BY THE OSHAKATI HEALTH DISTRICT COMMUNITY: A LITERATURE REVIEW

2.1 INTRODUCTION

Literature review refers to the activities involved in searching for information on the topic and developing a comprehensive picture of the state of knowledge on that topic (Polit and Hungler, 1993).

The goals of literature review are the following:

- To demonstrate a familiarity with a body of knowledge and establish credibility
- To show the path of prior research and how a current project is linked to it.
- To integrate and summarize what is known in an area.
- To learn from others and stimulate new ideas (Neuman, 1997).

A literature study was undertaken with the view to:

- Identifying factors that could have an influence on the knowledge and attitude about malaria and the prevention strategies relating to malaria by Oshakati Health District Community.
- Obtaining views of other researchers and authors on the problem as stated

in chapter 1.

- Acquainting the researcher with relevant research strategies, specific procedures and instruments that might be productive in pursuing the problem as previously stated.

2.2 FACTORS THAT CAN HAVE AN INFLUENCE ON THE ATTITUDES OF OSHAKATI HEALTH DISTRICT COMMUNITY TOWARDS MALARIA

2.2.1 Attitudes

Attitude is a complex psychological concept that cannot be observed as easily as a person's physical characteristics. As a result this concept, 'attitude' needs to be defined conceptually. The conceptual definition is the starting point from which this concept can be operationally defined and consequently measured.

Attitude has been a subject of interest in psychology and education for a long time. Researchers have to contend with a multiplicity of motivations for and against the need for studying and measuring attitudes. Consequently, a great deal of research devoted towards determining the functions and techniques for the measurement of attitude exists. These aspects form the subject of this chapter.

2.2.1.1 Functions and importance of attitudes

Why do people have attitudes? Helman (1990) states that attitudes serve as a convenient summary of a wide variety of beliefs about health, illness and the like. In addition, attitudes help others to know what to expect from us, and as such make the world seem like a more predictable place.

Predictability, according to Gagne (1985) helps us to adjust to our environment. Individuals have an established repertory of reactions to a given category of objects. This saves us from deciding again what our reaction should be to a particular object.

Attitudes also help us to adjust to our environment by making it easier to get along with people who have similar attitudes. People who really count in our social environment, tend to have attitudes that are similar to ours and often we adjust our attitudes in line with the ones held by these important people.

In a similar line of argument, Ajzen and Fishbein (1980) described four functions that attitudes might serve for a person. Accordingly, some attitudes serve an ego-defensive function. These are attitudes that allow the individual protecting them from acknowledging uncomplimentary basic truths about themselves or the harsh realities in his external world. Attitudes may also serve a value-expressive function, in which the individual derives satisfaction from expressing attitudes appropriate to his personal values and self-concept. A third purpose served by attitudes is a knowledge function. Such attitudes allow people to understand events and people around them better. Finally, attitudes may serve a utilitarian function. These attitudes help people to gain rewards and avoid punishment.

Attitudes then play a significant role in an individual's life orientation to the world and in relationships with people, activities and events.

In particular, attitudes influence how people experience, value and perceive health and diseases such as malaria.

2.2.1.2 Conceptual definitions of attitudes

There are two different approaches regarding the structural nature of attitudes. The first holds that an attitude is simply a tendency to evaluate an object or construct in

in positive or negative terms. For example, Thurnstone (1972) defines attitude as “the intensity of positive or negative affect for or against a psychological object. A psychological object is any symbol, person, phrase, slogan, or idea with which people can differ regarding a positive or negative affect.”

Katz (1960), on the other hand, defines attitude as “the predisposition of the individual to evaluate some object or symbol of that object or aspect of his world in a favourable or unfavourable manner.”

Component theorists provide a second approach to the nature of attitudes. Here attitudes are seen as having three components: a cognitive (thought) component, an affective (feeling) component and a behavioural (action) component (Quinn, 1988). According to Gable (1986) “An attitude is composed of affective, cognitive, and behavioral components that correspond, respectively, to one’s evaluations of, knowledge of and predisposition to act toward the object of the attitude.”

Triandis (1980) proposes that “An attitude is an idea charged with emotion which predisposes a class of actions to a particular class of social institutions.”

According to Gable (1986), the cognitive component of attitude refers to the way in which the attitude object is perceived and conceptualized, and thus represents the individual’s picture of the attitude object, and his beliefs about it.

The affective component is concerned with the emotional underpinning of these beliefs and represents the amount of positive or negative feeling that an individual has towards the attitude object. The affective component, according to Himmerfarb and Eagle (1985) could vary in direction and intensity and is the central aspect of attitude since it provides the evaluation of the object.

The behavioural component can be conceived as a consequence as well as a corollary of the other two components, and refers to the individual’s intention to behave in particular ways, or to his actual behaviour, with regard to the attitude

object (Gable, 1986).

The above argument is applicable to the study in the sense that the Oshakati community's intention to use or not to use mosquito nets. For example, in order to prevent malaria, is the function of one's attitude which may be positive or negative towards bed nets, as well as the person's belief about malaria.

To get a clear picture of attitude, it is appropriate to distinguish it from other concepts, which appear to be related. The list of such terms is probably endless. Consequently, only a limited number will be briefly discussed, namely fact, belief, opinion, motive, mood, interest, value, preference and self-esteem.

There is a difference between attitude and fact. Attitudes tend to be of different duration than facts. Although facts regarding certain situations may change, people tend to evaluate these situations in the same way regardless of the change of facts (Triandis, 1980).

Quinn (1988) regards an opinion as a manifestation of an attitude that could be used to diagnose the underlying attitude predisposition. Attitudes, then, characterise a general orientation whereas opinion characterises a more specific predisposition. The term belief is of a similar nature. Anderson (1985) reports that attitudes are beliefs imbued with emotional and motivational properties. Attitudes express a person's favourability towards an object, while beliefs are neutral in affect.

Attitudes are sometimes considered as motivating some of our behaviour even though they are more enduring than motives. For example, one can speak of a specific intention to achieve a particular goal, and that might be quite different from the person's evaluation or attitude towards that goal. Similarly, the concept of mood is thought to be momentary. Although we may fluctuate between good and bad moods, attitudes tend to remain relatively stable.

In an effort to understand attitude in relationship to other elements of the affective

domain, Anderson (1985) found three essential features that could differentiate attitude from other affective characteristics, namely target, direction and intensity.

According to Anderson (1985), the most common target of attitude is a social object. In contrast, the most common target of interest is an activity. For value, it is an idea or abstraction. For self-esteem, it is the person himself or herself. For preference, it is the specification of two or more targets since preference involves a choice to be made between or among alternatives.

Anderson maintains that the direction of attitude also differs from that of other affective characteristics. The directional indicators of attitude are favourable and unfavourable. For interest, the indicators are disinterested and interested. For value, the indicators are undesirable and desirable, unimportant and important, and unacceptable and acceptable. For preference, the directional indicators are in fact the targets themselves, the directions are towards one target and away from another target. For self-esteem, the directional indicators are negative and positive or worthless and worthy.

Finally, Anderson (1985) states that attitude can be differentiated from other affective characteristics in terms of intensity. Attitude is an emotion of moderate intensity, it is more or less a reactive emotion. Several affective characteristics such as interest, value and self-esteem are more intense than attitudes.

In contrast to attitude, interest is a proactive emotion. It impels a person to either covert action (attention) or overt action (acquisition). Similarly, value is defined by words such as 'guides and determines' and 'directing' which suggest a fairly high intensity level.

Self-esteem also tends to be a more intense emotion than attitude largely because the target of the emotion is the self. Virtually all emotions related to the self tend to be of high intensity.

From the above analysis, Anderson (1985) gives a definition of attitude that he believes to be unambiguous and less confusing. He states that “attitude can be considered a moderately intense emotion that prepares or predisposes an individual to respond consistently in a favourable or unfavourable manner when confronted with a particular object”.

2.2.1.3 Measurement of attitudes

According to Kerlinger (1986) measurement is the assignment of numerals to objects or events according to rules. A rule is a guide, a method, and a command that tells us what to do. Rules, therefore, are the most difficult (and interesting) work of measurement and may be good or bad - hence good or poor measurements.

It is quite easy to measure physical and concrete aspects of a person, for example, mass and length, because the rules are easy to draw up and follow. However, most human characteristics (such as self-esteem, attitudes, and the like) are much more difficult to measure, mainly because it is difficult to devise clear reliable rules.

Actually according to Kerlinger (1986), we are only able to measure indicants (or indicators) of the properties of objects and not the objects themselves.

An indicant, according to Kerlinger (1986), is a word used to mean something that points to something else. The indicants from which properties are inferred are specified by operational definitions, definitions that specify the activities or operations necessary to measure variables or constructs. Kerlinger (1986) argues that numerals are assigned to the behavioural indicants of properties, then, after making observations of the indicants, the numbers (numerals) are substituted for the indicants and analysed statistically.

Also, objects and events have many properties and measurement involves only a representation of some property and does not involve its complete description. According to Allport (1935 in Gagne, 1985), the complexity of the thing being measured is irrelevant to the question of whether some property may be measured successfully or not. Yet people will often maintain that attitudes cannot be measured because of their complexity or peculiar (human) characteristics.

Thurnstone (1972) responded to such arguments as follows:

“ The measurement of any object or entity describes only one attribute (that is, property) of the object measured. This is the universal characteristic of all measurement. When the height of a table is measured, the whole table has not been described but only that attribute which was measured.”

As said earlier, making rules for measurement is a difficult task that is seldom perfect. The information gained through such empirical methods (measurement) cannot, therefore be interpreted in absolute terms, especially when some human characteristics are involved. The knowledge thus gained is neither fixed, complete nor universally valid. It only provides us with added information regarding that particular phenomenon.

It always serves as a starting point for more research and elaboration and never as a complete answer.

In conclusion, the researcher attempts to measure some personal qualities like 'attitude' without claiming universality or a “corpus of knowledge”. The findings are therefore interpreted qualitatively.

According to Anderson (1985), attempts to measure attitude fall into one of three categories. All such attempts require the making of inferences about attitude from some observable indicator. The categories can be formed on the basis of the type of indicator on which the inference is made.

The first category contains those methods that enable inferences to be made based on individual's responses to a series of sentences or adjectives. Methods falling into this category are called scaling techniques and the instruments developed are called scales. The second category contains those methods that permit inferences to be made from individual's overt behaviours. These methods require the gathering of observational data and the establishment of sufficiently strong attitude-behaviour relationships. The third category includes those methods that allow inferences to be made on an individual's physiological responses.

Techniques based on physiological responses are expensive and require specialised knowledge beyond the scope of this study. Also, techniques employing overt behaviour require considerations of other constraints such as norms, habit, and expectancies about reinforcement (Anderson, 1985). Such considerations as well are beyond the scope of this study.

In addition it has been found that the following factors affect the community's attitude about malaria as well:

- Socio-cultural factors
- Political factors

2.3 SOCIO-CULTURAL FACTORS

Various definitions of culture exists. Haviland (1996) defines culture as a set of rules or standards shared by members of a society, which, when acted upon by the members, produce behaviour that falls within a range of variance which the members consider proper and acceptable.

Andrews and Boyle (1995) define culture as a "complex whole which includes knowledge, beliefs, art, morals, laws, customs and any other capabilities and habits acquired by man as a member of society".

Culture represents a way of perceiving, behaving and evaluating one's world. All people have culture expressed in their attitudes and institutions unique to their particular group and all cultures are equal (Andrews and Boyle, 1995).

According to Haviland (1996), culture must motivate its members to survive and engage in activities necessary for survival, but most importantly, it must be able to change if it is to remain adaptive under changed conditions. The mechanisms of cultural change are innovation, diffusion, cultural loss and acculturation.

Innovation occurs when someone within a society discovers something new that is then accepted by other society members. Diffusion is the borrowing of something from another group and cultural loss is the abandonment of an existing practice or trait with or without replacement. Acculturation is the massive change that occurs with the sort of intensive firsthand contact that has occurred under colonialism.

2.3.1 Culture, Health and Illness

The World Health Organisation defines health as a state of complete physical, mental and social well-being and not merely the absence of diseases or infirmity (World Health Organization, 1986).

In many African societies, health is conceived as a balanced relationship between man and man, man and nature and man and the supernatural world (Haviland, 1996). A disturbance of any of these may manifest itself either by physical or emotional symptoms.

Haviland (1996) further explained that western communities' definition of health tends to be less all-embracing but it also includes physical, psychological and behavioural aspects.

Conception of health varies also between social classes. According to Hughes's (1978) study in New York State, working-class mothers did not define their children as ill, even if they showed abnormal physical symptoms, provided that they continued to play and walk around. On the contrary members of the middle - class in New York State consulted a physician for a backache even if it did not interfere with their daily activities.

Haviland (1996) defines illness as a state of perception, a subjective feeling in which a person may describe symptoms of a disease or discomfort. However, what a person recognizes as illness, is culturally prescribed. On an individual level, the process of defining oneself as being ill can be based on one's own perceptions or others' perceptions of health and illness or on both.

According to Kiesler (1991) defining oneself as being ill usually follows a number of subjective experiences, including the following:

- Perceived changes in body appearance such as loss of weight or change in skin colour.
- Changes in the functions of limbs such as paralysis, clumsiness or numbness.
- Unpleasant physical symptoms such as headache, abdominal pain, fever or shivering.
- Changes in the five major senses such as deafness, blindness, and lack of smell or loss of taste.
- Unusual emotional states such as anxiety, depression, nightmares or exaggerated fears.

The process of "becoming ill" involves, therefore, both the subjective experiences and in most cases the confirmation of these changes by other people. As Hughes (1978) put it "both the presentation of illness and others' response to it, are largely determined by socio-cultural factors".

Haviland (1996) supports Hughes (1978) by stating that each culture has its own *language of distress*, which bridges the gap between subjective experiences of impaired well-being and social acknowledgement of both. Cultural factors determine *which* symptoms or signs are perceived as abnormal, they also help to *shape* these diffuse emotional and physical changes into a pattern which is recognizable to both the sufferer and those around him or her.

There is no doubt that the health care phenomenon is related to culture. A cultural system of beliefs and behaviour about health and illness called a medical system, is universal to all societies, although the manifestations of such beliefs and behaviour is different in each case.

For instance there are health practitioners in Namibia, but they are differentially identified as doctor, herbalist, oonganga, traditional healers etc. Each claiming a method of expertise to maintain health and prevent illness.

Each culture ascribes a cause to a pathological conditions and prescribes ways of diagnosing, preventing and of treating the condition. Accordingly, what is regarded as pathological in one society may be regarded as a normal in another. Data from ethnographical studies in Cote d' Ivoire and the Afro-Brazilian culture in Bahia on interpretations and preventive practices relating to malaria showed that most people interpreted malaria as a disease caused by supernatural powers (World Health Organization, 1997).

A study by Dolan (1993) on oral hydration therapy in Pakistan showed that many mothers saw diarrhoea as a natural and expected part of teething and not as an illness, consequently mothers seek traditional remedies without recourse to oral hydration therapy.

Similarly in Namibia, residents of the former Owambo area used to suffer from a febrile condition, locally known as *onyango*, especially during the rainy seasons. This *onyango* resembled malaria, with typical feeling of hotness, perspiration and

vomiting. The vomits were invariably mixed with bile, from where the name *onyango*, which literally means bile, was derived. Due to cultural contextualization of *onyango*, the former Owambo residents resolve to traditional remedies first, before they consult western medicine. The practice still prevails until today.

In an indigenous health belief system, illness is more frequently believed to be caused intentionally and ascribed to supernatural causes. In the study of low-income black Americans, Hughes (1978) found that illness was often described as a reminder from God for some behavioural lapse, such as neglecting to attend church regularly. On this basis, neither home remedies nor a physician were considered useful in treating the condition.

When a natural cause fails to explain a condition, beliefs in the ancestral spirits are considered. De Villiers (1984) cautioned that although the ancestors are believed to be concerned with the interests and well-being of their descendants, if angered, they may cause misfortune, of which illness is one. However, ancestrally caused illness is seldom fatal, but offers a ready explanation for a condition associated with vague undefined pain, a general feeling of being unwell or for symptoms that cannot readily be identified.

Belief in witchcraft and sorcery is also prevalent in Namibia, and witchcraft is widely regarded as a cause of illness. De Villiers (1984) states that witchcraft refers to the activities of a person who maliciously manipulates the supernatural powers to harm others.

Haviland (1996) on the other hand defines sorcery as the power to manipulate and alter natural and supernatural events with magical knowledge and performance of rituals. The sorcerer exerts his or her power consciously, usually for reasons of envy or jealousy.

An opinion poll conducted by the Namibian newspaper in Namibia (1995) among the Ombili squatter camp residents, revealed that almost 70% respondents believed

that there is a relationship between malaria and witchcraft. The implication of this belief is that most residents will be reluctant to use protective measures and those who are sick will definitely seek traditional treatment from *Onganga* as the first option.

Similarly, a study on traditional beliefs in Ethiopia revealed that malaria causation was often attributed to spirits and the sun. Less than 20% of the respondents linked malaria to mosquitoes (Hodes and Teferedegne, 1996).

The connection between culture and the interpretation of a disease is illustrated by a phenomenon known as the culture-bound syndrome. Conditions described as such are supposedly unique to a particular area and are therefore associated with the people who live in that area. Although not exclusively, many culture bound syndromes are manifested in mental disorders. By implication this interpretation can have fatal consequences, specifically in the case of a patient with cerebral malaria, whereby he/she manifests with disorientation. Instead of consulting medical treatment, family members may take him/her to a traditional healer with the belief that the patient is either bewitched or is being punished by the ancestors for what he/she could have done wrong. By the time they realise that the opposite might be true, coma or death might have set in already.

Socio-cultural factors play a role with regard to consultation. Several studies have examined reasons why some ill people consult a doctor, while others with the same complaints do not. Often this can be associated with lack of affordability, but even when people can afford to pay for medical care, there is little correlation between the severity of a physical illness and the decision to seek medical help. In most cases this delay can have serious consequences for the patient's health.

Helman (1990) has revealed five factors that trigger the decision to seek medical help, namely:

- An interpersonal crisis

- Perceived interference with personal relationships
- The setting of external time criteria (if it isn't better in three days ... then I will consult a doctor)
- Sanctioning; that is one individual takes primary responsibility for the decision to seek medical aid for someone else.
- Perceived interference with work or physical functioning.

According to Helman (1990) utilization of medical care depends also on the perceived cause of the condition, whether it is believed to originate in the individual or in the natural, social or supernatural worlds.

Socio-cultural factors also influence people to use different sources for the same condition at the same time, which is a common practice in the northern part of Namibia.

The procedure of consulting both an indigenous practitioner and medical professionals for the same condition at the same time is known as dual consultation or medical pluralism (De Villiers, 1993).

In his study among the Xhosa-speaking groups in South Africa, De Villiers (1993) found that people did not regard dual consultation as problematic, provided each consultation serves the purpose for which it is intended.

However, while it remains the right of the patient to consult who-ever they feel comfortable with, consulting an indigenous practitioner poses some clinical problems such as the unknown ingredients of their medicine and the poor hygienic conditions in which they are operating.

Apart from dual consultation, rural communities also have a tendency of practicing home treatment before they seek treatment elsewhere.

According to Dean (1986) this *lay or non-professional health care* includes all informal therapeutic procedures practiced within a home context and is regarded as the first stage of virtually all coping strategies to deal with physical disorders.

Research among the Xhosa-speaking group in South Africa reveals that treatment with popular medicines is often the forerunner to consultation of a medical practitioner. Such medicines are usually bought from shops, or they may be borrowed from relatives, friends or neighbours who had the 'same' condition or medicine can be home-made from a variety of ingredients, ranging from herbaceous and animal matter to domestic materials such as tobacco and salt. Reasons for self-medication include advice from kin or friends, unawareness of the seriousness of the condition, lack of transport to go to the clinic or reluctance to consult a doctor (De Villiers, 1993).

On the other hand, the causes that patients ascribe to conditions and the way in which they classify them, are primary factors in the consultation process, although not necessarily the only, nor the important ones.

Andrews and Boyle (1995) indicated that patients who have acquired knowledge of western ideas about causation of diseases, do not necessarily reject traditional perception of illness. Hammond-Tooke (1989) also maintained that the traditional understanding of illness and its causes remains an important factor, despite the patient's degree of westernisation. Consequently, many black patients in Namibia still consider it essential to consult an indigenous practitioner, when they find it necessary to impose significance on their existential experiences.

The relation between culture, gender and pain endurance also plays a role. For the Oshiwambo-speaking, a male is supposed to be strong and must demonstrate ability to endure pain. This could influence early consultation because seeking treatment at the mere sign of pain could be interpreted as cowardliness.

Spiegel and Boonzaaier (1988) maintain that the patient's choice of whom to

consult, is determined by rational decision and in most cases it is not one man's decision but a collective one, which is influenced by diverse factors that mediate between the appearance of symptoms and the actual decision. Ultimately, individual values and beliefs are crucial when a treatment option is chosen. It is important to note that there are a variety of factors that influence the consultation process and many of them overlap so that a dominant factor cannot always be categorically identified. Some factors and their implications for consultation will be discussed below.

2.3.2 Inaccessibility of health facilities

Betrand, Hardee, Magnani and Angle (1995) define accessibility as the degree to which health care services and supplies may be obtained at a level of effort and cost that is both acceptable to and within the means of a large majority of the population.

Accessibility is also one of the principles of primary health care on which health care services in Namibia is developed. The other principles are equity, affordability and community participation.

Inaccessibility to health care facilities remains an important factor in consultation. While in most cases medical facilities in Namibia are often far from many patients especially in rural areas, traditional practitioners are numerous and live among their patients. Consulting them may therefore be the patient's first choice for convenience's sake. People in urban areas have an advantage over rural people with regard to the range of available facilities and access to them. Provided the seriousness of their condition and distances are not prohibitive, many urban patients may walk to one of the health facilities rather than pay for transport.

In rural Namibia people walk for a distance up to 30 km to reach the nearest health

facility. Access to health services in Namibia is poor due to a number of factors, including the following:

- Distance to facilities
- Lack of public transport
- Poor education
- Lack of primary and community-based health care
- Scarcely distributed population
- Poverty (Ministry of Health and Social Services, 1993).

2.3.3 Monetary expenses

Consultation entails expenses. In Namibia, a patient is charged N\$3.00 and N\$9.00 for consulting the clinic and a district hospital during weekdays respectively. During weekends and public holidays patients are charged N\$14.00 per visit. In addition to consultation fees, additional money is needed to pay for transport and food. Lack of money will thus influence either the first visit or the follow-up visit or both.

Another aspect is whether a patient is employed, a pensioner or is a member of a medical aid scheme. According to Ministry of Health and Social Services (1993) 40% of the Namibia population is unemployed and an average of 15% are pensioners relying mostly on an N\$160.00 monthly subsidy from the government.

However, economic factors are also relevant in the consultation of an indigenous practitioner with the difference that indigenous practitioners charge anything varying from money to livestock, be it a chicken, a goat or cattle in order to make provision for those who cannot afford to pay cash.

2.3.4 Social support system

According to Black (1990) the characteristics of a patient's social network, access

to and pressure or support from relatives and friends do influence consultation. Patients may, for example, be pressurised by relatives into consulting a practitioner when they become difficult to deal with at home, or if a condition becomes acute. This is particularly applicable in the Namibian context, specifically in the Northern part where almost 60% live in an extended family and in most cases relatives have to be consulted before a decision to seek treatment is made. By implication, patients are taken to hospitals when they are, for example, severely dehydrated and other complications such as renal failure have set in. Personal experiences of the researcher as a nurse in the geographical area of research support this statement.

2.4 POLITICAL FACTORS

The north west part of Namibia (former Ovamboland) has been a war zone.

During the colonial era, many communities opposed spraying households with DDT in order to eradicate mosquitoes. There are situations where because of racism, the government at that time has been accused of employing strategies to minimise the black population. According to the community these strategies included DDT spraying, family planning and immunization services. People also believed that DDT caused respiratory disorders such as asthma and that it killed livestock.

Even today, many people are still living in emotional turmoil in which a strong sense of distrust towards government officials responsible for spraying is prevalent. These officials are being turned down or simply refused permission to enter a village by the headman despite the government's plea to people to have their houses sprayed.

2.5 BRIEF OVERVIEW RELATING TO MALARIA AND ITS IMPLICATIONS

Malaria has probably been associated with man since very early in his evolution. It is believed that malaria parasites that affect man evolved from similar parasites found in other mammals, birds and reptiles. The origin of the name malaria stems from the association between the disease and the bad air of swamps, a relationship that was noticed during Roman times in Italy. Because of its long association with human populations, malaria has influenced the evolution of certain genetic characteristics in man. Examples are seen in the case of sickle-cell anaemia, a fatal disease caused by the presence of an altered or mutant form of the gene for haemoglobin (World Health Organization, 1997).

Malaria is caused by protozoan parasites of the genus *Plasmodium*. Four species of plasmodium can produce the disease in its various forms, they are: *Plasmodium falciparum*, *Plasmodium vivax*, *Plasmodium ovale* and *Plasmodium malariae*. *P. falciparum* is the most widespread and dangerous of the four. If untreated it can lead to fatal cerebral malaria. The female Anopheline mosquito transmits parasites from one person to another.

The main malaria vectors in Namibia are *Anopheles arabiensis*, *Anopheles gambiae* and *Anopheles funestus* (Ministry of Health and Social Services, 1995). However, *Anopheles arabiensis* has the widest distribution in the North West Health Directorate. It breeds in varied habitats, particularly in the rain puddles called *iishana*, which are large flat areas that become flooded during rainy seasons (Shangula, 1996).

Plasmodium falciparum parasites are responsible for over 97% of all forms relating to malaria in the North West Health Directorate, with *P. malariae* accountable for 2% and the rest resulting from *P. vivax* and *P. ovale* (Ministry of Health and Social Services, 1995).

2.5.1 Clinical complications relating to malaria

Complications of *P. falciparum* occur particularly in patients without adequate immunity who remain untreated for more than a week after the onset of the symptoms of which fever is the first most common one. A study conducted by Social Marketing Association (1999) in the north east of Namibia revealed that 89.9% of respondents could identify at least one malaria symptom. Most cited symptoms included vomiting, headache, fever, and feeling cold and hot.

The most serious complication relating to malaria is cerebral malaria that is associated with the occurrence of deep coma and generalized convulsions. Other complications are severe liver failure, circulatory collapse, hypoglycaemia, anaemia, hyperpyrexia, acute pulmonary oedema and acute renal failure (Snow and Marsh, 1995).

2.5.2 Malaria during pregnancy

Malaria has pronounced effects on the pregnant mother and the unborn baby. Since immunity is reduced during pregnancy, pregnant women are more prone to develop malaria than non-pregnant women are. Malaria affects pregnant women of all ages and has similar effects regardless of the number of children they have borne previously (Myles, 1998). A study conducted in Thailand among pregnant women revealed that almost 86.5% had malaria and 51,6% of them had a low level of haemoglobin (World Health Organization, 1997).

In pregnant women, the placenta is the site of the heaviest infection relating to malaria. In severe cases of infection almost every cell in the placenta gets infected. Owing to heavy parasitization the fetus receives less than required levels of nutrition. This results in low birth weight babies and sometimes in fetal death. A mother who had malaria during pregnancy, has twice the chance of producing a low

birth weight baby when compared to a mother who did not have malaria. Congenital abnormalities have been observed at a slightly higher rate among babies born to malaria mothers (World Health Organization, 1997).

Apart from foetal complications, malaria has an effect on the mother too. Anaemia, due to red cell haemolysis, is the commonest complication affecting the pregnant mother and is aggravated by malnutrition and hookworm infections. In severely anaemic women heart failure, cerebral malaria and maternal death occur (Myles, 1998).

2.5.3 Malaria implications

The global effect relating to malaria threatens public health and productivity on a broad scale and impedes the progress of many countries towards democracy and prosperity. Fear relating to malaria prevents investment and tourism into affected regions, further hampering economic development.

The latest World Health Organization estimates are that globally there are 300 to 500 million cases of clinical malaria per year, with 1.4 to 2.6 million deaths of which 90% occur in Africa (World Health Organization, 1998).

Over a quarter of a very poor family's income can be absorbed in the cost relating to malaria treatment, quite apart from the cost of prevention, or the opportunity cost of labour lost to illness. Each bout relating to malaria causes its victim to forego, on average, twelve days of productive output (World Health Organization, 1997).

2.6 CONTROL AND PREVENTION RELATING TO MALARIA

The control of vector mosquitoes is undoubtedly the best method of protecting a

community against malaria infection. Curtis (1995) maintains that control measures are of particular relevance in areas where transmission is seasonal and breeding sites are restricted.

Various control and prevention strategies exist and will be briefly discussed below.

2.6.1 Residual spraying with Dichloro–Diphenyl–Trichloroethane (DDT)

Paul Muller in Switzerland discovered the insecticidal properties of DDT in 1939. DDT was used with good results in malaria control during World War Two. In Greece, a comprehensive malaria control programme using DDT was started in 1945 and resulted in elimination of malaria in many parts of the country (Mellanby, 1992).

Spectacular results with DDT spraying were also achieved in Sri Lanka between 1935 and 1946, which had 1.5 million malaria cases and nearly 100.000 deaths per year. By 1946 infant mortality rate in Sri Lanka decreased from 141 to 87 per 1000 live births, maternal mortality rate decreased from 15.5 to 6.5 per 1000 live births and national death rate fell from 22.7% to 12.6% (Mellanby, 1992). According to Takken *et al.* (1991) the infant parasite rate was reduced from 22% to 0% in Indonesia after successful spraying with DDT.

In Namibia, DDT spraying was responsible for the reduction in malaria prevalence in 1950 from 64% in Kavango and 49% in the former Owambo to 25% and 12% respectively. A survey of few villages on the Angolan side of the Kavango river where no vector control measures are undertaken comparable to villages on the Namibian side where DDT spraying is done, showed that the prevalence relating to malaria was 25% on the Angolan side compared to the corresponding 15% on the Namibian side (Ministry of Health and Social Services, 1995).

However, despite visible evidence of the effectiveness of DDT, the spray programme is associated with operational constraints and high cost. The price of DDT has increased by 70% between 1990 and 1995. By 1992, the cost of DDT spraying was about N\$2.00 / person / year (Service, 1993). In the context of scarce resources and competing health demands, the increasing cost poses a threat to its sustainability in most African countries.

On the other hand, many countries do not equally welcome the use of DDT. According to Curtis (1994) the consequent insecticidal residues in field crops at levels unacceptable for the export trade have been an important factor in the recent bans of DDT in the United States of America.

Similarly in Namibia, DDT spraying remains a controversial issue. The media and the United Nations Children Fund in Namibia expressed concern over DDT safety (Shangula, 1996).

Although some communities believe that DDT spraying offers protection against malaria, others resent intrusion of spray men in their houses. Among reasons cited to the researcher for refusal, includes complaints that DDT kills livestock and causes respiratory problems, especially among children and the elderly.

Curtis (1994) refuted claims made about side-effects of DDT as ill-founded.

2.6.2 Residual spraying with Pyrethroids

Several studies have shown that spraying with Pyrethroids effectively control malaria vectors compared to DDT. Although more expensive per unit weight, pyrethroids are less expensive per house protected per year (Service, 1990). The above statement is supported by Curtis (1994) who stated that Pyrethroids are much more acceptable to householders because they leave no visible deposit on

walls and also kill nuisance insects such as cockroaches.

In the Philippines a study was carried out to assess whether spraying houses with Pyrethroids is effective, specifically in the control of *Anopheles* mosquitoes. The study showed 100% mortality after three days, more than 75% after three months and 50% after six months (Shangula, 1996).

According to Shangula (1996), there is no significant difference in cost between DDT and pyrethroids spraying. DDT is applied at 2.5g per m³ at a cost of US\$ 0.03 per m³ whereas pyrethroids are applied at 0.25 g per m³ at a cost of US\$ 0.05 per m³. In Shangula's view a change to what the majority of the people feel comfortable with is worth considering. Curtis (1994) supports the idea of changing from DDT to pyrethroids because in his view, rates of refusal of spraying are lower and therefore there is a much better chance of reaching a high level of coverage at which the vectoral capacity of the mosquito population will be lowered.

2.6.3 Use of impregnated bed nets

An increasingly popular application of pyrethroids is in the impregnation of bed nets (Curtis, 1994). Bed nets have long been appreciated as a protection against night biting mosquitoes. However nets are often torn or hung in such a way that mosquitoes can enter or bite through them. The initial motive for impregnating nets with an insecticide that is safe for human contact is to add a chemical barrier to the imperfect physical barrier presented by the net. Bed nets are impregnated by dipping them in an emulsion of a pyrethroid, and hang them to get dry. This needs to be done every six to twelve months or more frequently if the net is washed more often (Snow and Marsh, 1995).

Studies in experimental huts have proven that pyrethroid impregnation of holed nets makes them function much better in preventing biting of a sleeper than untreated

nets. This occurs because a treated net kills or irritates and drives away mosquitoes before they have found a hole in the net to enter it. In comparison to spraying, the amount of insecticide needed to treat a net is much less than the amount needed to spray the whole household (Curtis, 1994).

In Kenya and Ghana it was found that use of impregnated bed nets has reduced the mortality by 33% and 17% respectively (Shangula, 1996).

Similarly, in one impregnated bed net trial in China, malaria incidence decreased by 60% in the first year and by 93% in the following year.

In a community-based insecticide treated bed net trial among children in Tanzania, it was found that children using nets were slower to be re-infected and showed reduction in prevalence of anaemia (Zuzi *et al.*, 1989). However Snow and Marsh (1995) expressed doubts about long-term benefits of insecticide treated bed nets to children living in areas of high transmission.

In northern Namibia use of bed nets became more popular after Independence in 1990. According to Meek (1990), only 12% of families in the North West Health Region had mosquito nets. The study revealed that the main reason for people not using nets was cost and unavailability of nets.

Another study conducted by Social Marketing Association (1999) in the north eastern part of Namibia revealed that two-thirds of respondents took action to prevent mosquito bites by using coils, pills, household sprays and mosquito repellent creams. The study further revealed that 94,8% of respondents had heard of mosquito nets and 40% had at some point slept under a mosquito net, but only 7% have heard of treated mosquito nets. Half of those who had heard of treated nets did not know that nets could be re-treated.

Treated mosquito nets must be readily available at a reasonable and affordable price in order to encourage people to use them. The above argument is supported

by Social Marketing Association (1999) findings that reported that non-use of mosquito nets was commonly associated with lack of affordability and unavailability. The study further revealed that, virtually all respondents were willing to purchase a net at N\$30.00. On average a mosquito net costs N\$100.00. Similarly a KAPP survey in Ongandjera district (Minister of Health and Education, 1996) recommended that prices of mosquito nets should be revised in line with what the community can afford if we are to reduce the mortality rate due to malaria.

On the contrary, lack of affordability seems to be not the only barrier to net non-usage. According to Social Marketing Association (1999) 17% of respondents refused to use bed nets claiming that they cause poor ventilation and excessive heat.

2.6.4 Promotion of personal protection

The success relating to malaria prevention and control strategies depends on the co-operation and involvement of the community.

Community members need to be empowered to take ownership of the programme, using available, affordable and sustainable measures. Guillebard (1993) supported the above statement by stating that provision of good information leads to empowerment and enables people to seek help and co-ordinate measures if required to do so.

Promotion of personal protection can be achieved through health education that can be enhanced by raising public awareness through the use of mass media and audio-visual materials in languages that everyone can understand.

2.7 CONCLUSION

The literature study gave an overview of factors that can influence the community's knowledge, attitudes about malaria and prevention strategies relating to malaria. Malaria complications as well as control and prevention strategies were discussed.

CHAPTER 3

RESEARCH METHODOLOGY

3.1 INTRODUCTION

Research methodology is concerned with the researcher's ultimate goals and the general plan for achieving these goals. According to Neuman (1997), research methodology is the study of methods and logic of science, rules of organised research and the norm by which procedures and techniques are chosen and emphasised.

The aim of this chapter is to define the research methodology that was applied to determine the attitudes of the Oshakati health district community towards malaria, their knowledge regarding malaria and strategies they employ to guard against malaria.

In the context of this study, a community study refers to a study undertaken by the researcher among a group of people living in the same geographical area who share the same norms, values, beliefs and culture. The aim of the study is to determine, explore and describe their attitudes relating to malaria; their knowledge about malaria as well as the prevention strategies the community employ to guard against malaria.

3.2 RESEARCH DESIGN

A non-experimental, descriptive approach was used to obtain data by means of

direct observation, structured interviews and focus group discussion. In this research the community's knowledge, attitudes and malaria prevention strategies are explored, determined and described.

3.3 RESEARCH APPROACH

For the purpose of this research, an approach of triangulation that is a combination of a quantitative and qualitative approach was used. Mouton and Marais (1990) comment that by adopting a point of view of convergence and hopefully, the researcher may eventually be in a position to understand more about human nature and social reality.

Morse (1991) suggests that quantitative and qualitative methods cannot be equally weighted in a research project. The project can either be theoretically driven by qualitative component, or theoretically driven by quantitative methods and incorporate a complimentary qualitative component, which is then, called triangulation. By including different methods, the potential for achieving greater reliability, for identifying the overlapping or common variance and for finding the variance unique to each type of method is increased. Combining two methods can also lead to enhancement of the validity of the study findings (Burns and Grove, 1993; Polit and Hungler, 1993).

According to Burns and Grove (1993) there are five types of triangulation:

- Data triangulation
- Investigator triangulation
- Theoretical triangulation
- Methodological triangulation
- Analysis triangulation

In this study methodological triangulation was used.

3.3.1 Methodological triangulation

Methodological triangulation is the use of two or more methods of data collection procedures within a single study (De Vos, 1998).

Methodological triangulation is the most common type of triangulation used in the examination of complex concepts in nursing that might include caring, hope in the terminal illness, coping with chronic illness and promotion of health (Burns and Grove, 1993).

Morse (1991) has further classified methodological triangulation into:

- simultaneous triangulation and
- sequential triangulation

Simultaneous triangulation is the use of quantitative and qualitative methods at the same time. Sequential triangulation is used if the results of one method are essential for planning the next method.

Denzin (1989) identified two types of methodological triangulation:

- Within method and
- Across method triangulation

Within method triangulation is the simplest form and is used when phenomenon being studied is multi-dimensional. Across method or between method triangulation involves combining research strategies from two or more research traditions in the same study (Burns and Grove, 1993).

In this research, methodological triangulation has been used. That is, both quantitative and qualitative methods have been used.

Steinbeck and Steinbeck (1984) stated that qualitative research examines people's

words and actions in descriptive ways, more closely representing the situation as experienced by the participant. The task of the researcher is to find patterns within those words and actions and to present those patterns for others to inspect while at the same time staying as close to the construction of the world as the participants originally experienced it (Lincoln and Guba, 1985).

Morehouse (1994) maintains that qualitative research exhibits a preference for contextualisation in its commitment to understand events, behaviours, attitudes etc. in their context. It is inseparable from holism that entails an undertaking to examine social entities such as communities, culture, health issues or whatever needs to be understood in its entirety.

The basic message that qualitative research conveys is that, whatever the sphere is in which data is being collected, one can only understand events when they are situated in the wider social, cultural and historical context.

On the contrary, quantitative research is formal, objective and a systematic process in which numerical data is utilized. It arrives at the understanding of a phenomenon from the outsiders' perspective by maintaining a detached view that hypothetically is unbiased. There is a heavy emphasis on reliability, that is data should be consistent, stable and replicable (Burns and Grove, 1993).

This study is aimed at exploring and determining the following:

- The knowledge of the Oshakati health district community on malaria
- Their attitudes towards malaria and
- The prevention strategies the community employ to guard against malaria.

In conjunction with structured interviews, focus group interviews were also conducted. The focus group interview works because it taps into human tendencies. Attitudes and perceptions relating to concepts, products, services are developed in part by interaction with other people (Krueger, 1994).

Morgan (1993) further maintains that focus group interviewing has great potential for the development of a methodology for participatory action research, which will empower community members to gather information and gain control of their own lives. This potential places focus group interviewing in a new dimension where the goal will not only be to understand people's behaviour, but to change it.

3.4 POPULATION AND SAMPLING

3.4.1 Population

Bless and Higson-Smith (1995) define population as the entire set of objects, events or group of people which is the object of research and about which the researcher wants to determine some characteristics. The population consisted of mothers in the Oshakati health district community. Mothers were chosen because they form the centre of the family and the house belongs to her. According to the Owambo culture this person (mother) is in a better position to identify and observe abnormalities in any family member at an early stage than anyone else.

3.4.2 Sampling

It was not possible to reach the target population of 1000 mothers due to limiting factors such as time and finance. Polit and Hungler (1993) stated that it is more economical and efficient to work with small groups of elements than with the entire population. De Vos (1998) supported this statement by stating that in human, as well as in scientific inquiry, knowledge is generally based on samples.

Sampling involves selecting a group of people, events, behaviours or other elements from the population with which to conduct a research (Burns and Grove, 1993). In other words, a sample is a portion of the population that represents the

entire population.

There are two types of sampling methods, namely probability and non-probability sampling. According to De Vos (1998) a probability sample is one in which each person or object in the population has the same known probability of being selected for the sample. With non-probability sampling, not every member of the population has an opportunity for selection in the sample.

Random sampling is a method of probability sampling. The purpose of random sampling is to increase the extent to which the sample is representative of the target population (Polit and Hungler, 1993; Neuman, 1997). Random sampling increases the validity of the study and minimises systemic bias (Burns and Grove, 1993; De Vos, 1998).

After several consultations and in-depth exploration of sampling methods, the researcher drew the sample using Stoker's guideline for sampling as cited in De Vos (1998).

An estimated number of households in the Oshakati health district was requested from the governor of Oshana region and it was estimated at 1000.

Stoker (1985) cited in De Vos (1998) suggests 14% for the population of 1000; consequently, a sample of 140 households was drawn, and therefore 140 mothers to whom the household belongs (see par. 1.7).

Systematic sampling was done, whereby each seventh household was selected. Systematic sampling involves selection of every k^{th} case from the sampling frame. To obtain the sampling interval width (k^{th}), the size of the population is divided by the desired sample (Polit and Hungler, 1997). In this study, the sampling interval of seven (7) was obtained by dividing 1000 by 140. Numbers one to seven was put into a hat, and a number was drawn. That number was use as the first respondent with every seventh household as respondent there after.

3.5 DATA COLLECTION

Lo Bindo-wood and Haber (1990) identified the data collection phase in triangulation as a critical phase. Rigor in the process of data collection in the field is identified as the best check of validity. The researcher was the primary data collector. A structured interview with open and closed-ended questions was used.

Interviews were done for the following reasons:

- To increase the response rate because low response rate can lead to serious bias.
- To clarify the questions.
- To produce additional information through observation of non-verbal behaviours.
- Respondents included the elderly and those who are illiterate.

Data collection was done over a period of three months. In addition to the structured interviews, focus group interviews were conducted. De Vos (1998) defined a focus group interview as a purposive discussion of a specific topic taking place between eight to ten individuals with a similar background and common interests. The above-mentioned author further stated that the group interaction will consist of verbal and non-verbal communication and an interplay of perceptions and opinions that will stimulate discussion without necessarily modifying or changing the ideas and opinions of participating individuals.

Two focus group interviews were conducted, each consisting of ten (10) community leaders who were females ranging from the age of 20 years and above. Krueger (1994) suggests that the size of the group must be small enough for everyone to have an opportunity to share insights and yet large enough to provide diversity of perceptions. A focus group interview has high face validity and its flexibility allows the researcher to explore unanticipated issues (Polit and Hungler, 1997). The names of the community leaders were put into a hat and two groups of 10

respondents each was drawn randomly. They did not form part of the questionnaire research group.

Permission to conduct the focus group interviews was obtained from the community leaders and they were assured that all the information would be treated confidentially. A boardroom at the University of Namibia's northern campus was used for the focus group discussions in order to maximise privacy, neutrality and to minimize distractions.

Before the focus group interviews started, the researcher introduced herself to participants, explained the purposes of the discussion and stressed the importance of active participation by all members. Permission to make tape recording was also requested. Interviews were then tape-recorded and the researcher also made hand-written notes to ensure the comprehensiveness of the findings. The interviews lasted about an hour and fifteen minutes. Interviews were conducted in Oshiwambo to accommodate all the participants.

The initial questions for interviews were:

- What are your views on causes relating to malaria in this area?
- What are the signs and symptoms relating to malaria?
- Which methods do people in this community use to prevent malaria?
- Which traditional methods are used by this community to treat malaria?

Participants were encouraged to be open in order to share insights. During the interviews, the researcher played the role of a moderator by listening and observing. The researcher remained focused on the subject under discussion in order to increase validity.

Questions that arose during the interviews were answered at the end of the discussion to avoid bias. Interviews were conducted until data saturation occurred. Data saturation is said to be achieved when themes and categories in the data

become repetitive and redundant, such that no new information is emerging from the participants (Polit and Hungler, 1997).

3.6 ETHICAL CONSIDERATION

Permission to conduct the study was requested from the governor of Oshana region and it was granted. Personal consent was also elicited from each participant. Participation in the project was voluntary. Total anonymity and confidentiality was assured.

3.7 DATA ANALYSIS AND INTERPRETATION

Kerlinger (1986) states that data analysis refers to categorizing, ordering, manipulating and summarizing of data to obtain answers to research questions. The purpose of analysis is to reduce data to an intelligible and interpretable form so that the relations of research problems can be studied, tested and conclusions drawn.

Interpretation means the assignment of significance or coherent meaning to the data. Data are interpreted by giving them meaning, translating them or making them understandable (Kerlinger, 1986).

In this study, tables, percentages and graphs have been used. The tables, percentages and graphs are a way of presenting the findings of the study. They assist in identifying patterns in the data.

Analysis and interpretation of data was completed with the assistance of a statistician and a computer.

3.8 INSTRUMENTATION

The questionnaire was designed after an in-depth literature study and based on the objectives or goals of the study.

The questionnaire consisted of 33 open ended and closed questions. Because of the strong traditional values of the Owambo culture and the literacy level, the questionnaires were formulated in a loymen's term. The questionnaire was divided into three sections. Section A focussed on personal details aspects, section B focussed on socio-demographic aspects and section C focussed on knowledge, attitudes and prevention strategies relating to malaria.

Table 3.1

Sectional content of the questionnaire

Section A: Personal details	Questions 1-4
Section B: Socio-demographic data	Questions 5-6
Section C: Knowledge, attitudes and malaria prevention strategies	Questions 7-33

In addition to the questionnaire, two focus group interviews were conducted as previously explained and data saturation was reached.

3.9 RELIABILITY AND VALIDITY

Polit and Hungler (1997) defined reliability of an instrument as the degree of *consistency* with which the instrument measures the attribute it is designed to measure. An instrument is reliable if its measures *accurately* reflect the true measures of the attribute under investigation.

Reliability comprises three aspects, namely: stability, internal consistency and equivalence.

Reliability increases when:

- The researcher has personal knowledge or experience about the subject (Kerlinger, 1986).
- The researcher is familiar with the research environment (De Vos, 1998). In this case the researcher was familiar with the research environment.

According to Burns and Grove (1993) and Polit and Hungler (1997) an instrument is valid when it measures what it is supposed to measure.

De Vos (1998) identified various types of validity, namely: face validity, content validity, construct validity, predictive validity, and criterion-related validity.

Face validity refers to whether the instrument looks as though it is measuring the appropriate construct, whereas content validity is concerned with the sampling adequacy of the content area being measured. In order to increase face validity and content validity, the instrument was presented to the study supervisor for evaluation and was also taken to experts in the field of research and nursing for validation. Minor adjustments were made to the instrument regarding clarity of some instruments.

Coward (1990) is of the opinion that combining qualitative and quantitative methods will increase support to validity. To increase validity the researcher collected the data herself.

3.10 PILOT STUDY OR PRETEST OF RESEARCH INSTRUMENT

A pilot study is a smaller version of a proposed study conducted to develop or refine

the methodology, such as treatment, instrument or data collection process (Burns and Grove, 1993; De Vos, 1998).

The pilot study is conducted for one or more of the following reasons:

- To determine whether the study is feasible
- To identify problems with design
- To examine the reliability and validity of the research instruments
- To refine the data collection and analysis plan
- To give the researcher experience with the subjects, settings, methodology and methods of measurement.

A pilot study was done and the questionnaire was pretested using twenty households within the Oshakati health district community. These households were excluded from the final study. No problem was encountered during the pilot study.

3.11 CONCLUSION

In this chapter the research methodology was discussed in depth. It was indicated that triangulation was the most appropriate approach. After discussing the population and sampling methods, the development and validation of the instruments were given. Information on how the collection of data was conducted was also provided.

CHAPTER 4

ANALYSIS AND DISCUSSION OF RESEARCH FINDINGS

4.1 INTRODUCTION

This chapter focuses on the analysis of data obtained from interviews and focus group discussions.

Kerlinger (1986) regard analysis as a process of categorizing, ordering, manipulating and summarising of data to obtain answers to research questions. The purpose of analysis is to reduce data to an intelligible and interpretable form so that the relations of research problems can be studied, tested and conclusions drawn.

The study sample consisted of 140 female subjects (mothers), living in rural and semi-urban areas. All subjects succeeded in responding to all questions (see par. 1.7). Questions were translated in Oshiwambo to accommodate the participants who could not understand English.

4.2 SECTION A: DATA ON PERSONAL DETAILS

In die questionnaire, questions one to four relate to personal details. The data on personal details was obtained to prove that the research sample was proportional.

It was important to identify the tendency of the research group. The questions were analysed in the same order. The data analysis consists of a table which contains frequencies and percentages, and if possible a graph.

4.2.1 Age

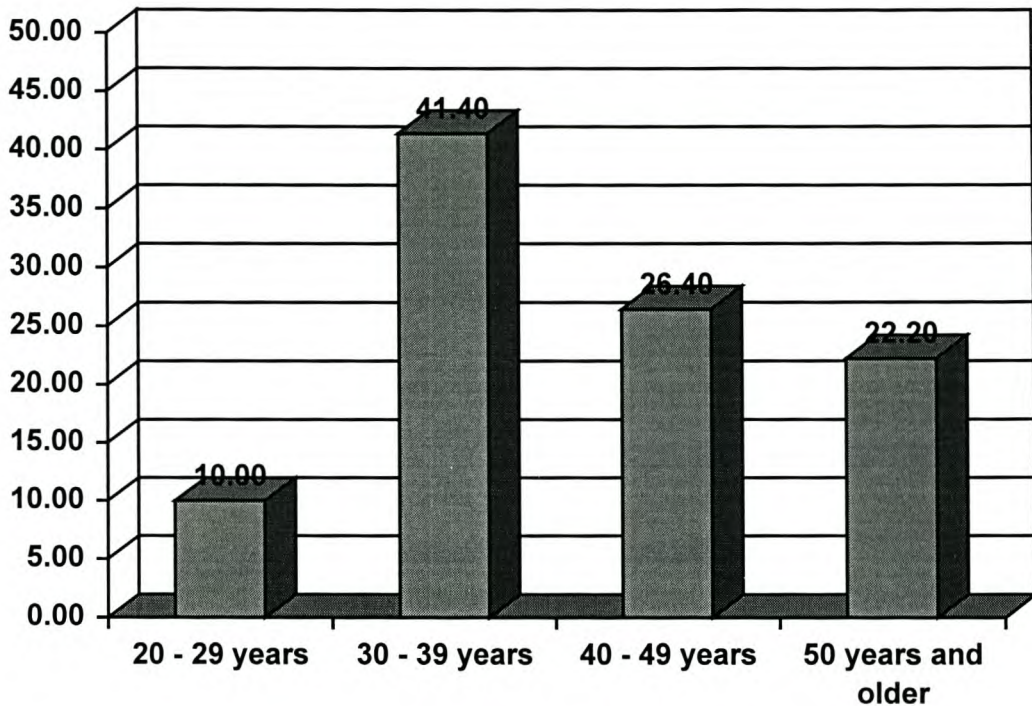
This question was asked because malaria has pronounced effects on the pregnant mother and the unborn baby. According to the World Health Organisation (1997) malaria in pregnancy can result in congenital abnormalities, low birth weight baby, neonatal and maternal deaths. The researcher wants to know if the respondents in all age groups know something about malaria, as well as the availability of anti-malaria drugs that can cure some abnormalities during pregnancy. All the age-categories were well represented in the research group of 140 households. The results of the different age groups are set out in table 4.1.

TABLE 4.1
AGE

	N	%
20 to 29 years	14	10,0
30 to 39 years	58	41,4
40 to 49 years	37	26,4
50 years and above	31	22,2
TOTAL	140	100,0

From table 4.1 it seems clear that the majority of the respondents fall in the high-risk group. The majority of the respondents (72 respondents or 51,4%) are of child bearing age (20 to 39 years) and thus fall in the high-risk group. One would also expect them to be knowledgeable about the importance of taking chemoprophylaxis of anti-malaria drugs during pregnancy. The ages of the subjects are reflected in figure 4.1.

FIGURE 4.1
AGES OF PARTICIPANTS

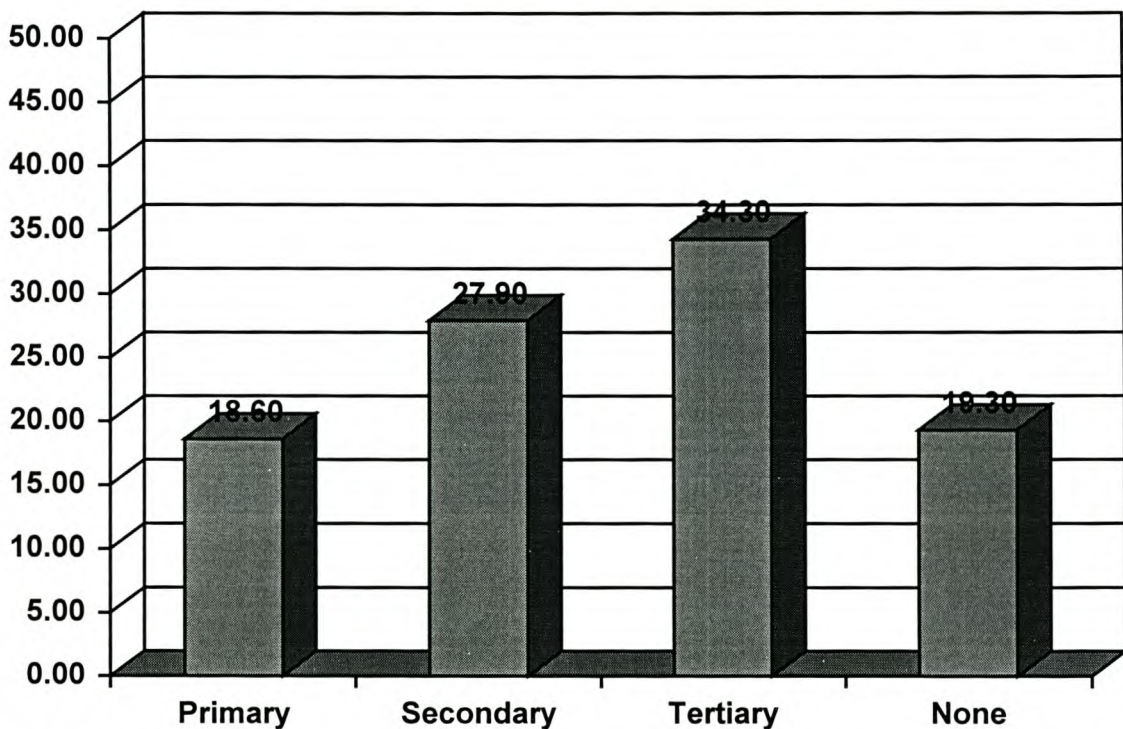


4.2.2 Standard of education

The literacy rate in Namibia is estimated to be between 60% and 70% (Ministry of Health and Social Services, 1993). The higher the literacy rate, the easier to disseminate health information on malaria using booklets and audio-visual materials. Of the total sample of 140, 26 (18,6%) respondents had primary education; 39 (27,9%) respondents had secondary education, while 48 (34,3%) respondents had tertiary education, and only 27 (19,3%) respondents did not have formal schooling. The above information indicates a high literacy rate of at least 80,8%. It is a concern that despite the high literacy rate, 44,3% respondents delayed seeking treatment for a malaria patient and 39,6% respondents failed to take patients back for follow-up, which indicates lack of knowledge about malaria (see par. 4.4.6 and 4.4.7).

However, the fact that 27 (19,3%) of the respondents did not have formal schooling, indicates that other means of communication should be used to give health education to the community. Findings are indicated in the following figure:

FIGURE 4.2
STANDARD OF EDUCATION



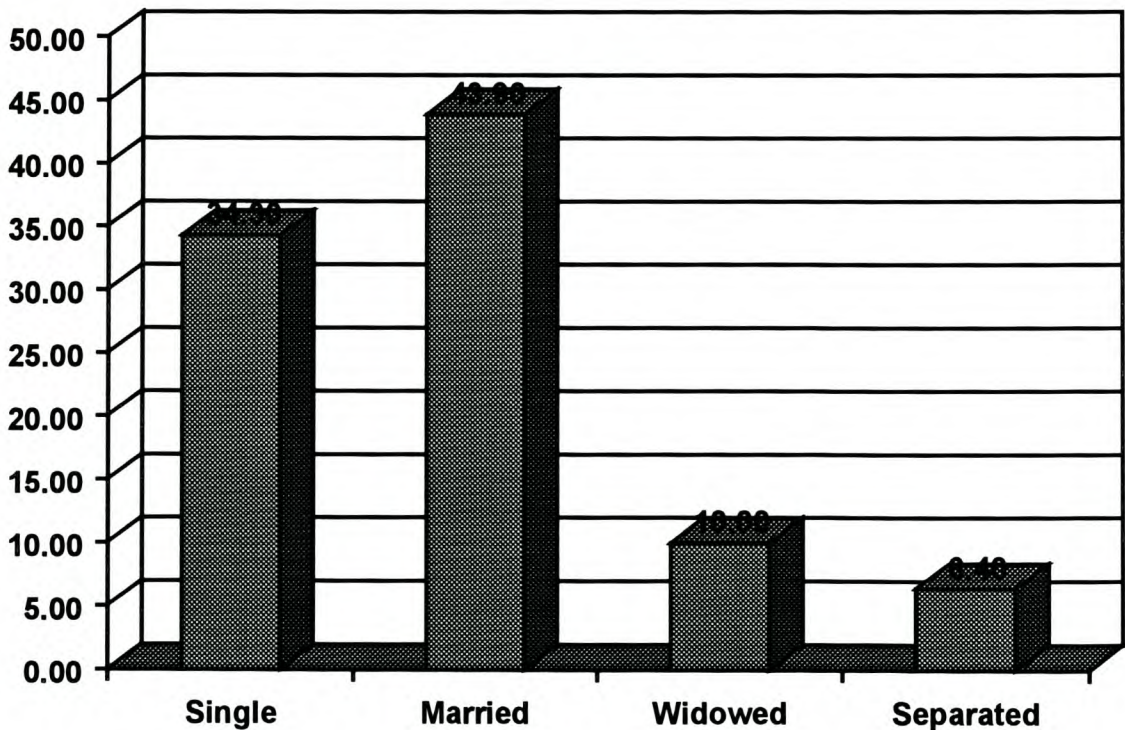
4.2.3 Marital status

Marital status in general is seen as one of the most important independent variables in any study, because of the influence that people have over one another. If there is more than one parent in a household, you can rely on two persons for knowledge and attitudes about anything. In this specific case, it is very difficult to determine the influence of the partner, because the partner was not included in the study. One can accept that the married women have more moral and financial support than the

single mother, and therefore the possibility of treating the unborn baby from the effects relating to malaria is higher.

Of the 140 subjects, 48 (34,3%) respondents were single; 69 (49,3%) respondents were married; 14 (10%) respondents widowed while 9 (6,4%) respondents were separated. The mere fact that 71 (50,7%) of the respondents were single parents with a household size of about 8,7 (see par. 4.3.5), could lead to serious financial problems. This statement is supported by findings indicating that respondents would not make a effort to buy mosquito nets or pay for transport to health facilities as indicated in table 4.9 and figure 4.7 respectively.

FIGURE 4.3
MARITAL STATUS OF RESPONDENTS



4.2.4 Employment status

Unemployment normally contributes to other social problems such as alcoholism, child abuse, suicide, health problems and much more. Therefore unemployment poses a problem to malaria prevention because an unemployed person cannot afford to buy mosquito bed nets, other mosquito repellents and seek medical treatment on time.

Data analysis shows that unemployment is not a problem in the study area, and that the majority of respondents still fall within economically productive age groups as indicated in figure 4.1. Ninety-seven (69,3%) out of the sample of 140 of the subjects were employed and 43 (30,7%) subjects were unemployed. See Figure 4.4 for results on employment status.

FIGURE 4.4
EMPLOYMENT STATUS



4.3 SECTION B: HOUSEHOLD DETAILS

This section covers the household details and includes two questions.

4.3.1 Number of people living in the house

Respondents were asked to indicate how many people were living in their households. If the mean household size in any population group is too big, it has financial implications to the living standard of the household. In this study, for example, it can make it impossible for each household member to use a mosquito net due to lack of affordability, as emerged from the data in tables 4.8 and 4.9. Lack of affordability of mosquito repellents due to overcrowding, is also reflected in statements made by participants during the focus group discussion.

In this study the mean household size was 8,7 persons, while the mean for children was 6.5 and for adults 4.7. In the context of this study, all people aged below 18 years are regarded as children and as adults from 18 years of age and above.

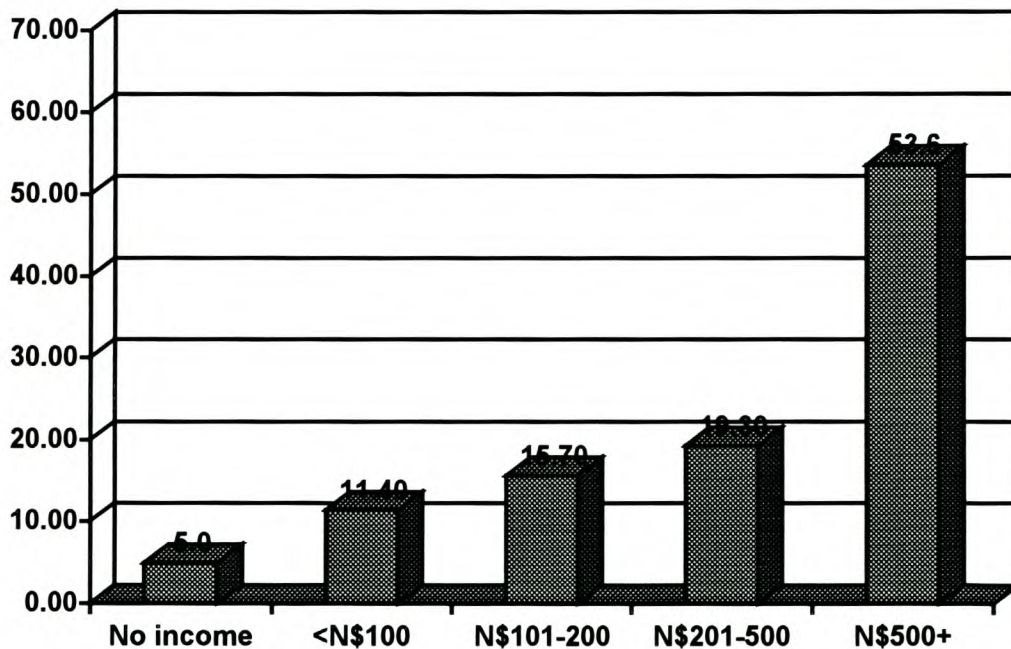
4.3.2 Total household income per month

Although 97 of the 140 respondents were employed, 9 (6,4%) subjects indicated that their total household income per month varied between N\$1-N\$100. Twenty-two (15,7%) respondents indicated that their total monthly income varied between N\$101 and N\$200, while 27 (19,3%) respondents' monthly income varied between N\$201 and N\$500, and 75 (53,6%) respondents' monthly income ranged from N\$500 and above. Seven (5,0%) respondents indicated they did not have any income at all.

If one takes into account that the mean household size is 8,7 and 75 (53,6%) of

respondents had a monthly income of N\$500 and more, every member of that household has N\$57.47 or more to live on per month. This could indicate that the people in this area do not have the money to take the necessary health precautions to prevent diseases like Malaria because of a lack of the low-income rate. From this one can conclude that the financial position of the respondents could contribute to the lack of using any form of preventive measures against malaria. It could also have an impact on delay in seeking medical treatment as well as in failure to take the patient back to health facilities for follow-up visits due to lack of money and transport as reflected in figure 4.5.

FIGURE 4.5
TOTAL HOUSEHOLD INCOME PER MONTH



4.4 SECTION C: DISEASE DETAILS

This section covers the respondents' opinions, knowledge, attitudes and prevention

strategies regarding Malaria, and consists of close-ended and a number of open-ended questions.

4.4.1 Opinions on major health problems in the area

In respect to the question "*what are the major health problems in this area*", malaria was considered the most serious health problem facing the communities in the study area, followed by HIV/AIDS, lack of water, tuberculosis and diarrhoea. It emerged from the findings that respondents had difficulties in differentiating between health and social related problems, because issues like alcoholism, unemployment, suicide, child abuse and lack of water were perceived as health problems.

While there is a tendency towards over-ranking the main subject under study, statistics of the North West Health Directorate (1998) revealed that malaria is considered to be one of the most serious health problems facing the study area.

The findings of this study replicated the findings of other investigators for example Social Marketing Association (1999), where it was revealed that respondents ranked malaria as the most serious health problem along with HIV/AIDS and diarrhoea. Despite ranking malaria as the major health problem, in the study area, the research showed that these people lack vital information about the disease and its management. The above argument is supported by the study findings which revealed that 47 (44,3%) of the respondents delayed seeking treatment, 42 (30,0%) respondents did not take the malaria patient back for follow-up visits. Forty-seven (33,5%) of the respondents indicated that they had treated the malaria patient with other medications besides the prescribed medication whereas 95 (67,9%) respondents admitted that not all family members used mosquito nets to prevent malaria.

On the other hand, it could be that the community has culturally contextualized malaria as Onyango as discussed in chapter 2 and that might have influenced their attitudes towards the disease. Findings are indicated in the following table 4.2:

TABLE 4.2
OPINIONS ON THE MAJOR HEALTH PROBLEMS IN THE AREA (N=140)

Health Problem	Frequency	%
Malaria	58	41.4
HIV/AIDS	49	35.0
Lack of water	33	23.6
Tuberculosis	28	20.0
Diarrhoea	26	18.6
High blood pressure	12	8.6
Child abuse	11	7.9
Distance to clinic	10	7.1
Dirtiness	10	7.1
Unemployment	7	5.0
Alcoholism	7	5.0
Coughing	5	3.6
Diabetes	5	3.6
Teenage pregnancy	5	3.6
Suicide	4	2.9

4.4.2 Knowledge of the causes relating to malaria

The question was formulated in such a way to enable the respondent to understand what is required from her. In response to the question "What do you think is the cause of malaria?", 65 (46,4%) respondents indicated mosquitoes, 40 (28,6%) respondents indicated standing water, 20 (14,3%) respondents indicated exposure to cold, 10 (7,1%) respondents indicated eating of cold food while 5 (3,6%) respondents attributed it to other causes of which dirtiness and excessive exposure to the sun were specified.

Although the researcher has in-depth scientific knowledge of malaria, its causes, contributing factors, prevention and treatment, this question was asked to see if the respondent shows any knowledge about the above-mentioned, despite their biographical details.

Findings indicated that only 65 (46,4%) respondents have knowledge about causes relating to malaria. Although better than the findings in Ethiopia where less than 20,0% of respondents linked malaria to mosquitoes (Hodes and Teferedegne, 1996), still less than 50,0% indicated the correct answer. It is clear from the responses that the respondents do not possess the specific knowledge.

The data also showed that 75 (53,6%) respondents did not know what causes malaria. This is an alarming figure in a part of the country where they rank malaria as a major health problem and where the mortality rate is so high.

If people do not know what causes malaria, they will not adhere to prevention measures because it will not make sense to them. Lack of detailed information about the disease is evident, despite the fact that they rate malaria in table 4.2 as the major health problem in the North West Health Directorate (41,4%).

This could be a contributory factor to the high malaria mortality figures as discussed in chapter 1. The fact that 5 (3,6%) respondents attributed causes relating to malaria to excessive exposure to the sun suggests that cultural factors do influence the community's knowledge and attitudes regarding malaria (see table 4.3). This confirms the findings in a study on traditional beliefs in Ethiopia that revealed that malaria causation was often attributed to spirits and the sun (Hodes and Teferedegne, 1996). These 5 (3,6%) respondents respond with the 8 (7,5%) respondents who indicated that they took the malaria patient to the traditional healer first. See Figure 4.6.

TABLE 4.3
KNOWLEDGE ON CONTRIBUTING FACTORS TO MALARIA

Causes	N	%
Mosquitoes	65	46.4
Standing water	40	28.6
Exposure to cold	20	14.3
Eating of cold food	10	7.1
Others	5	3.6
Total	140	100.0

4.4.3 Knowledge of symptoms relating to malaria

The total sample (100,0%) of the respondents demonstrated knowledge relating to malaria symptoms, with the average respondent citing two or three symptoms.

TABLE 4.4
KNOWLEDGE RELATING TO MALARIA SYMPTOMS (N=140)

Symptoms	Frequency	%
Headache	68	48.6
Fever	66	47.1
Vomiting	59	42.1
Feeling cold	57	40.7
Pain in the joints	23	16.4
Weakness	22	15.7
Feeling hot	17	12.1
Diarrhoea	16	11.4
Backache	14	10.0
Stomachache	13	9.3
Sweating	12	8.6
Poor appetite	11	7.9
Confusion	6	4.3
Neck Pain	4	2.9
Dizziness	3	2.1

Most commonly cited symptoms included headaches fever, vomiting, feeling cold and pains in the joints. Despite the fact that they demonstrated knowledge about malaria symptoms, they still delayed seeking medical attention for a variety of reasons given in figure 4.7. Symptom areas are indicated in the table 4.4.

4.4.4 Age group which contracts malaria more often than others do

Out of the sample of 140 respondents, 70 (50,0%) respondents indicated children; 30 (21,4%) respondents indicated young adults; 20 (14,3%) respondents indicated the middle aged and another 20 (14,3%) respondents indicated the elderly group.

Respondents demonstrated knowledge with regard to the age group, which contracts malaria more often than others do. They are thus aware of the fact that children fall in a high risk category and it seems as if they are able to identify the signs and symptoms relating to malaria.

The above findings are to the contrary of Social Marketing Association (1999) findings, where (76,8%) respondents indicated that all people were equally likely to contract malaria irrespective of age. Findings are presented in Table 4.5.

TABLE 4.5
OPINIONS ON AGE GROUP WHICH CONTRACTS MALARIA
MORE OFTEN THAN OTHERS

Age group	N	%
Children	70	50.0
Young adults	30	21.4
Middle aged	20	14.3
Elders	20	14.3
Total	140	100.0

4.4.5 Incidence of previous malaria in any family member and symptoms presented on the first day

This question was asked to confirm the researcher's assumption that exposure of any family member to malaria would positively influence the attitude of a person to malaria. That means the person would be able to cite the multiple symptoms presented on the first day, prevented measures, treatment and follow up treatment of a person with malaria.

In response to this question, 106 (75,7%) respondents indicated "yes" while 34 (24,3%) respondents indicated that nobody in the family had malaria before.

All respondents, who had a family member who had had malaria before, could cite multiple symptoms presented on the first day, of which fever, vomiting, headache and feeling very cold were the most common ones. Other symptoms, according to them, included sweating, diarrhoea, stomachache, weakness, and lack of appetite, joint pains, confusion and convulsions.

The fact that respondents identified fever, headache and vomiting as the most common symptoms presented by malaria patient's, demonstrates that respondents do possess knowledge relating to malaria symptoms.

However, despite the fact that 106 respondents indicated definite knowledge about the symptoms relating to malaria, the following negative responses concern the researcher:

- only 67 (47,9%) respondents indicated that their houses are sprayed with DDT once in a year (see Figure 4.11);
- 47 (44,3%) did not seek treatment the same day the patient became ill;
- 42 (39,9%) failed to take the patient back for follow-up visits; and
- 47 (44,3%) indicated that they had treated patients with unprescribed medications.

4.4.6 Information on source of treatment sought

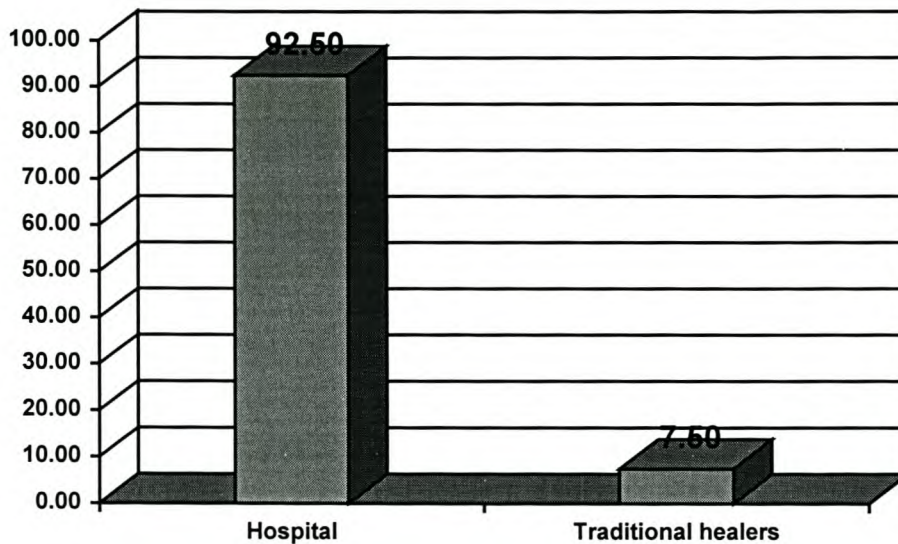
Out of the 106 respondents whose family members had malaria before, 98 (92,5%) respondents indicated that they took the sick person to the hospital, and 8 (7,5%) respondents took them to the traditional healers.

Findings reveal that cultural factors have an influence on the community's attitude regarding malaria. Despite the fact that respondents demonstrated knowledge relating to malaria symptoms, 8 (7,5%) respondents sought a remedy from traditional healers. Statements made by focus group participants and supported by literature, revealed that not everybody believed that mosquitoes cause malaria and attributed it to cultural influences.

People consult traditional healers not only for treatment, but also because of the need to determine the cause of the problem, especially if they suspect supernatural causation of the disease (De Villiers, 1984).

The majority of the respondents (98 - 92,5%) took the sick person to hospital. This information supports the Social Market Association (1999) findings where it was established that about 82,3% respondents went to a medical facility for malaria treatment. Although a high percentage (92,5%) of the respondents sought medical attention, only 44,3% of the respondents has not done it on the first day. Patients might have reached the hospital when complications had already set in.

FIGURE 4.6
INFORMATION ON SOURCE OF TREATMENT SOUGHT



Of the 106 respondents who had a malaria patient in their family before, 57 (53,8%) respondents indicated that they had sought treatment the same day the person felt ill, while 47 (44,3%) of the respondents did not seek treatment on the same day.

The following reasons were provided by 47 respondents, who failed to seek treatment on the same day the patient felt ill:

- 17 (36,2%) respondents were hoping that the condition would improve;
- 16 (34,0%) respondents cited lack of transport;
- 7 (14,9%) respondents cited lack of money; and
- 7 (14,9%) respondents indicated that the clinic was too far.

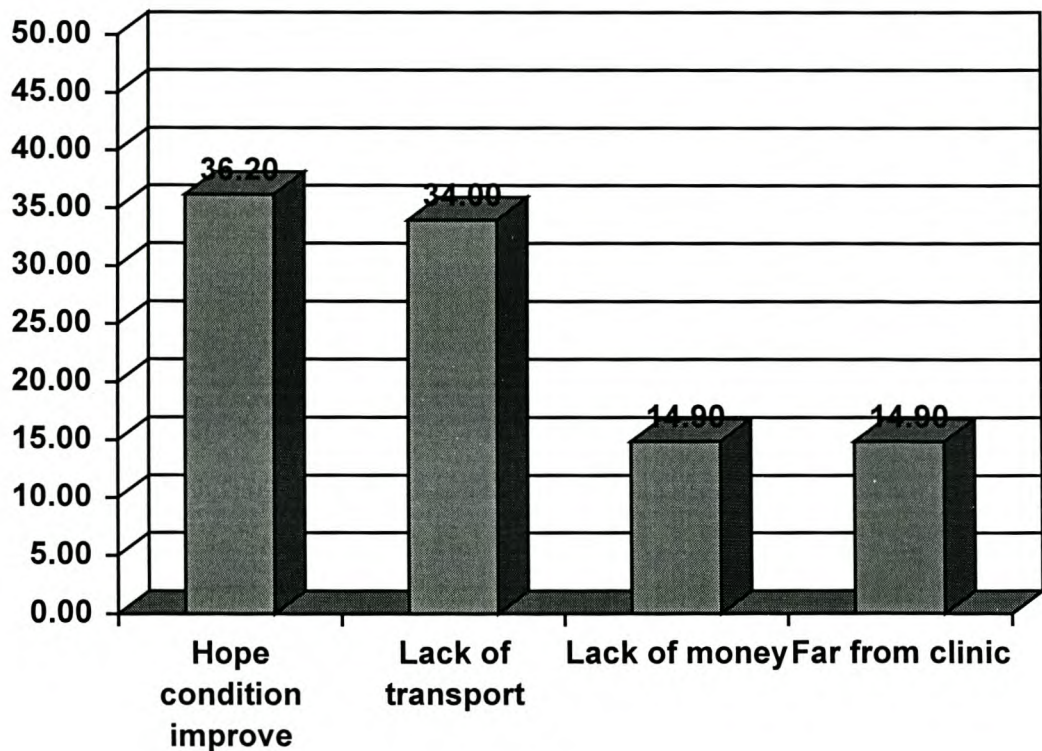
The above findings confirm the findings of De Villiers (1984), which stated that patients delayed seeking treatment by ignoring their symptoms, either because they hoped to get better or because of other factors such as lack of money or long distances to the health facilities. The community delayed seeking medical treatment mainly due to inaccessibility of health facilities and lack of information about malaria.

The outcome of delay in seeking treatment is that patients with advanced symptoms reach doctors when it is often too late for treatment to be effective.

Inaccessibility to health facilities results in patients not receiving treatment on time. They reach clinics or hospitals when complications have already developed. It also discourages patients from keeping their follow-up appointments.

Reasons for not seeking treatment on the same day the patient became ill are presented in the figure below:

FIGURE 4.7
REASONS PROVIDED FOR NOT SEEKING TREATMENT
ON THE SAME DAY THE PATIENT FELL ILL



4.4.7 Information on follow-up visits

In response to the question "*did you take the malaria patient back for follow-up treatment*", 64 (60,4%) respondents indicated that they had taken the patient back, while 42 (39,6%) respondents did not take the patient back for follow-up visits.

Of the 42 respondents who did not take the malaria patient back for follow-up visits, 14 (33,3%) respondents indicated that they were not given a follow-up date. Nineteen (45,2%) respondents indicated that the condition had improved; 4 (9,5%) respondents did not have enough money to pay for the follow-up visits, while 5 (11,9%) respondents cited that the clinic was very far away.

The above findings are supported by the findings of Helman (1990) which revealed that many black South Africans did not keep follow up appointments as instructed by the medical practitioner. Reasons provided for not keeping follow-up appointments included: side effects of a particular medication; preference among some patients for a particular form of treatment such as an injection instead of oral medication; lack of money and far distances to the nearest health facility. It is however vital for a malaria patient to go back for a follow-up visit for reassessment and treatment if necessary.

The findings revealed that 14 (33,3%) respondents indicated that they were not given a follow-up date. In accordance with the Minister of Health and Social Services (1995), a patient who has had malaria diagnosed and treated, should be checked again one or two days after completing treatment, in order to evaluate the effectiveness thereof. The above information suggests that health workers, specifically nurses, do not give clear instructions regarding follow-up visits.

The data showed that 4 (9,5%) respondents could not take the patients back for follow-up visits because of the lack of money required to pay the hospital/clinic fees. This is contrary to the PHC principles of affordability, on which the Namibian health

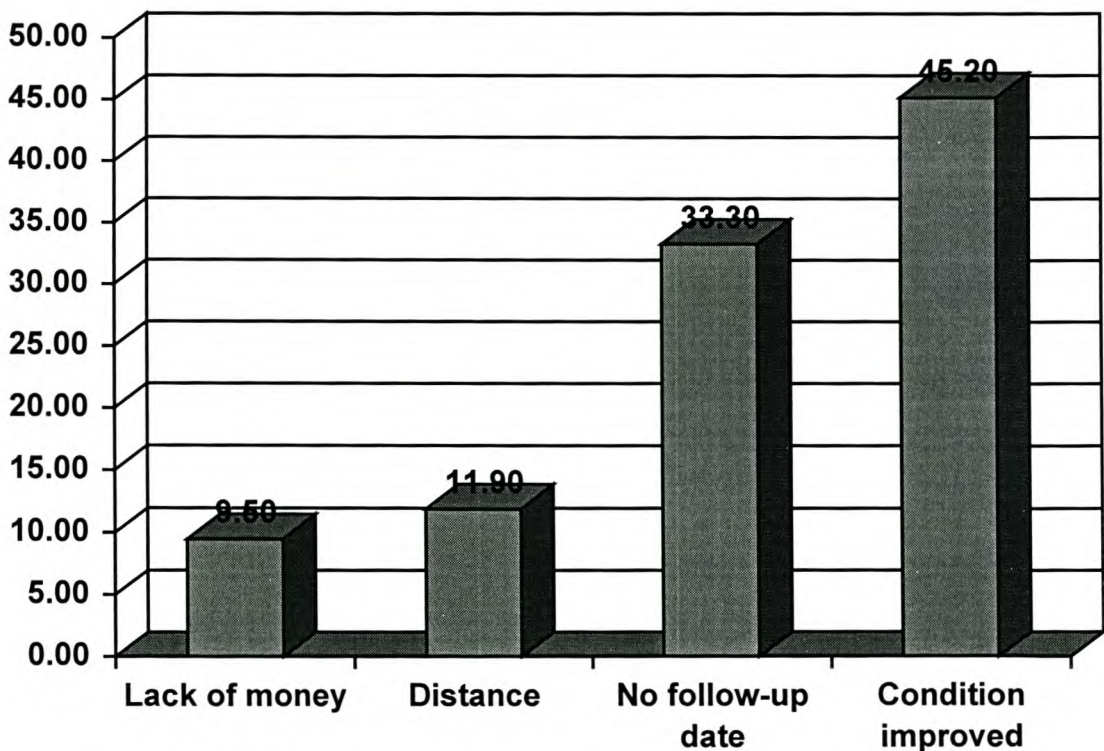
services are based, which clearly stipulates that no Namibian shall in any event be denied health care services because of his/her inability to pay the relevant fees applicable to state patient categories.

Looking at the findings, it emerged that either the community is not well informed by the Ministry of Health and Social Services or the community is ignorant about the privilege granted to them by the government by adopting the PHC approach.

It seems as if a well-planned campaign disseminating information about health issues, health services and management in the health districts of Namibia is imperative.

FIGURE 4.8

REASONS FOR NOT TAKING THE PATIENT BACK FO FOLLOW-UP VISIT



4.4.8 Information on use of unprescribed medication, the type of medication used and the source

Of the 106 respondents who had a family member suffering from malaria in the past, 47 (44,3%) respondents indicated that they had treated the sick patient with other medications besides the prescribed medication, and 59 (55,7%) respondents claimed not to have done it.

From the 47 respondents, 16 (34,0%) respondents indicated that they bought it from the chemist. Another 16 (34,0%) respondents borrowed the medication from relatives, friends and neighbours, 12 (25,5%) respondents have mixed the traditional herbs themselves, while 3 (6,4%) respondents got it from the traditional healers. Self-treatment is a problem in this area.

With regard to the type of medication used by the 47 respondents using other medicines, the majority, 16 (34,04%) respondents, used Panado. Thirteen (27,7%) respondents used traditional herbs to steam the patient. Ten (21,3%) respondents admitted to having used chloroquine tablets, 7 (14,9%) respondents gave the patient juice made from a mixture of traditional herbs while one (2,1%) respondent used a cough syrup.

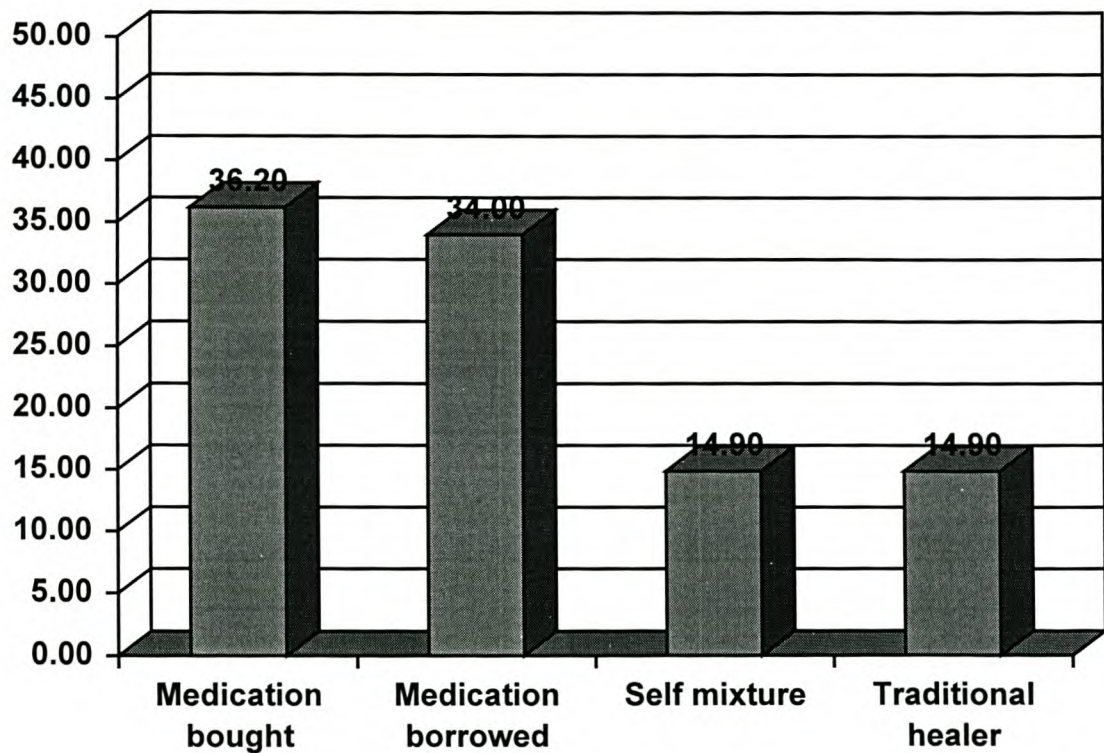
The above findings is supported by the findings of De Villiers (1984) which revealed that self treatment with popular medicines is often the forerunner to consultation of a medical practitioner. Such medicines are usually bought, or they may be obtained from relatives, friends or neighbours who have had the same condition.

Use of unprescribed medication is a medical hazard because medication could be expired, could be contra-indicated to a specific individual, or people might not take the correct dosage. Self-treatment indicates lack of correct health information.

TABLE 4.6
TYPE OF UNPRESCRIBED MEDICATION USED TO TREAT PATIENT

Medication	N	%
Panado	16	34,0
Steaming with traditional herbs	13	27,7
Chloroquine	10	21,3
Juice extracted from traditional herbs	7	14,9
Cough syrup	1	2,1
Total	47	100.0

FIGURE 4.9
INFORMATION ON SOURCE OF UNPRESCRIBED MEDICATION

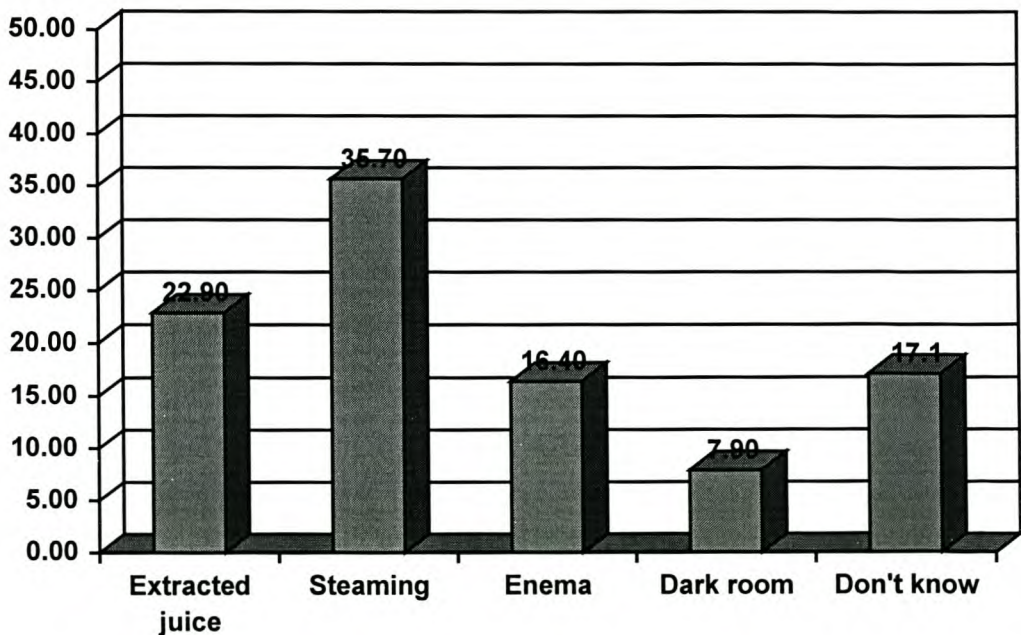


4.4.9 Information on traditional methods of treating malaria

In response to the question that asked the respondents to mention traditional methods of treating malaria, 32 (22,9%) respondents mentioned drinking of juice made from traditional herbs. The majority (50 - 35,7%) respondents mentioned steaming the patient with hot water mixed with traditional herbs. Another 23 (16,4%) respondents mentioned the administration of an enema using herbs, while another 11 (7,9%) respondents mentioned keeping the patient in a dark room and 24 (17,1%) respondents indicated that they had no knowledge regarding the traditional methods of treating malaria. According to the above information it emerged that cultural factors influence the method of treating or managing malaria by community members. It shows that the community lacks correct information on malaria treatment. Traditional methods used to treat malaria are ineffective and some have fatal consequences. Statements made by focus group participants support the above argument as discussed in chapter 5.

FIGURE 4.10

TRADITIONAL METHODS OF TREATING MALARIA



This information also supports Black's (1990) finding that while western medicine fulfils patient's physical needs, traditional medicine satisfies their psychosocial and cultural needs. The findings are presented in Figure 4.10.

4.4.10 Information on strategies employed to reduce mosquitoes in the environment and to prevent mosquito bites in the family

In response to the question on methods used to reduce mosquitoes in the environment, the burning of traditional herbs to kill mosquitoes was commonly used by 50,0% of the respondents. It is followed up by 48,5% respondents believed in keeping the environment clean; 42,9% respondents prevent dirty standing water; 41,4% respondents sprayed their houses with DDT, and 18,6% respondents indicated that they do not do anything to reduce mosquitoes in the environment. Most families used multiple measures to prevent mosquito bites.

Mosquito bed nets were frequently used by 48 (34,3%) of the respondents, followed by the use of mosquito repellants by 34 (24,3%) respondents. Another 28 (20,0%) respondents burning the herb "etselyakuku" at night, while 18 (12,9%) respondents covering their body. Fifteen (10,7%) respondents closing their windows and doors after sunset, while 7 (5,0%) respondents use wire netting on windows. 23 (16,4%) of the respondents take no preventive measures.

Tables 4.7 and 4.8 show that respondents have knowledge about strategies used to guard against malaria. However, it also emerged that socio-cultural factors have an influence on the community's knowledge, attitudes and malaria prevention strategies.

It is alarming to note that despite ranking malaria as the major health problem in this area, as indicated in table 4.4, supported by North West Health Directorate statistics

(1998) as discussed in chapter 1, 23 (16,4%) respondents did not take any malaria preventative measures.

This could be explained in the context of cultural influences indicated during the focus group discussion that not everybody believed that mosquitoes caused malaria, supported by the finding that 8 (7,5%) respondents took the patients to traditional healers and 5 (3,6%) respondents did not know what causes malaria.

The above findings will be presented in Tables 4.7 and 4.8.

TABLE 4.7
STRATEGIES EMPLOYED TO REDUCE MOSQUITOES IN THE ENVIRONMENT (N=140)

	Frequency	% of respondents
Burning traditional herbs	70	50
Keeping environment clean	68	48.6
Prevention of dirty standing water	60	42.9
DDT spray	58	41.4
No strategy employed	12	18.6

TABLE 4.8
MEASURES TAKEN BY FAMILIES TO PREVENT MOSQUITO BITES (N=140)

	Frequency	% of respondents
Bed nets	48	34.3
Mosquito repellants	34	24.3
Burning the traditional herb "etselyakuku"	28	20.0
Cover the body	18	12.9
Close doors and windows	15	10.7
Use iron nets on windows	7	5.0
No measures taken	23	16.4

4.4.11 Information on usage/non-usage of mosquito nets and reasons thereof

Out of the total sample of 140, 45 (32,1%) respondents indicated that all family members used a mosquito net, whereas the majority 95 (67,9%) respondents admitted that not all family members used nets.

The 95 respondents who indicated that not all family members used a mosquito nets, cited the following reasons:

- 68 (71,6%) respondents cited due lack of affordability;
- 14 (14,7%) respondents indicated that they were sleeping on the floor;
- 11 (11,6%) respondents were ignorant and
- 2 (2,1%) respondents cited lack of availability of mosquito nets in local shops.

The above findings are presented in Tables 4.9 and 4.10.

TABLE 4.9
INFORMATION ON MOSQUITO NET USAGE

	N	%
Yes	45	32.1
No	95	67.9
Total	140	100.0

Tables 4.9 and 4.10 show that the use of mosquito nets is low in this area mainly due to lack of affordability. This concurs totally with the statements made by participants during the focus group discussion as discussed in par. 4.5.4.

TABLE 4.10
REASONS THAT PREVENTED ALL FAMILY MEMBERS FROM USING A
MOSQUITO NET

Reason	N	%
Lack of affordability	68	71.6
Sleeping on the floor	14	14.7
Ignorance	11	11.2
Unavailability of nets in local shops	2	2.1
Total	95	100.0

The above findings replicate other study findings for example Meek (1990) and Social Marketing Association (1999) where it was revealed that non-use of mosquito nets in Namibia is commonly associated with lack of affordability and unavailability of bed nets in local shops.

The findings further support Shangula's (1996) argument that it appears that more health education is needed regarding the use and importance of bed nets in the prevention relating to malaria.

4.4.12 Knowledge relating to malaria

In response to the question "*would you say malaria is contagious*", 49 (35,0%) respondents said malaria is contagious, 62 (44,3%) respondents knew that malaria is not contagious and 29 (20,7%) respondents did not have knowledge whether malaria is contagious or not.

The community lack correct information that malaria is not contagious. This misinformation results in family members isolating malaria patients due to fear of contamination.

4.4.13 Knowledge of traditional prevention methods relating to malaria

Out of the sample 77 (55,0%) respondents indicated burning of traditional herbs, 15 (10,7%) respondents indicated making fire near the hut and 48 (34,3%) said they had no knowledge thereof.

TABLE 4.11
KNOWLEDGE OF TRADITIONAL METHODS USED TO PREVENT MALARIA

	N	%
Burning of traditional herbs "etselyakuku"	77	55.0
Making fire near the hut	15	10.7
Do not know	48	34.3
Total	140	100.0

4.4.14 Information on households sprayed with DDT

The majority of the respondents, 67 (47,9%) respondents indicated that their houses are sprayed with DDT once in a year, 33 (23,6%) respondents once in two years and 40 (28,6%) respondents indicated that their houses have never been sprayed.

Of the 73 respondents whose houses were either sprayed once in two years or never sprayed 47 (64,4%) respondents attributed failure to the government spray team, which did not turn up to spray and 26 (35,6%) respondents refused to have their houses sprayed with DDT.

Reasons for refusal included that DDT causes asthma; kills livestock and some respondents cannot stand the smell. The above information is presented in Figures 4.11 and 4.12.

FIGURE 4.11
FREQUENCY OF HOUSEHOLDS SPRAYED WITH DDT

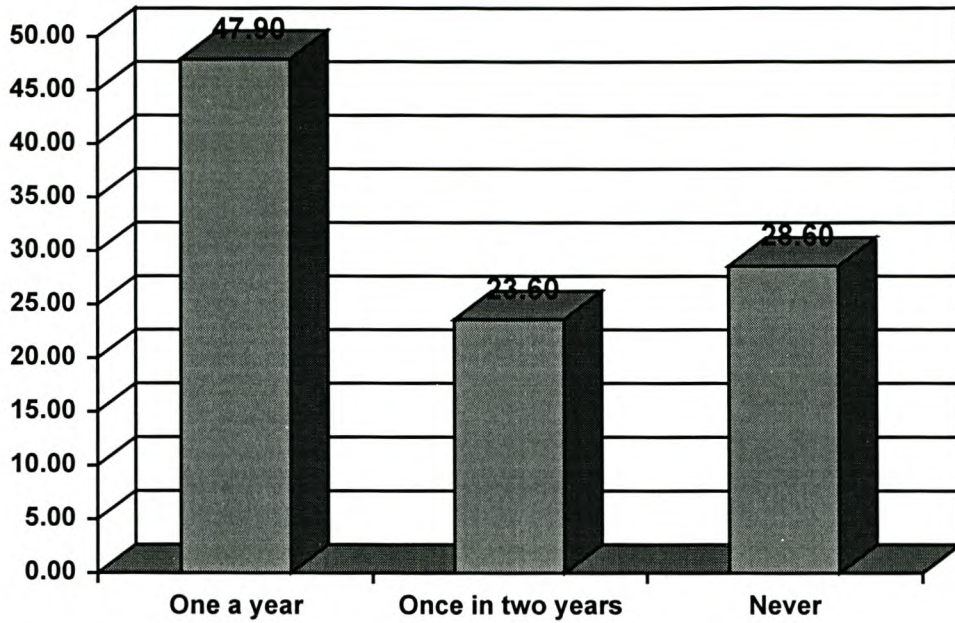
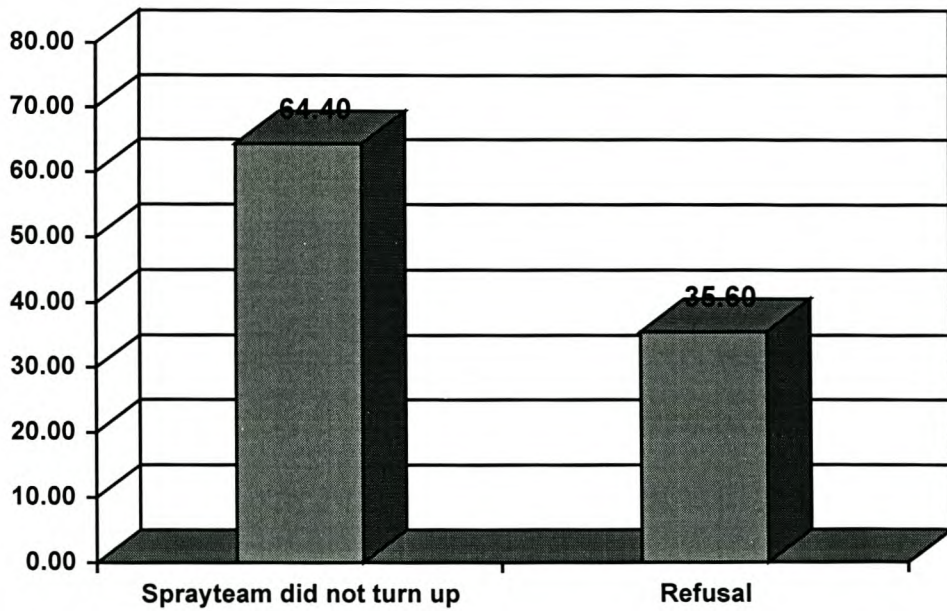


FIGURE 4.12
REASONS WHY HOUSES WERE NOT SPRAYED WITH DDT



Data analysis shows that there are misconceptions in the community about spraying houses with DDT. This concurs with statements made by participants during the focus group discussion as reflected in par. 4.5.4.

26 (35,6%) respondents refused to have their houses to be sprayed with DDT, which indicates that the community has a negative attitude towards DDT.

Shangula (1996) states that the media and the United Nations Children Fund in Namibia have expressed concern over the safety of DDT.

Helman (1990) argued that an attitude change would occur only if the community participates fully in matters concerning their health. Community participation is one of the pillars of primary health care. The other pillars are equity, self-reliance, socio-economic development, intersectoral collaboration and good management teams at all levels (MOHSS, 1995).

In a similar argument, MOHSS (1995) argued that health workers should also change their attitudes towards recognising and valuing the wisdom and resources existing in communities that will enhance co-operation and collaboration between health workers and the members of the community.

Figure 4.12 shows that 47 (64,4%) respondents whose houses were either sprayed once in two years or never sprayed with DDT attributed lack of spray to failure of the government spray team, to turn up. This could indicate a lack of a well-planned programme relating to malaria prevention and commitment of health services.

4.4.15 Opinions on taking of anti-malaria drugs by a pregnant woman

Out of the sample of 140 respondents, 92 (65,7%) respondents felt that it was

necessary for a pregnant woman to take anti-malaria drugs and 48 (34,3%) respondents were of the opinion that it was not necessary.

Of the 92 respondents who felt the necessity, cited the following reasons:

- 77 (83,7%) respondents prevent malaria for both the woman and the unborn baby
- 10 (10,9%) respondents said it was necessary to prevent abortion and
- 5 (5,43%) respondents said taking of anti-malaria drugs during pregnancy makes delivery easy.

Of the 48 respondents who did not see the necessity for pregnant women to take anti-malaria drugs, 40 (83,3%) respondents said anti-malaria drugs are harmful to the unborn baby while 8 (16,7%) respondents did not cite a specific reason, but maintained that it is not needed.

Although the majority of respondents (72 respondents or 51,4%) are still in their child-bearing years, as reflected in figure 4.1, the above findings indicated lack of in-depth knowledge about malaria during pregnancy.

By implication pregnant mothers will not go for malaria chemoprophylaxis treatment and this can result in unnecessary complications such as maternal deaths, abortion, premature delivery and low birth weight.

The Minister of Health and Social Services (1995) in Namibia, recommended chemoprophylaxis for special risk groups including pregnant women. The percentage of respondents who do not see the necessity of taking anti-malaria is still too high. Information regarding the importance of chemoprophylaxis should filter down to make every woman aware of the situation.

4.4.16 Sources relating to malaria information

Respondents obtained information on malaria from various sources, 11 (7,9%) respondents obtained information from church leaders 12 (8,6%) respondents obtained information from women's groups, 72 (51,4%) respondents obtained information from health workers, 10 (7,1%) from the radio while 35 (25,0%) respondents indicated that nobody in the area, gave them information.

It is of concern to note that 35 (25,0%) respondents indicated that nobody in the area gave them information on malaria. This indicates that more health education is needed in this regard. This finding concurs totally with comments made by participants during the focus group discussions that nurses give health information only when community members visit health facilities. This clearly illustrates the pressing need to create malaria awareness at all levels of health service.

Inadequate information could lead to unnecessary loss of lives that could have been prevented.

TABLE 4.12
SOURCES OF INFORMATION RELATING TO MALARIA

	N	%
Church leaders	11	7.9
Womens groups	12	8.6
Health workers	72	51.4
Radio	10	7.1
Nobody	35	25.0
Total	140	100.0

4.4.17 Information given about malaria

Eleven (10,5%) respondents indicated that church leaders gave them the following

information on malaria:

- Keep the environment clean to prevent diseases such as malaria.
- Have your houses sprayed with DDT by government officials.

Twelve (8,6%) respondents reported having been given the following information by other women:

- Keep the malaria patient alone in a quiet dark room.
- Boil the leaves from the eucalyptus tree and steam the malaria patient, to bring the temperature down.
- Administer an enema to a malaria patient using omunghululu herbs, this relieves vomiting and stomach aches.
- Apply mosquito repellent cream before going to bed.
- Do not use coils, their smell can cause respiratory problems in children.
- Burn leaves from etselyakuku and iizimba at night, to kill mosquitoes.
- Keep your living area clean by burning the rubbish.

Ten (9,5%) respondents reported that they have picked up the following information from the radio:

- The signs and symptom relating to malaria.
- Malaria is not a communicable disease.
- People must use mosquito nets to prevent mosquito bites.
- Malaria and HIV/AIDS are dangerous diseases.
- Keep your living area clean by burning the rubbish.

Seventy-two (68,6%) indicated that health workers, specifically nurses, gave them the following information on malaria:

- Consult the doctor on first sign of fever.
- Do not go to "onganga" if you think you have malaria.
- Do not use enema to induce or stop vomiting.
- Close windows and doors every day before sunset.
- Wear long protective clothes at night to prevent mosquito bites.
- Buy mosquito repellent cream and apply before you go to bed.

- Use bednets to prevent mosquito bites.
- Always finish the malaria tablets as instructed.
- Stick to the follow-up appointments.
- Go back to the clinic/hospital if condition does not improve.

Respondents obtained information on malaria from various sources. The most common source relating to malaria information was from health workers (72 - 51,4%) followed by women's groups (12 - 8,6%).

The information the respondents received from the radio and health workers relating to malaria, seems to be correct. It remains alarming that prevention, treatment and attitudes relating to malaria still remain a problematic issue with severe complications, despite the fact that a large percentage received correct information.

4.5 FOCUS GROUP INTERVIEWS

Two focus group interviews were held at the University of Namibia's Northern Campus each consisting of ten community leaders who were females and aged between twenty years and above. Respondents who had participated in the structured interviews were excluded. ✓

Permission to use the university facilities was requested from the campus administrator and permission to conduct interviews was solicited from the participants and was granted. Participants were assured that all information would be treated confidentially.

The interviews were conducted in Oshiwambo to accommodate all the participants. The discussions lasted for about one hour and fifteen minutes. Interviews were tape-recorded and handwritten notes were made by the researcher. The initial questions for the interviews were:

- What are your views on the causes relating to malaria in this area?

- What are the signs and symptoms relating to malaria?
- Which prevention methods do people in this community use to prevent malaria?
- Which traditional methods are used by this community to treat malaria?

4.5.1 Respondents' views about causes relating to malaria

The first question that required the participants to give their views regarding the causes relating to malaria was met with mixed opinions.

Although participants demonstrated knowledge about the relationship between mosquitoes and malaria, it emerged that they had difficulty in drawing a clear-cut line between the exact cause and contributory factors relating to malaria. They commented as follows:

- *"I think standing water which is dirty is a big problem that causes malaria here".*
- *"These squatters are causing malaria here. Their places are so dirty, rubbish has piled up there and flies and mosquitoes breed there".*
- *"Mosquitoes are causing this problem, mosquitoes are here throughout the year, so is malaria".*
- *"The grass here is a problem especially now, winter time, it can cause this disease you know, but we need the grass for the cattle. I don't really know".*

The following comments by participants suggested that not everybody believed that mosquitoes alone cause malaria:

- *"You can not always rule out some things out you know, things like those people. We all know, the evils, you think it is mosquitoes but you never know, we all know sometimes".*
- *"Some people say if you eat a very cold water-lemon, then it is possible you will get this disease malaria".*

- *"I doubt because how many mosquitoes are around here? It is plenty. Everyone was bitten by a mosquito but not all of us had malaria".*

It emerged from participant's comments that there is a lack of information and much confusion with regard to the transmission relating to malaria and HIV/AIDS. This is reflected in the following comments:

- *"People say that mosquitoes can cause HIV/AIDS, so I think that people sick with malaria can also cause AIDS to others or how?".*
- *"I mean, but how will you know that if a mosquito bites this person who is sick with AIDS and bites you afterwards, it is not carrying AIDS?".*
- *"If you are sick, I mean very sick and they have to save you it is possible to get malaria from the blood they will give you .. Perhaps even AIDS".*

The comments with regard to participants' views on causes relating to malaria has revealed the following:

- Respondents lack knowledge on types relating to malaria vectors because comments are implying that every mosquito carries malaria parasites.
- Lack of knowledge with regard to transmission of HIV/AIDS.
- There is misinformation regarding blood transfusion.
- Cultural factors play a role in the perceptions about the causes relating to malaria.

4.5.2 Respondents' knowledge of signs and symptoms relating to malaria

Respondents demonstrated knowledge with regard to the signs and symptoms presented by malaria patients. The majority cited more than three correct symptoms with fever, headache, vomiting, feeling very cold/hot, and stomach ache being commonly mentioned.

Respondents' comments suggested that severe malaria is a problem in this area,

as some put it:

- *"When he woke up, he was very hot, and complaining of a terrible headache, after some time he told me to tell people to keep quiet but it was only the two of us in the room".*
- *"You would say he has lost his mind, talking all the nonsense stuff, calling names and saying offensive things, you see".*
- *"Headache was her main problem, she said she could hear them talking inside her head .. The doctor told us malaria got into her head".*

4.5.3 Respondents' views on methods used by the community to prevent malaria

It appeared from the respondent's comments that not all people believed that malaria is preventable:

- *"You can try to prevent it, but you will still get it anyway, yes. Even if not now, you will get it some other time".*
- *"If you are staying here, you will always get malaria, even if you try this and that ..".*

Participants revealed that various strategies are used to prevent mosquito bites and consequently malaria. The most common method being used is the burning of traditional herbs, specifically burning of *etselyakuku* and *iizimba* at night. Besides the traditional herbs, participants revealed also that people use mosquito repellents such as lotions, insecticide sprays, coils, bednets and have their houses sprayed with DDT. Lack of affordability has been reported as a barrier to non-usage of mosquito repellents especially bed nets. They commented as follows:

- *"If you go to the open market today, everyone is selling this and that, I mean the herbs and people are buying. Most people use etselyakuku, it grows here, you don't need to spend your cents on buying from people you don't even know".*

- *"Some prefer burning iizimba ... iiziba helps with other things as well, like if you burn it, it also fights bad spirits from your house "*.
- *"The best is to burn iizimba and let them spray your house .. I think it is safer that way".*
- *"People buy lotions you apply at night or you can buy those round sticks – like and burn the sticks at night, but they say lotions are not safe for kids, is it true?"*.
- *"Those with small families can buy nets I mean if you are three or four, you see ...".*
- *"I think that if you have kids you better buy nets for them if you can because this disease is very dangerous".*

4.5.4 Lack of affordability

Lack of affordability is reflected in the following comments:

- *"But how many times can you buy those lotions stuff? If you are two or three at home perhaps but it is impossible to buy for everyone in the house".*
- *"To me you see, it depends also on other things. You so want to protect your kids but the problem is other people who are staying with you, you can't afford to buy nets for everyone".*
- *"Everyone needs a bednet not only children; the problem is money, and you can not get them at DAPP, it could be better at least they sell things cheap there".*

It appeared that lack of affordability is not the only factor preventing people from using nets as some participants put it:

- *"Nets are good, so they say, but you must have many beds also. I mean when you sleep in a hut with no bed or mattress, how will you use the net?"*.
- *"People here misuse their money spending it on useless things..".*

Participants expressed different attitudes towards DDT as summarised below:

- *"Some say they mix the DDT stuff with too much water, that is why it is so useless, I mean it is too watery".*
- *"DDT makes people sick especially the children".*
- *"You are forced to wash the walls afterwards, it smells".*
- *"It is better if they spray while the kids are still at school, it is not good for them".*
- *"DDT is better than nothing, what I don't like is the idea of all these strangers getting into every corner of my house".*

The focus group participants commented that nurses give them information on how to prevent malaria, but this is done only when sick people visit the health facility. They commented as follows:

- *"The nurses will only tell you if you take somebody there who is already sick with malaria".*
- *"I think that nurses can also arrange meetings like this one, now and then, to tell us and we can go back and tell our people, not only mosquitoes. There are many problems here my dear, people are dying, some say it is malaria or AIDS or what".*
- *"We need to come together like now a lot, I mean with the nurses, they know a lot and we need to talk in depth".*

The comments with regards to respondent's views on methods being used to prevent malaria have revealed the following:

- Lack of affordability of mosquito repellents.
- Lack of knowledge on how to hang a net in a hut.
- Misconceptions about DDT.
- Lack of health information at a primary preventive level.
- Extended families are a problem.
- Socio-cultural factors have an influence on the community with regard to strategies used to prevent malaria.

4.5.5 Respondents' views on traditional methods used by the community to treat malaria

In respect to the research question that asked the respondents about their knowledge of traditional methods used to treat malaria, participants felt uneasy at first about revealing the information. This is reflected in the following comments, which are vague and unspecific:

- *"Ooh, I mean I am not talking about myself here, as you said. Yes people do treat all kinds of illnesses here, using different things, not only malaria".*
- *"Yes, one can use some kinds of things to treat malaria, it is easy".*

Participants reported as follows about the common traditional methods used to treat malaria:

- *"You can steam the patient, using boiled water mixed with traditional herbs.. you buy them or you can grow some".*
- *"The person will breathe better after steaming, especially if you use fresh leaves from the eucalyptus tree".*
- *"Some people use leaves from ombundjambunje plant, they say it works faster, that is what they are saying".*
- *"But the traditional healers use their own stuff of mixtures, at times they burn the elephant dung and made you inhale the smoke, you will feel better afterwards".*
- *"Not all of them will do that, some will just drink that juice made with herbs or they give you enema using herbs mixed with luke warm water".*

Participants have also expressed dissatisfaction with traditional methods used to treat malaria. This is reflected in the following comments:

- *"Herbs are not always working well, especially if they are too dry, they take hours to work".*
- *"You should be careful as to whom to consult, some traditional healers will give you weak stuff, that will not work properly so that you can go back and*

pay more".

Information revealed also that people delay seeking medical treatment, as reflected in the following comment:

- *"Even after taking these herbs, people still go to the hospital after some time anyway".*

It appeared that patients seek traditional remedies for various reasons, including the need to determine the cause of the problem especially if they suspect supernatural causation of the disease:

- *"People go to onganga because they will also tell you other things, they will even warn you to be careful of this .. and that .. and of whom .. not just for treatment you see".*

Participants' comments have also revealed that the use of various ingredients by some traditional healers can have fatal consequences as reported in the following comments:

- *"This kid was given herbs the other way .. yes from behind you see, I think it was too much for his age he got so sick, they have to rush him to the hospital but .. poor him, he didn't make it".*
- *"There are lots of stories, some people got really sick after being treated with herbs, so sick you will think they are being poisoned, but people are still flocking there anyway".*

The comments with regard to knowledge of traditional methods being used to treat malaria have revealed the following:

- Traditional treatment can have fatal consequences.
- People delay seeking medical treatment.

The following methods are being used:

- Steaming the sick person using boiled water mixed with herbs.

- Drinking of juice made out of a mixture of various herbs.
- Inhalation of smoke from a burnt elephant dung.
- Administering of enema, using herbs.

Herbs obtainable from the following trees were mentioned:

- the eucalyptus tree
- the mpane tree
- the omunghululu tree and
- the ombundjambunje plant.

4.6 SUMMARY

In human sciences a good deal of information can be gathered by direct questioning of people. Although it is not always easy to obtain truthful responses, using structured interviews and focus group discussions have yielded important information for this study. The study attempted to adhere to the codes of research ethics to protect the rights of all participants. The researcher tried to remain objective and to minimize as far as is humanly possible.

Both the quantitative and qualitative research revealed that definite factors that influence the community's knowledge relating to malaria, attitudes regarding malaria and prevention strategies relating to malaria, exist.

CHAPTER 5

GENERAL CONCLUSION AND RECOMMENDATIONS

5.1 INTRODUCTION

This study is aimed at identification of the attitudes of the community of Oshakati Health District towards malaria, determining their knowledge relating to malaria and determining the prevention strategies the community employs to guard against malaria. Based on the findings, relevant conclusions and recommendations are made.

5.2 CONCLUSIONS

Two main conclusions can be made:

- (1) Socio-cultural factors have an influence on the community's knowledge relating to malaria, attitudes towards malaria and relating to malaria prevention strategies
- (2) The Oshakati Health District community lacks in-depth knowledge about malaria due to lack of health information

5.2.1 Socio-cultural factors have an influence on the community's knowledge relating to malaria, attitudes towards malaria and relating to malaria prevention strategies

The study findings revealed that social problems such as unemployment, lack of

affordability to buy mosquito repellants and inaccessibility to health facilities exist in the community; as discussed in chapter 4. See table 4.1, figure 4.8 and table 4.9.

Community members seek traditional remedies to treat and prevent malaria. These traditional practices are ineffective and some treatment has fatal consequences as referred to during the focus group interviews.

5.2.2 The Oshakati Health District community lacks in-depth knowledge about malaria due to lack of health information

Lack of knowledge was mainly reflected in the following findings:

- Respondents delayed seeking medical treatment for a malaria patient. See table 4.7.
- Almost (45,2%) of the respondents indicated failure to keep follow-up appointments because patient's conditions had improved as indicated in figure 4.7.
- Respondents used unprescribed medications to treat malaria patients. This can have unfavourable implications for the patient.
- Twenty-three (16,4%) respondents indicated that their families did not take any measures to prevent mosquito bites.
- Community members refused to let their houses be sprayed with DDT as shown in figure 4.12.
- Although the majority of respondents 72 (51%) fall within child-bearing ages as indicated in figure 4.1, (34,3%) did not know the importance of taking anti-malaria drugs during pregnancy.

Lack of knowledge about malaria, due to inadequate health information, results in misconceptions about the disease, development of complications and unnecessary loss of lives.

5.3 RECOMMENDATIONS

The following recommendations based on the analysis and discussion of the data in chapter 4 are made in the following three possibilities:

- 5.3.1 Well-planned and organized malaria awareness campaigns
- 5.3.2 Expansion and strengthening of community health centres
- 5.3.3 Other prevention strategies

5.3.1 Well-planned and organized malaria awareness campaigns

Well-planned and organized malaria awareness campaigns can be launched through one of the following:

- Malaria awareness campaigns should be conducted extensively throughout the year.
- Community participation should be increased to enhance co-operation and effectiveness of the malaria awareness campaigns.
- Inter-sectoral collaboration should be increased in order to address social and economic problems posed by malaria that extend beyond the capabilities of the Health Ministry.
- Close collaboration between traditional healers and the Ministry of Health and Social Services in order to find common ground with regard to disease prevention and treatment.

5.3.2 Expansion and strengthening of community health centres

Expansion and strengthening of community health centres can be launched through one of the following:

- Provision of mobile services to remote rural areas in order to accommodate the needs of disadvantaged communities.

- Provision of adequate human and material resources to remote clinics.

5.3.3 Other prevention strategies

Other prevention strategies are the following:

- Through provision of material and technical support, different sectors, both governmental and non-governmental can motivate community members to set up bednets projects. These nets can be sold at a reasonable price that the majority of the people can afford.
- The National Vector-borne Disease Control Programme (NVDCP) should undertake a formal, scientific evaluation of the effectiveness and safety of DDT. Should they find DDT ineffective or unsafe, then other alternatives that are more cost-effective and sustainable should be investigated and thoroughly promoted throughout the country.
- Health professionals should give the community proper and adequate information relating to malaria; and emphasis should be placed on promotion of personal protection measures in order to prevent the occurrence relating to malaria. Provision of adequate health information to the community will enhance attitudinal changes towards malaria.

5.4 RESEARCH FINDINGS

The research findings should be made known to all stakeholders to enable them to start with remedial action.

5.5 SUMMARY

Malaria is preventable. Health education will play an important role in making

communities aware of and health conscious about prevention relating to malaria and promotion of good health. To be effective, health education programmes must involve community members and must take socio-cultural aspects relating to the community into account.

Malaria control and prevention is not just a health problem, but a developmental, economic, social, political and environmental issue, hence inter-sectoral collaboration is essential in order to draw up a relevant plan for intervention and to implementation.

The nature of intervention must take place at primary, secondary or tertiary prevention level. At primary prevention level, measures are to be taken to promote optimum health or provide specific protection of the community against malaria. Secondary prevention takes place after the infection has occurred. Early detection of the symptoms and treatment is necessary to minimize complications. Tertiary prevention follows after secondary prevention and is aimed at re-adaptation and stability of the client. The goal of tertiary prevention is to ensure the accomplishment of the fullest functions of the client by means of rehabilitation (Saunders 1993).

The research has revealed valuable data for health workers to utilize. This will enable services to assist the community to fight malaria through the provision of health education.

REFERENCES

- Adler, P. A. and Adler, P. 1987. **Membership Roles in Field Research**. Newbury Park : Sage Publications Inc.
- Ajzen, I., and Fishbein, M. 1980. **Understanding Attitudes and Predicting Social Behaviour**. London : Prentice Hall.
- Allen, S. J. and Snow, R. W. 1990. *Compliance with Malaria Chemoprophylaxis over a Five-year Period among Children in Rural Area of Gambia*. **Journal of Tropical Medicine and Hygiene**, 9(3):313–322.
- Alonso, P. L., Lindsay, S. W. and Hill, A. G. 1991. *The Effect of Insecticide Treated Bednets on Mortality of Gambian Children*. **The Lancet**, 337:1499–1502.
- Anderson, J.R. 1985. **Cognitive Psychology and its implications**. Second Edition. New York: Freeman.
- Andrews, M. M. and Boyle, J. S. 1995. **Transcultural Concepts in Nursing Care**. Philadelphia : Lippincott.
- Ansari, M. A., and Sharma, V. P. 1990. *Field Evaluation of Deltamethrin against Resistant Anopheles Culcifacies in India*. **Indian Journal of Malariology**, 27(1):1–13.
- Arbani, P. R. 1992. *Malaria Control Programme in Indonesia*. **Journal of Tropical Medicine and Public Health**, 23(4):29–38.

- Barker, D.J.P. and Hall, A.J. 1991. **Practical Epidemiology: A short Practical Manual of Epidemiology for Use in Developing Countries.** Endinburgh: Churchill Livingstone.
- Baron, R. M., Graziano, W. G. and Stangor, C. 1991. **Social Psychology.** New York : Holt, Rinehart and Winston, Inc.
- Basset, M. T., Taylor, P. and Govere, E. 1991. *Clinical diagnosis of malaria: Can we improve?* **Journal of Tropical Medicine and Hygiene**, **9(4):65–69.**
- Bertrand, J. T. Hardee, K., Magnani, R. J., and Angle, M. A. 1991. *Access, Quality of Care and Medical Barriers in Family Planning Programs.* **International Family Planning Perspective**, **21(2):64–69.**
- Bhati, P. G. 1997. *Malaria Dreams: Post-war Visions of Health and Development in the Third World.* **Medical Antropology**, **17(3):279–296.**
- Binka, F. N., Indome, F., and Smith, T. 1998. *Impact of Spatial Distribution of Permethrin-impregnated Bednets on Child Mortality in Rural Northern Ghana.* **American Journal Tropical Medicine and Hygiene**, **59(1):80–85.**
- Binka, F. N., Kubaye, A., and Maude, G. H. 1996. *Impact of Permethrin Impregnated Bednets on Child Mortality in Gana: A Randomised Controlled trial.* **Journal of Tropical Medicine and International Health**, **1(1):147–154.**
- Black, R. E. 1990. **Anthropology and Primary Health Care.** Boulder : Westview Press.
- Bless, C. and Higson-Smith, C. 1995. **Fundamentals of Social Research Methods: An African Perspective. Second Edition.** Cape Town: Juta & Co.

- Bouwer, M., Dreyer, M., Herselman, S., Lock, M. and Zeelie, S. **Contemporary Trends in Community Nursing. First Edition.** Johannesburg : International Thomson Publishing (Pty) Ltd.
- Bradley, A. K., Greenwood, A. M., and Marsh, K. 1986. *Bednets and Morbidity from Malaria. The Lancet*, 2(1):204 – 207.
- Bradley, D. J. 1995. **The Epidemiology of Malaria in the Tropics and in Travellers.** London : MacMillan Publishers.
- Brownlee, A. T. 1978. **Community, Culture and Care: A Cross-Cultural Guide for Health Workers.** St Louis : Mosby.
- Brunner, J., and Suddarth, B. 1986. **Medical-Surgical Nursing. Fourth edition.** Philadelphia : Lippincott.
- Burns, N., and Grove, S. K. 1993. **The Practice of Nursing Research; Conduct, Critique and Utilisation. Second Edition.** Philadelphia : Saunders.
- Campbell, H., Bypass, P., and Greenwood, B. M. 1987. *Bednets and Malaria Suppression. The Lancet*, 1(8):850–860.
- Caprara, A. 1998. *Cultural Interpretation of Contagion in Brazil. Tropical Medicine International Health*, 3(12):996–1001.
- Clarke, P. N. and Yarps, P. S. 1988. *Research Blenders: Commentary and Response. Nursing Science Quarterly*, 1(4):147–149.
- Coward, D. D. 1990. *Critical Multiplism: A Research Strategy for Nursing Service. Image. Journal of Nursing Scholarship*, 22(3):163–167.

- Cresswell, J. W. 1994. **Research Approach, Qualitative and Quantitative Approaches.** London : Sage Publications Inc.
- Curtis, C. F. 1995. *Impregnated fabrics against Malaria.* **Parasitology Today, 1:** 147–148.
- Curtis, C. F. 1990. **Appropriate Technology in Vector Control.** Boca Raton : CRC Press:
- Curtis, C. F. 1994. *Should DDT Continue to be Recommended for Malaria Vector Control?* **Medical and Veterinary Entomology, 2(8):**107–112.
- Curtis, C. F. 1994. *Trial of Pyrethroid Impregnated Bednets in Tanzania.* **Lancet, 6(3):**60–69.
- De Villiers, S. 1984. **Popular Medicine among Xhosa-speaking Farm Workers.** Pretoria : University of South Africa.
- De Villiers, S. 1993. **An Antropological Investigation of some Xhosa-speaking Patients' Perceptions and Behaviour in a Hospital Context.** Pretoria : University of South Africa.
- De Vos, A. S. 1998. **Research at Grass Roots, a Primer for the Caring Professions. First Edition.** Pretoria : J. L. van Schaik Publishers.
- Dean, K. 1986. *Lay Care in Illness.* **Social Science and Medicine 22(2):**275–284.
- Denzin, Y. 1989. **Handbook of Qualitative Research.** Newbury Park: Sage Publication, Inc.

- Dolan, E. 1993. *Bednets for the Prevention of Malaria and Anaemia in Pregnancy*. **Journal of Tropical Medicine and Hygiene**, 8(7):62–66.
- Downie, R. S., Fyfe, C. and Tannahill, A. 1991. **Health Promotion Models and Values. First Edition.** Oxford : Oxford University Press.
- Ewles, L. and Simmett, I. 1985. **Promoting Health. A Practical Guide to Health Education.** Edinburgh : Bailliere Tindall.
- Gable, C. 1986. *Theory of Seasonal Effective Disorder*. **British journal of Clinical Psychology, 35 Psychology of Attitudes.** New York: Harcourt Brace.:163-182.
- Gagne, R. M. 1985. **Psychology and Human Preference: An Introduction to Psychology.** New York : Holt.
- Genton, B., Smit, T., and Beck, H. P. 1994. *Malaria: How Useful are Clinical Criteria for Improving a Diagnosis in a Highly Endemic Area?* **Journal of Tropical Medicine and Hygien**, 8(8):38–41.
- George, J. B. 1990. **Nursing Theories: The Base for Professional Nursing Practice. Third Edition.** New Jersey : Prentice Hall International.
- Gerner, P. and Gulmezoglu, A. M. 1997. *Interventions to Prevent Malaria during Pregnancy in Endemic Malarious Areas.* **Tropical Medicine International Health**, 26(4):611–619.
- Greenwood, B.M. and Pickering, H. 1993. *A Malaria Control Trial using Insecticide-treated Bednets and Targeted Chemophrophylaxis in a Rural Area of Gambia, West Africa.* **Journal of Tropical Medicine and Hygiene**, 87(2):3–11.

- Guilebard, M. 1993. *Malaria Prevention*. **Tropical Medicine International Health**, **24(5):401-409**.
- Hammond-Tooke, D. 1989. **Rituals and Medicines: Indigenous Healing in South Africa**. Johannesburg : Donker.
- Haviland, A. 1996. **Cultural Anthropology. Seventh Edition**. Fort Worth: Harcourt Brace College.
- Helman, C. G. 1990. **Culture, Health and Illness; An introduction for health professionals. Second Edition**. Butterworth : Heinemann Ltd.
- Himmerfarb, A., and Eagle, D. 1985. **The Psychology of attitudes**. New York: Harcourt Brace.
- Hodes, R. M., and Teferedegne, B. 1996. *Traditional Beliefs and Disease Practices of Ethiopian Jews*. **Israel Journal of Medical Sciences**, **32(7):561-567**.
- Huailu, C., and Chongyi, L. 1995. *Large Scale Spraying of Bednets to Control Mosquito Vectors and Malaria in Sichuan, China*. **Bulletin of the World Health Organisation**, **73:321-328**.
- Hughes, A. 1978. **Culture and Health**. New York : Lippincott Company.
- Hunt, R., and Zurek, E. L. 1997. **Introduction to Community-based Nursing. First Edition**. New York : Lippincott.
- Jennifer, M. 1996. **Qualitative Research**. London : Sage Publications Inc.
- Katz, D. 1960. **Culture and Social Behaviour**. New York : McGraw-Hill.

- Kere, N. K. 1992. *Permethrin Impregnated Bednets and DDT Residual Spraying. Journal of Tropical Medicine and Hygiene*, 98(2):73–83.
- Kerlinger, F. N. 1986. **Foundations of Behavioural Research. Third Edition.** New York : Holt, Rinehart and Winston.
- Kiesler, A. C. 1991. **Topics in Social Psychology.** Massachusetts : Addison-Wesley Publishing Company Inc.
- Kroeger, A., Meyer, R., Mancheno, M. and Gonzalez, M. 1996. *Health Education on Malaria Control. Tropical Medicine International Health*,1(6):836–846.
- Krueger, R. A. 1994. **Focus Groups, A Practical Guide for Applied Research. Second Edition.** London : Sage Publications Inc.
- Le Compte, M. D. and Prissle, J. 1993. **Ethnography and Qualitative Design in Educational Research.** New York : Harcourt Brace Jovanovich.
- Leach, E. 1982. **Social Anthropology.** Glasgow : Fontana.
- Leininger, M. 1978. **Transcultural Nursing Concepts: Theories and Practices.** New York : Wiley.
- Leininger, M. 1985. **Qualitative Research Methods in Nursing.** Orlando : Crane and Stratton.
- Lincoln, U. S. and Guba, M. 1985. **Naturalistic Inquiry.** Newbury Park : Sage Publications Inc.
- Lines, J. D. 1996. *Technical issues regarding insecticide treated fabrics. First Edition.* DRC Books : Ottawa.

- Lo-Bindo-Wood, G and Haber, J. (1990) **Nursing Research**. St. Louis : Mosby.
- Lumpkin, T. 1994. **Traditional Healers and Community use of Traditional Medicine in Namibia**. Windhoek : Independent Printers.
- Manga, L., and Robert, V. 1995. *Effectiveness of Coils and Mats for Protection against Malaria Vectors in Cameroon*. **Lancet**, 5(2):85–88.
- Mayakuti, P. and Richard, M. 1994. **Beginning Qualitative Research: A Philosophy and Practical Guide**. London : The Farmer Press.
- Mbigi, L. and Maree, J. 1995. **Ubuntu: the Spirit of African Transformation Management**. Pretoria : Knowledge Resources.
- Meek, S. 1990. **Utilization of Mosquito Nets in Northern Namibia. A Survey Report**. Windhoek: Gamsberg MacMillan Publishers.
- Mellanby, K. 1992. *The DDT Story*. **Lancet** 8(4):95–102.
- Miller, K. and Keane, J.P. 1987. **Medical Surgical Nursing**. London : MacMillan Publishers.
- Ministry of Health and Social Services. 1993. **Namibia: Demographic and Health Survey 1992**. Windhoek : Government Printers.
- Ministry of Health and Social Services. 1993. **National Policy and Strategy for Malaria Control**. Windhoek : NAMPA Printers.
- Ministry of Health and Social Services. 1995. **National Policy and Strategy for Malaria Control**. Windhoek : NAMPA Printers.

- Minister of Health and Social Services. 1996. **Kapp Survey**. Windhoek. NAMPA Printers.
- Mitchell, E. S. 1986. *Multiple Triangulation: A Methodology for Nursing Science*. **Nursing Research**, 8(3):18–26.
- Mnzava, A. E., Sharp, B., Mtembu, J. D., and Ngxongo, S. 1997. *Malaria in the New South Africa: Are District Health Systems and Current Malaria Control Strategies Compatible?* **South African Medical Journal**, 87(5):585–589.
- Morehouse, R. 1994. **Beginning qualitative Research: A Philosophic and Practical Guide**. London: Falmer Press.
- Morgan, C.J. 1993. **Statistics and Data Analysis. Second Edition**. New York: John Wiley and Sons.
- Morgan, D. L. 1988. **Focus Groups as Qualitative Research. First Edition**. Newbury Park : Sage Publications, Inc.
- Morse, J. M. 1991. *Approach to Quantitative – Qualitative methodological Triangulation*. **Nursing Research**, 40(2):120–123.
- Mouton, J. and Marais, W. C. 1990. **Basic Concepts in Methodology of the Social Science**. Pretoria: H. S. R. C.
- Munn, N.L. 1972. **Introduction to Psychology**. Boston, Massachusetts : Houghton Mifflin.
- Myles, J. 1998. **Clinical Obstetrics**. New York : Churchill Livingstone Inc.
- Neuman, W. L. 1997. **Social Research Methods: Qualitative and Quantitative Approaches. Third Edition**. Cape Town : A Viacom Company.

- North West Health Directorate. 1998. **Statistics**. Windhoek : Government Printers.
- Oerman, M. H. 1991. **Professional Nursing Practice: A Conceptual Approach**. New York : Lippincott.
- Packard, R. M. 1984. **The Political Economy of Malaria epidemics in Swaziland**. Cape Town : David Phillip.
- Packard, R. M. 1997. *Socio-economic Aspects of Malaria in Kheda District, Gujarat*. **Tropical Medicine International Health**, 2(8):760–770.
- Phinikahana, J. 1992. *Socio-cultural Factors Associated with Malaria Transmission*. **Indian Journal of Malariology**, 29(2):121–126.
- Polit, D. F. and Hungler, B. P. 1993. **Essentials of Nursing Research: Methods, Appraisal and Utilization. Third Edition**. Philadelphia : Lippincott.
- Polit, D. F. and Hungler, B. P. 1997. **Essentials of Nursing Research: Methods, Appraisal and Utilization. Fourth Edition**. Philadelphia : Lippincott.
- Quinn, F. M. 1988. **The Principles and Practice of Nurse Education. Second Edition**. London : Chapman and Hall.
- Rogers, M.E. 1986. **An Introduction to Nursing Theories**. Philadelphia: Davis.
- Sandelwoski, M. 1995. *Focus Qualitative Methods. Sample Size in Qualitative Research*. **Research in Nursing and Health**, 18:179–183.
- Saunders, M. 1993. **Health Promotion**. Newbury Park: Sage Publications. Inc.
- Service, M. 1993. **Malaria Control Strategies in Namibia**. Windhoek: John Meinert Printing.

- Sexton, J. D., and Ruebush T. K. 1990. **Permethrin – Impregnated Curtains and Bednets Prevent Malaria in Western Kenya. Second Edition.** Atlanta, Georgia : MacMillan Printers
- Shangula, K. 1996. **Malaria Control in the Republic of Namibia.** London : MacMillan Printers.
- Snow, R. and Marsh, K. 1995. *Perceptions of Symptoms of Severe Childhood Malaria among Residents of Coastal Kenya.* **Journal of Tropical Medicine and Hygiene, 27(2):235–244.**
- Sohier, R. 1988. *Multiple Triangulation Contemporary Nursing Research.* **Western Journal of Nursing Research, 10(6):732–742.**
- Spiegel, A. and Boonzaier, E. 1988. **Promoting tradition: Images of the South African past.** Cape Town : David Philip.
- Steinbeck, S. and Steinbeck, N. 1984. *Broadening the Research Perspective in Education.* **Exceptional children, (50):400–408.**
- Streubert, H. J. and Carpenter, D.R. 1995. **Qualitative Research in Nursing: Advancing the Humanistic Imperative.** Philadelphia : Lippincott Comp.
- Takken, J. 1991. *Environmental Measures for Malaria Control in Indonesia.* **Tropical Medicine and Hygiene, 79(8):435–442.**
- Tang, L., Manderson, L. 1995. *Social Aspects of Malaria in Heping, Hainan.* **Acta Tropic, 59(1):41–53.**
- The Namibian.** 1995. *Malaria Controversy.* 16/2/95:6. Windhoek : John Meinert Printing.

- The Namibian.** 1999. *Malaria Alert.* 12.4.99:2. Windhoek : John Meinert Printing.
- The Social Marketing Association: 1999. **Investigation on Knowledge Attitudes, Practices and Behaviours Towards Treated Mosquito Nets in the Kavango and Caprivi Regions of Namibia. A survey report.** London : MacMillan Printers.
- Thurstone, D. 1972. **Introduction to Psychology.** Chicago : University of Chicago Press.
- Treece, E. W., Treece, J. W. 1986. **Elements of Research and Nursing. Fourth Edition.** St. Louis : C. V. Mosby Company.
- Triandis, H. C. 1980. **Attitude and Attitude Change.** New York : Wiley.
- Uys, H. H. M. and Basson, A. A. 1991. **Research Methodology in Nursing.** Pretoria : HAUM Educational Publishers.
- Winch, P. J., Makemba, A. M., Makane, V. R., Mfaume, M. S., Lynch, M. C., Premji, Z., Minjas, J. N. and Shiff, C. J. 1997. *Social and Cultural Factors Affecting Rates of Regular Retreatment of Mosquito Nets in Tanzania.* **Tropical Medicine International Health, 2(8):230–239.**
- World Health Organization. 1986. **Health and Life Styles. Social Science Medicine, 22:117-124.** Geneva: World Health Organization Printers.
- World Health Organization. 1997. **Global Malaria Initiatives.** Geneva : World Health Organization Printers.
- Zuzi, L. 1989. *Trial of Delmethrin Impregnated Bednets for the Control of Malaria.* **American Journal of Tropical Medicine and Hygiene, 4(40):356–359.**

ANNEXURE A

**LETTER OF PERMISSION TO CONDUCT RESEARCH IN
OSHANA REGION**



REPUBLIC OF NAMIBIA

MINISTRY OF REGIONAL AND LOCAL GOVERNMENT AND HOUSING

TEL (065)220441/220363/220927
FAX (065) 221292

Oshana Regional Council
Private Bag 5543
OSHAKATI

OUR REF:

YOUR REF:

ENQUIRIES:

20 May 1999

PERMISSION FOR RESEARCH BEING OFFERED.

The holder of this note Ms. Hilka Tuyenikelao Udjombala is pursuing her Nursing studies with the University of Stellenbosch (RSA). To complete her study, one of the required assignment is to do research on community knowledge and practices of malaria. To obtain this information, she would need to visit some of the villages and do communications to the community people themselves.

This office therefore has no objection in offering her the permission to do this research during June and July months as this may also help to determine more effective strategies that can be employed to prevent malaria. This office is humbly requesting you to render assistance as may be deemed necessary during her study.

We trust in your cooperation.

Yours faithfully

A handwritten signature in black ink, appearing to be 'C. Kashuupulwa'.

.....
C. Kashuupulwa
Governor - Oshana

ANNEXURE B

RESPONDENTS' QUESTIONNAIRE

THE INTERVIEW SCHEDULE ON KNOWLEDGE, ATTITUDES AND LEVEL OF MALARIA PREVENTION IN THE OSHAKATI HEALTH DISTRICT COMMUNITY

1. The interview schedule is divided into 3 sections , section A, B, and C.
2. The researcher will ask all questions in each section.
3. The respondents will be asked to answer questions frankly and honestly.
4. Respondents will be given a copy of the question where more than 4 responses are listed.
5. The researcher will make the ticks against the chosen responses.
6. Opinions and comments of the respondents will be written in the spaces provided on the interview schedule.
7. Respondents will be assured that all information will be treated as confidential.

SECTION A: PERSONAL DETAILS

1. Age

20 to 29 years	1
30 to 39 years	2
40 to 49 years	3
50 years and older	4

2. Standard of education

Primary (Grade 1 - 7)	1
Secondary (Grade 8 - 12)	2
Tertiary (Diploma +)	3
None	4

3. Marital status

Single	1
Married	2
Widowed	3
Separated	4

4. Employment status

Employed	1
Unemployed	2

SECTION B: HOUSEHOLD DETAILS

5. How many people are living in this house?

	NUMBER
Children	
Adults	

6. How much is the total household income per month?

N\$ 50-00	1
N\$150-200	2
N\$ 300-500	3
N\$ 500 and above	4
None	5

SECTION C: DISEASE DETAILS

7. What are the major health problems in this area?

8. What do you think is the cause of Malaria?

	YES	NO
Eating of cold food	1	2
Mosquitos	1	2
Standing Water	1	2
Exposure to cold	1	2
Others specify	1	2

9. List the symptoms of Malaria

10. Which age groups get Malaria more often than others?

	YES	NO
Children	1	2
Young Adults	1	2
Middle aged	1	2
Elders	1	2

11. Did any family member have Malaria?

Yes	1
No	2

12. If "yes" to question 11, which symptoms did he/she present with on the 1st day?

13. Where did you take the sick person for treatment?

Hospital	1
Traditional healers	2
None	3
Others specify	4

14. Did you seek treatment the same day the person got ill?

Yes	1
No	2

15. If "no" to question 14, could you provide reasons?

16. Did you take the Malaria patient back for follow up treatment?

Yes	1
No	2

17. If "no" to question 16 can you indicate the reasons?

18. Did you treat him/her with any other medication besides the medication prescribed?

Yes	1
No	2

19. If "yes" to question 18 what type of medication did you treat him/her with?

20. Indicate where you got the medication from?

21. What are the traditional methods of treating Malaria?

22. How do you reduce the number of mosquitos in your environment?

23. Which prevention measure does this family take to prevent mosquitos bites?

24. Do all family members use a mosquito net?

Yes	1
No	2

25. If "no" to question 24, could you indicate the reason that prevented family members from using the mosquito net?

26. Would you say Malaria is contagious?

Yes	1
No	2
Don't Know	3

27. What are the traditional prevention methods of Malaria in this area?

28. How often is this house sprayed with DDT?

Once in a year	1
Once in two years	2
Never sprayed	3

29. If the answer to question 28 is 2 or 3, could you indicate reasons?

30. Do you think it is necessary for a pregnant woman to take anti -malaria drugs?

Yes	1
No	2

31. Give reasons for the answer provided in question 30.

32 Who is the main source of Malaria information in this area?

Church leaders	1
Women's groups	2
Health workers	3
Others Specify	4
Nobody	5

33. Please indicate the information given on Malaria?

ANNEXURE C

FOCUS GROUP INTERVIEWS

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INSTRUCTIONS

Everybody is expected to participate in the discussion.

Information obtained will be treated confidentially.

QUESTIONS

What are your views on causes of malaria?

What are the signs and symptoms of malaria?

Which prevention methods do people in this community use to prevent malaria?

Which traditional methods does this community use to treat malaria?