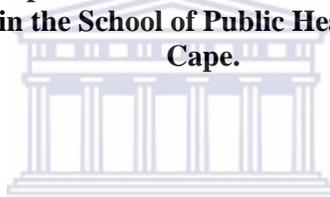


**A STUDY ON PRESUMPTIVE DIAGNOSIS AND HOME MANAGEMENT OF
CHILDHOOD MALARIA AMONG NOMADIC FULANI IN DEMSA, NIGERIA**

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**A mini-thesis submitted in partial fulfilment of the requirements for the degree of
Master of Public Health in the School of Public Health, University of the Western
Cape.**



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WESTERN CAPE

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ABSTRACT

A STUDY ON PRESUMPTIVE DIAGNOSIS AND HOME MANAGEMENT OF CHILDHOOD MALARIA AMONG NOMADIC FULANI IN DEMSA, NIGERIA

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MPH minithesis, School of Public Health, University of the Western Cape

Despite their high level of exposure, vulnerability and uniquely itinerant culture, the local knowledge of the nomadic Fulani population is not taken into account in the development of Nigeria's home management of malaria policy. Programme-relevant information for extending access to an ethnographic study of factors that nomads use for presumption of malaria in children was collected from dry-season campsites in Demsa Local Government Area of Northeastern Nigeria. Mothers of under-five children with previous experiences at presumptive malaria management from 9 randomly selected nomadic Fulani camps were interviewed. The obtained information was used to develop a guide for key informant interviews of nomadic Fulani cultural consultants and elders, health service providers and policymakers. Findings indicate that nomads presume malaria when a child has "hot body" or lack appetite. Nomads believe that fever accumulates in the body as one steps on wet grounds during the rains. The nascent disease is triggered by the consumption of fruits that resemble the colour of urine such as the light complexioned skin of the Fulani. Fever is therefore regarded as natural affliction of the Fulani for which there is no cure. All fevers are referred to as *paboje* and expected to go away on the third recrudescence. Fever that persists after the third recurrence is called *djonte* which is treated at home without health facility support. Besides physical accessibility, the unfriendliness and lack of respect of health personnel for nomadic Fulani culture were reasons for avoiding health facilities. These factors encourage home management of *djonte* with antimalaria on the presumption that they are all malaria-induced. The nomads are willing to participate in interventions that will improve management of fevers and malaria among them. Although this preliminary

study provides the foundation for appreciating the basis of home management of malaria among the nomads, complementary quantitative information will be required for holistic understanding of how these factors may interrelate to influence malaria intervention programme for the nomadic Fulani.



DECLARATION

I declare that **A STUDY ON PRESUMPTIVE DIAGNOSIS AND HOME MANAGEMENT OF CHILDHOOD MALARIA AMONG NOMADIC FULANI IN DEMSA, NIGERIA** is my work, that it has not been submitted for any degree or examination in any other university, and that all sources I have used or quoted have been indicated and acknowledged by complete references.

Oladele Akogun

Signed

September 2008



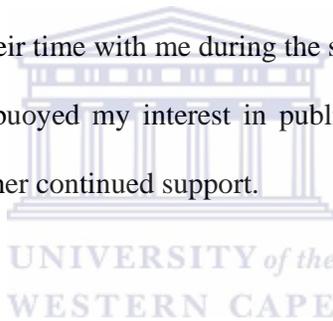
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Meg, my wife has always buoyed my interest in public health and incessant search for knowledge and I appreciate her continued support.



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KEYWORDS

ACT: Artemisin-based combination therapies

ARI: Acute respiratory infections

CDI: Community directed intervention

CHF: Common Heritage Foundation

FMoH: Federal Ministry of Health

HMM: Home management of malaria

ITN: Insecticide treated nets

LG: Local Government

LGA: Local Government Area

NGO: Non-government organization

PHC: Primary Health Care Department

RDT: Rapid diagnostic test kit for malaria parasite

U5: Under-five (less than five years old)

SP: Sulphadoxine-pyrimethanine



CHPATER 1: INTRODUCTION

Globally malaria is the most serious health problem in Africa with an estimated 90% of the burden in tropical Africa, (WHO, 2003). In Nigeria, for example one hundred million of the estimated population of about 120 million are at risk of malaria (Federal Ministry of Health Nigeria, 2005). Children that are under the age of 5 years (U5) are particularly susceptible to the disease. More than half of the adult population experience at least one malaria episode every year while U5 children suffer up to 4 episodes (Federal Ministry of Health Nigeria, 2005). Annual records indicate that three of every ten children and one in ten pregnant mothers die from malaria-related complications. About six in ten outpatient visits to health facilities are of course due to malaria (Federal Ministry of Health Nigeria, 2005). It is estimated that about one billion United States dollars is lost annually in direct treatment and man-hour costs to malaria (Federal Ministry of Health Nigeria, 2005). Many people, particularly mothers, are so well aware of the signs of fever associated with malaria that 80% of fevers are managed with chloroquine at the community level. Unfortunately, home management of malaria with chloroquine received a major setback due to high level of resistance to this popular first line antimalarial drug. Efficacy studies showed that selected Artemisin-based combination therapies (ACT) were more effective than either chloroquine or the sulphadoxine-pyrimethanine (SP) for the management of malaria ((Federal Ministry of Health Nigeria, 2005). As a result of the studies the national malaria policy and treatment guidelines were revised. The new policy endorsed a multidimensional approach to the control of malaria with a pledged Government subsidy of 80-100% on antimalarial drugs and free insecticide treated nets for U5 children and pregnant women. The policy also formally endorsed home and community management of fevers with the new anti malarial drug. Home management policy enables marginalised peoples such as the

nomads, with minimal or no access to health facility, to promptly administer antimalaria at the onset of fever, particularly in childhood, before seeking help.

However, unlike chloroquine which is familiar and cheap, the use of ACTs for antimalarial treatment at the community level is new, expensive, and lacked information on evidence-based delivery models. Presumption of malaria and subsequent treatment in every case of fever will obviously lead to gross overestimation of the true incidence of malaria, besides contributing to delay in the treatment of other febrile illnesses particularly acute respiratory infections (ARI) which share the same symptoms. Besides the cost due to unnecessary expenditure the presumption of malaria may result in excessive use of ACTs that may facilitate parasite resistance as is the case with chloroquine. It is unlikely that the current presumption that all fevers are malaria-induced will cease without intervention of the health system or that treatment of fevers with antimalarials will discontinue soon. A clear understanding of the factors responsible for HMM in every case of fever is critical before efforts can be directed at appropriate health promotion of evidence-based treatment of fever. At the moment there is very little understanding of the factors surrounding presumption of malaria in febrile illnesses, particularly in marginalized population groups such as the nomadic Fulani. Knowledge of factors that facilitate presumptive management of malaria among nomads will be useful in packaging health education that will promote the use of the more precise rapid diagnostic test kit for malaria (RDT).

CHPATER 2: LITERATURE REVIEW

2.1 Malaria Epidemiology and clinical features

Malaria is one of the leading causes of morbidity and death world wide, causing about 3,000 deaths per day, 90% of which take place in sub-Saharan Africa (Sahr, 2002; WHO, 2002). It is responsible for the enormous public health burden in Africa, including the death of about one million under-five children annually. This constitutes 18% of U5 deaths in sub Saharan Africa (Ologe, Mokuolu and Adedoyin, 2007; Walther and Walther, 2007). More than 3200million people are at risk of the disease worldwide. Since access to health care is poor in the rural areas where malaria transmission is most intense in Africa, and disease reporting even poorer, the burden of malaria is probably understated.

Malaria is caused by four species of protozoan parasites of the genus *Plasmodium* namely: *P. faciparum*, *P. malariae*, *P. ovale* and *P. vivax*. In Nigeria, however, 98% of malaria cases are due to *Plasmodium falciparum*, the most virulent species that is responsible for the severe forms of the disease (Attah, 2000). The parasite is transmitted from one person to another through the bite of an infected female anopheline mosquito such as *Anopheles gambiae s.l.*, *A. funestus*, *A. maculates*, *A. melas*, *A. punctulates* and many more.

The commonest clinical features of malaria infection are headache, vomiting, and fever, accompanied with high temperatures, jaundice and anaemia. The latter is due to the destruction of red blood cells by the parasite and subsequent enlargement of the spleen or splenomegaly. Other clinical features include muscular aches and weakness, cough and gastrointestinal disorders such as diarrhea (WHO, 2003). Although the clinical outcome varies with individuals, fever is almost always present in all patients (Path, 1990). Severe malaria occurs when anaemia and cerebral malaria occur. In children, cerebral malaria with characteristic convulsions, high fever, drowsiness, delirium and coma leading to death is an important phenomenon (Sowunmi, 1997).

In acute cases of malaria, the clinical symptoms particularly fever are usually sufficient for diagnosis. Fever (often simply referred to as “hot body”) is so well associated with malaria that in most communities in Africa, fever is synonymous with malaria. Fevers are therefore usually presumptively treated as malaria.

Unfortunately recent development of *P. falciparum* resistance to chloroquine and other commonly used antimalarials has continued to pose a threat to malaria control strategies (Maynadie, Peceno, Noriega, and Yarzabal, 1989). Chloroquine resistant *Plasmodium falciparum* spread worldwide since it was first reported in South East Asia and South America in the 1960s (Payne (1989). From South America, it has been reported as far west as Rangoon in Burma (Clyde, McCarthy, Deport *et al.* 1973). Countries like Brazil with low Chloroquine resistant *P. falciparum* in the 1960s now report up to 85 percent (Kremsner, Zofler, Feldmeir *et al.*, 1989). In Venezuela resistance has reached 50% (Maynadie, Peceno, Noriega, *et al.*, 1989) and well over 90 percent in Thailand and Vietnam (Peters, Ekong, Robinson, *et al.*, 1989). The earliest record of chloroquine resistant *Plasmodium falciparum* in Africa was in East Africa (Kean, 1979). Resistant strains of the parasite varied between 10 percent in Central Africa (Watkins, Otoo, Gillei, *et al.*, 1987), 90% in Southern Africa (Garcia-Vidal, Ngirabeya, Soldivila, *et al.*, 1989) and between 10 percent and 45 percent in Zambia (Lemnge and Inambo, 1988) . The hitherto safe area of West Africa has experienced a rapid decline and 10 to 25 percent failure rates are now reported in Nigeria (Daniel and Molta, 1989) and Benin (Chippaux, Massougbodji, Ollaro, *et al.* 1989). In Northern Nigeria where a large number of nomads abound, low susceptibility of malaria parasites to chloroquine has been reported (Molta, Daniel, Oguche *et al.*, 1993). Concerns have been expressed about the likelihood of chloroquine resistance spreading to Northeastern Nigeria (Tidi and Akogun, 2005).

Development of resistance has been attributed to the indiscriminate use of chloroquine for presumptive management of fevers irrespective of the cause. A more precise malaria diagnosis before prompt treatment of the disease will slow down the rate of development of resistance. Some of the several techniques that have been developed for definitive

diagnosis of malaria are parasitological method which depends on detection of parasite in blood smears and the rapid test technique, which is based on antigen detection in blood (Stow, Torrens and Walker, 1999; Bell, Go, Miguel *et al.*, 2001).

2.2 Global Burden of malaria

An estimated \$12 billion US dollars is lost annually from Africa's gross domestic product (GDP) to malaria, thus causing major constraints to economic development (WHO, 2004).

In parts of Africa with stable malaria transmission, up to 40% of public health expenditure is attributable to malaria, 20-50% of inpatient admissions and up to 50% of outpatient visits (Okenu, 1999) to hospital is due to malaria. The disease is responsible for the loss of work days of infected people and their caretakers. Experts believe that such immense expenditure has slowed down economic growths in Africa by an estimated 1.3% per year (Walther and Walther, 2007). Ironically, the overwhelming burden of malaria is borne by the rural population whose living conditions put them at higher risk and make them more susceptible to complications than others.

The potential productive years of life lost (PPYLL) from infant mortality and infected children all further contribute to poverty.

2.3 Burden of Malaria in Nigeria

The Federal Ministry of Health has consistently ranked malaria and other febrile illnesses among the three commonest causes of child death in Nigerian (Federal Ministry of Health, 2005). In Nigeria, morbidity and mortality due to malaria accounts for 25% of the 110 per 1000 live births infant mortality and 30% of the 184 per 1000 live births childhood mortality (Adoba, 2005). Recently, the Federal Ministry of Health instituted various programmes to reduce the burden of disease due to malaria using various approaches including the promotion of home management. The home management of malaria approach

encourages prompt treatment (within 24 hours of recognition) of all fevers with chloroquine and referral, should complications become noticed or the illness fails to subside. This is based on the presumption that all fevers are malaria-induced.

2.4 Management at Home based on Presumption of Malaria

All over Africa and particularly among underserved peoples, malaria and indeed all febrile illnesses are diagnosed in the home and managed within the resources of the community which are highly limited (Gome, Epino, Abaquin *et al.*, 1994). Studies in different parts of Africa have shown that an enhancement of the capacity of the care provider to manage febrile illnesses will significantly reduce mortality among under-5 (Marsh, Muteni, Haaland *et al.*, 1999; Kidane and Morrow, 2000; Kofoed, Lopez, Johansson, *et al.*, 2001). In Nigeria more than 80% of all childhood fevers are first treated at home with over-the-counter drugs purchased from small retail shops or drugs collected from neighbours when malaria is suspected (Salako, Brieger, Afolabi, *et al.*, 2001). Salako and his colleagues noted that only 11.3% of care givers use government clinics as first choice of treatment in Nigeria. The suboptimal appropriateness of these treatments in much of Africa have been implicated in the development of resistance to antimalaria in highly endemic areas (Akogun and John, 2005). The strategy is based on the assumption that a high proportion of fever episodes are due to malaria. Where accessibility to health care is poor, mothers treat their children at home for fever episodes (hot body) which is in most cases done inadequately (WHO,2004). According to Daniel and Okenu (1999), despite the problem of antimalarial drug resistance, the use of drugs remains the most effective option for malaria treatment.

Studies carried out all over Africa, from Brazaville (Talani, Samba and Moyon, 2002), Ethiopia (Ghebreyesus, Witten, Getachew, *et al.*, 1999) to Tanzania (Tarimo, Urassa and Msamanga, 1998), Ghana (Dunyo, Afari, Koram, *et al.*, 2000) and Nigeria (Feyisetan, Asa

and Ebigbola, 1997; Fawole and Onadeko, 2001) indicates that the outcome of malaria management within the home by lay people could be improved upon through training community members particularly child minders to treat every case of malaria promptly and to refer severe cases to the nearest health facility. Trained drug sellers are reported to be very eager to become better drug providers and better channels of information on the appropriate use of antimalarial drugs.

Home management remains a very attractive option for a number of reasons (Muteni, 2001). It is easy, less demanding on the health system and cheap. There are many reports of successes, for example, Ezali, Adome and Owor (2001) noted that training on the use of antimalarial drugs yielded valuable improvement in the service provided to clients including the appropriate use of antimalaria in the households.

With health care facility still far from those who are in the greatest need, home management will continue irrespective of the drug in use (Agyepong and Manderson, 1994). There is very little information on the circumstances and experiences that enhance presumption of malaria and subsequent treatment on the basis of presumptive treatment or the disease outcome.

2. 5 Perception of Illness, Care seeking behaviour and Alternative Treatment

Fawole and Onadeko (2001) noted that underutilization of health services and the disregard for several health and child care instructions in traditional and transitional societies occur when people's ideas and behavioural patterns conflict with the knowledge that is passed to them.

In Africa there are indications that although cultural patterns and the perceived cause of the illness have a very strong influence on the determinant of treatment-seeking behaviour, accessibility to health care remains the strongest influence on where people seek help when ill with malaria (WHO, 2005). According to WHO (2005), the determinants of treatment-

seeking behaviour are the distance to be travelled, the cost of care, care providers' attitudes, time spent at the facilities and the overall availability of the services and medicines.

In some parts of Africa malaria is perceived as an environmentally related disease caused by excessive contact with external heat which upsets the body fluid but do not relate it to the mosquito (Agyepong, 1992). The primary cause of fever was attributed to the heat of sun (in some of the tribes in Ghana) with limited understanding of the role of mosquitoes (Agyepong, 1994). Castillo-Riquelme, McIntyre and Barnes (2008) showed that in Mozambique and South Africa, knowledge and case management practices were poor. Only 46.8% knew how malaria was transmitted leading to widespread self-medication with modern drugs, in 70.5% cases of fevers. Case management is associated with local beliefs about cause and health seeking behaviour.

Munguti (1998) studying health seeking behaviour among Kenyans, observed that the cause of the disease was not related to the mosquito but to wild vegetables, water and milk. Most Nigerian tribes view malaria and febrile convulsion as completely separate conditions with the former caused by heat and sun and the later due to cold. Malaria is perceived as distinct from and less serious condition than convulsion which prompts an immediate treatment response often using dangerous herbal concoctions (Akogun and John, 2005). Salako et. al. (2001) noted that the Yoruba do not only distinguish between malaria and convulsion, they also “perceive different types of malaria itself, including cold, yellow and ordinary varieties” while the Igbo people classify malaria into “ordinary”, “coloured”, “wet”, “dry” and “shaking” types of malaria. Almost all cases are perceived as both spiritual and biological. Among the Bwatye, those who had previous child fatality consider the illness as spiritual and are more reluctant to seek help outside the community (Akogun and John, 2005). Severe and the mild forms of malaria are classified in order to determine at which stage a particular remedy would be required, including the decision to ignore the

illness and hope it will go away. Among the Bwatye, persistent illness was found to elicit home remedy using available drugs or herbs within the household. Help is sought from the wider community (or from the local healer) only when the home remedy fails.

More than 90% of Yoruba mothers in Nigeria prefer herbal potion for treating fevers before presenting the case to the clinic (Fawole and Onadeko, 2001). Lindblade, O'Neill, Mathanga *et al.* (2000) noted that factors that influence health facility utilisation include perceived severity of illness, household proximity to a health facility, and knowledge of malaria prevention methods.

2.6 Concerns about Home Management based on Presumption of malaria

Prompt and appropriate management of malaria episodes in children is being promoted in Africa as the most effective intervention strategy where accessibility to health facility is poor. Children who may likely die before reaching the hospitals are thus saved. The promotion of large-scale malaria case management on the basis of presumption of malaria in all cases of febrile illnesses encourages care availability at the most peripheral levels (Rolland, Checchi, Pinoges *et al.*, 2006). Caregivers contribute immensely to the development of resistance when presumption of malaria is based on incorrect knowledge since it leads to inappropriate treatment. Malaria shares symptoms with other fever-inducing diseases and the use of antimalaria in every symptoms of fever may lead to excessive use of antimalaria, and high cost of management at the home level. Unless guided these self-help practices contribute to the development of non-response to the drug over time.

In spite of these home management remains the most viable alternative available for malaria management among marginalised peoples and members of resource-poor settings that are far removed from the health system. Understanding the factors involved in making presumptions is crucial to developing home management promotional materials that will

guide the practice at the community level and reduce misuse to the barest minimum. Unfortunately community health education and information for home management of malaria on the basis of presumption are currently packaged without this understanding.

2.7 Presumptive Diagnosis among the Nomadic Fulani

Nomads in any country are greatly underserved especially in developing countries such as Nigeria where they constitute a high proportion of the population (about 10 million). Nomads in any country represent the extreme part of the adversely situated populations because of their special features, such as dispersion, low average population density, mobility, which collectively create specific problems regarding health, social services and education (Qureshi, Abdelgadir, Al-Amri, *et al*, 1996). The nomads live in small temporary camps on river valleys, completely isolated from other people, surrounded by forests where they are exposed to several vectors of diseases especially malaria. As in many countries Nigerian nomadic communities are virtually excluded from primary health services despite that fever has consistently been their most frequently cited health concern (Anosike, Nwoke, Onwuliri, *et al.*, 2004). The alienation of nomadic Fulani from the antimalaria campaign is worrisome and recent attempts to extend HMM to them using promotional materials developed on the basis of other tribes may not be useful to the nomadic Fulani population. It is well acknowledged that the health education that drives HMM is anchored on an understanding of the basis of presumption of malaria and its management. This exploratory operational study is carried out within State Malaria Control Programme with the goal of extending the benefits of HMM to the nomadic Fulani population. The immediate aim is to identify factors that are associated with HMM among the nomads using exploratory research techniques. The findings will be useful in developing appropriate promotional materials for improving the quality of HMM among nomadic Fulani.

CHAPTER 3: AIM AND OBJECTIVES OF THE STUDY

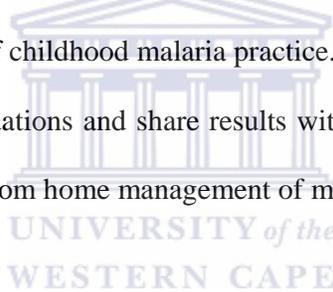
3.1 Aim

The broad aim of the study is to understand the process and identify the factors associated with presumptive diagnosis and home management of childhood malaria among nomadic Fulani in Demsa, Adamawa State of Nigeria during the immediate past malaria season.

3.2 Specific Objectives

The specific objectives of the proposed study are;

1. To describe the process of presumptive diagnosis and the treatment of childhood malaria at home.
2. To identify and describe the sociocultural and health system factors that may affect home management of childhood malaria practice.
3. To make recommendations and share results with stakeholders on improvement of the health outcome from home management of malaria among nomads.



CHAPTER 4: RESEARCH DESIGN AND METHODOLOGY

4.1 Study Design

The basic need of this study is to collate information that will lead to understanding the process by which nomadic Fulani recognize malaria presumptively and treat it while remaining outside the reach of the health system. The nomadic Fulani are a highly marginalized itinerant group about whom there is limited information regarding their attitude and practices regarding presumptive diagnosis of malaria. An exploratory cross-sectional study design will be used. Qualitative interviews, group discussions and conversations will be used to gather information on this basic topic among a largely illiterate and suspicious population such as the nomadic Fulani. There are no clinical trials or test of intervention strategies and so experimental designs were not used. Risk factors for presumption of malaria and subsequent treatment are not of interest in this research, therefore analytical approach were therefore not necessary to realise the objectives.

This descriptive study is an exploratory investigation to understand the characteristics of a problem that exists and identify its possible causes. Although quantitative studies have the advantage of generating conclusions that can be generalised the qualitative methods was more appropriately measure why and how questions and the overriding need of this study is directed at addressing “Why and How” of presumptive diagnosis and treatment. Qualitative techniques give more detailed and context-related information, permits collection of information on facts not possible with quantitative methods and allows the reliability of responses to questionnaires to be tested but observer bias may occur and the presence of the data collector may influence the situation observed while ethical issues concerning confidentiality and privacy apply. Interviews are also useful for illiterates and allow clarifications of questions as well yield a higher response rate than other methods. The group interview provides possibility to pursue issues that emerge from individual interview; it is a

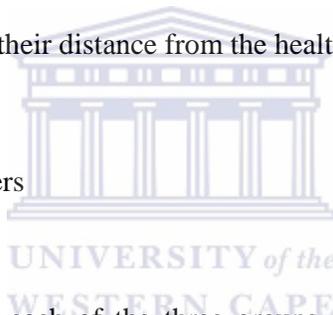
quick method of learning about different perspective on issues. The approach described by Coreil (1995) was adopted.

Since this study is highly preliminary, its findings will be useful for developing quantitative tools for a cross-sectional survey that will collect objective data from a large sample and from many camp settlements which can be compared for reliability of information and consistency of views that are expressed in the interviews.

4.2 Study Setting

The study was carried out in the Demsa Local Government Area of Nigeria where nomads camp during the dry season taking advantage of the perennial Benue river valley and the large-scale irrigation provided by the Savanna Sugar Farm. Camps in the LGA were divided into three groups according to their distance from the health facility:

- a) Less than 5 kilometers
- b) Between 5 and 10 kilometers
- c) More than 5 kilometers



One camp was selected from each of the three groups. Group interviews were held with women with under5 children and the results analysed. The results were then used to review interview guidelines. From each of the stratum, an interview was held with a local leader and the nearest health facility caregiver to the camp. The manager of the private health facility was also interviewed. The Coordinator of the Primary Health facility in the Local Government was also interviewed. The data were entered into the computer and analysed in Atlas-Ti.

4.3 Sampling Methods

Eighteen group interviews with mothers of under5 children and supplemented by key informant interviews. A multistage cluster sampling technique was used for data collection.

The camps in the Local Government Area were divided into three clusters on the basis of

their distance to the health facility (5km, 5-10km and more than 10km). An Assistant wrote the names of camps in one cluster on pieces of papers folded the papers and dropped them in a cardboard container before shaking the container to ensure good mix. Another Assistant then dipped the hand in the container and picked one of the folded pieces of paper. The camp name on the selected piece of paper was read out. The camp with the name on the paper was thus selected. The same process was repeated for the two other clusters until the three camps were thus randomly selected from each of the three clusters. In each of the three selected camps two group interviews (Fig. 2) was conducted with women of under-5 children with previous experience with malaria management at the home. Each group interview comprised of six women. Most camps have about twelve households. A count of the number of households in each camp was made. This ranged between 8 and 15. Beginning from the camp leader's household, a pencil was tossed to determine the direction of selection. Once the direction is selected, each household is visited and the criteria applied. Criteria for participation in the group interviews were mother of under-5 child, child had experienced at least one episode of malaria in the last month, child had received treatment at home and mother was willing and had given consent to share the experiences with the researcher and other members of the group. When the six women agreed the selection stopped. It is expected that only two group interviews would be held in each of the selected camps. However this remained flexible depending on the number of mothers in the camp.

The results of the discussion groups were then analyzed, reflected upon and used to refine the issues in the interview guide and for selecting appropriate key informant. Interviews were then conducted with Primary Healthcare Director of the Local Government representing the policy group, in-charge in the nearest health facility from each of the three

stratum, one private healthcare provider nearest to the camps and one camp leader from each of the three strata.

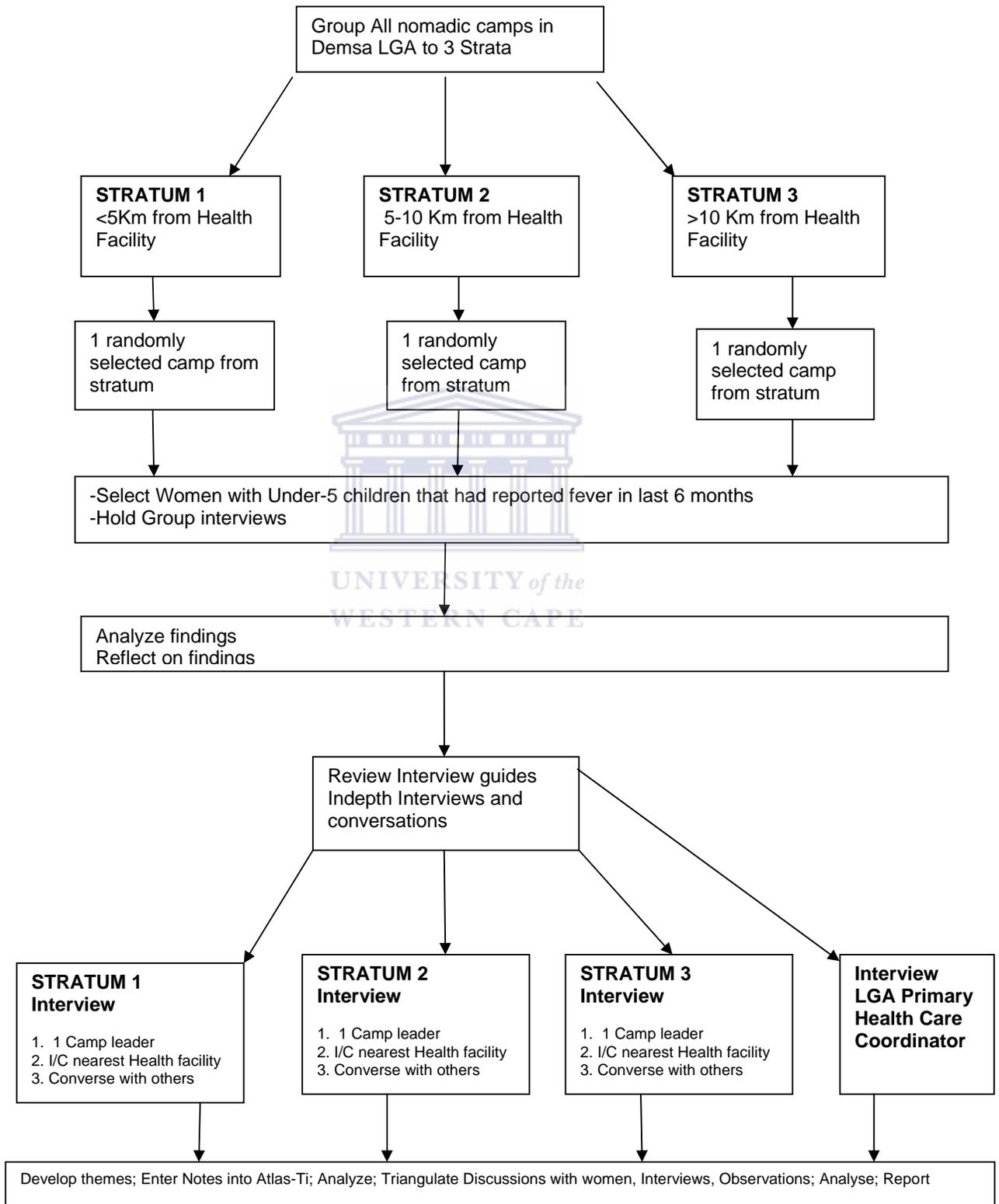


Figure 2. Study flow chart

4.4 Data Collection Methods

Indepth interviews with key respondents and observations of practices within the camps, the design gained in qualitative value by approaching the problem from different angles, at the same time. The primary targets were the group interviews with mothers and caregivers of under-five children. It was necessary to interview the Health staff and policymakers at the LG in order to understand the circumstances of the health service in relation to malaria management. Informal discussions were therefore necessary with local government policymakers and health personnel. A small scale study was required but with very rich quality of information. Focus group discussions were not used but group interviews described by Coreil (1995) were employed since it was difficult to organise a focus group among these shy and self-effacing women. While the focus group discussion would require careful selection of women with similar demographic profile and socio-economic status and the skill to stimulate spontaneous group discussion among them, the group interview does not require such skills. In a group the interviewer posed a question and invited each member of the group to provide an opinion on it. The primary methodology of data collection was group interviews of nomad mothers selected from the camps. The results were analysed and used for developing interview guides for holding conversation with key informants within the nomad community.

Objective 1: To describe the process of presumptive diagnosis and the treatment of childhood malaria at home.

Group Interviews. 18 group interviews with mothers of under-5 children in the nomadic camps was carried out. The views and experiences of nomadic mothers with respect to recognition of malaria in children, sequence of action taken on recognition of malaria in order to resolve the health problem was collated during the interaction using a discussion

guide (Appendix 1). The interviews collected information on specific issues about clinical signs, perceived severity, local classification of severity, basis of taking particular action, treatment seeking within the home, remedial measures and substances used for treatment, sources of supplies.

In-depth interviews. Key informants were interviewed on specific process of diagnosis and treatment within the nomadic community with cultural specialists (local healers, camp leaders) and compared with the general knowledge in order to check consistency and personal opinions.

Objective 2: To identify and describe the sociocultural and health system factors that may affect home management of childhood malaria practice.

Group interviews. Information was teased out from the group interviews on the social and cultural factors that influence home management choice and practice. Factors such as cultural (beliefs, attitudes, practices), physical and economic accessibility, and health system factors (quality of care, language, waiting period, drug availability, cost and payment negotiation process, consumer-provider mutual respect) was discussed at the group sessions and further explored during the key informant interviews.

Objective 3: To make recommendations and share results with stakeholders (providers, policymakers, non-governmental agencies, consumers, leaders) on improvement of the health outcome from home management of malaria among nomads.

In addition to observations and conversations with camp members, formal interviews were conducted, with nomadic women, nomadic men and health personnel. Three group discussions were carried out with the nomadic women. The responses of the nomadic men and women were similar irrespective of the location of the camps and their distances from the health facilities. Distance does not seem to influence the opinions and practices of the

nomadic Fulani that were interviewed with respect to presumption of malaria and home management.

Data were fed into the AtlasTi software and analysed. Contextual issues were identified. Policy makers, non-government agencies working with nomads, the media, private and public health care providers and camp leaders were invited to a stakeholders meeting. The results and recommendations from the study were shared with the stakeholders. The feedback received and discussed with stakeholders and recommendations, suggestions or agreements reached were incorporated into the report. Both in-depth interview and focus group discussions were conducted in Hausa language. Health department personnel were involved in the protocol design and in the data collection as well as analysis.

4.5 Data Analysis

All qualitative data were coded to fit into the format for entry into the computer as richtext format required for the desired processing software. A computer-assisted analysis of these data will be done using Atlas-Ti. Information collection method and individuals involved in data collection and the analysis approaches was then be triangulated. Data analysis was carried out as data collection progressed in order to follow up understanding gained with additional data collection in the same or other settings. Interviews were analyzed for their content and coding was used to define meanings that can be labelled and categorised. Direct quotes using the voices of the respondents were used to illustrate common viewpoints.

4.6 Strategies to Ensure Trustworthiness of Data

A pilot study was carried out among a group of nomads in one camp outside the study area to assess the appropriateness of tools, their sensitivity, the quality of training, and the comprehension of standard field procedures and instructions. The pilot study was also an opportunity for assessing the Research Assistants that were directly involved in interviews.

Pilot trials were integral to the training in order to detect areas that require further attention. The results from the pilot study were collated, analyzed and on the basis of which the tools and training quality was reviewed.

4.7 Ethics

The study was carried out with the Local Government Department of Primary Healthcare (PHC) as an integral part of the Department's activity using regular PHC staff. The study served as operational research component of the ongoing malaria campaign programme of the Damsa Local Government. The regulations of the Ministry of Health were followed. Informed consent was obtained from communities or individuals who would be interviewed using the standard informed consent form. The institutional review committee gave approval before the study commenced.

Permission to participate in the study was sought from camp leaders, then the camp members and mothers.

Confidentiality of opinions expressed was maintained and steps taken to assure this would be documented. Training of interviewers emphasised personal integrity, honesty and fair dealing with the participants in the research in order to gain their trust and be able to learn from them.

CHAPTER 5. RESULTS

The results are presented in six sections each section addressing particular variable in the objectives. The results address the presumption of malaria and subsequent treatment in the home. It also addresses nomad classification of malaria, decision-making process, treatment-seeking behaviour and factors influencing home management of childhood malaria.

5.1 Presumptive Diagnosis and Treatment of Childhood Malaria at Home

Nomadic Fulani refer to fever as *paboje* which they strictly believe is a Fulani illness that is distinct from malaria (Fulani: *djonte*). *Ciwonzoro*, (also referred to as fever or *zazzabi*) is regarded as a mosquito-borne disease which afflicts other ethnic groups but not the Fulani. Majority believe that mosquitoes are merely a nuisance and do not associate it with either malaria or *paboje*. This widely held view was explained by a local Fulani herbalist.

Djonte occurs seasonally, in the rainy season but does not affect the Fulani. Paboje is natural with all Fulani and not caused by anything. Once you are a Fulani, you have it in you.---Fulani Herbalist Participant 1

The nomads recognize malaria using various signs that are associated with fever. “Hotbody”, lack of appetite, nausea crying spells and insomnia are some of the signs used for recognizing malaria even though many other illnesses share similar symptoms. A group of women described the signs:

If a child’s body is hot and the child refuses to take food, or vomits frequently, crying and could not sleep that means he is sick of malaria. A child with paboje will “feel like staying in the sun”—Women group 3

According to a local healer and community leader *paboje* and *djonte* are accompanied with severe headache and “hotness of the body” and headache. Unlike *paboje*, *djonte* is recognized by the intense “pains” that accompany it, (which the Hausa call *zazabi*). It is rather difficult to distinguish between the signs nomads used for recognizing *paboje* and those used for recognizing malaria despite the insistence of the nomads that both *paboje* and *djonte* (malaria) are distinct.

5.2 Classification into degree of severity

The nomads classify fever on the basis of duration and the observed distress of the affected person.

There are two main types of malaria as far as the nomads are concerned, *paboje* and *djonte* one mild the latter severe and feared. Other fever-related illnesses are differently classified (Table 1).

We have two types of malaria the one causes the affected person to stool and vomit, the other causes to have headache and weak. Any sickness that is caused by mosquito bite is malaria. Some nomads call it paboje but paboje and malaria are different. Only Fulani suffer paboje while everyone else suffers from malaria.--- Traditional healer 2

Table 1. Classification of Malaria and other fever-associated illnesses

Symptom	Nomadic Fulani Classification	Action taken
Hotbody (high temperature) With Nausea, headache, pains in the joints, Cold chills (child shivers), lost appetite. PLUS symptoms recur every other day but DISAPPEARS finally on the 7th day.	<i>Paboje</i> (Fulani illness)	Nothing
Hotbody (high temperature) With Nausea, headache, pains in the joints, Cold chills (child shivers), lost appetite. PLUS symptoms persist after 7^h days.	Mild Malaria <i>Djonte</i> (or <i>Zazabi</i> in Hausa) Also called <i>Ciwonzoro</i> (mosquito-borne illness)	Home treatment
Unable to stand up but lies down all day, lost appetite	Wicked malaria <i>Kallude</i>	Health facility visit Traditional medicine
Convulsion	<i>Some other illness-</i> not malaria	Traditional medicine

i. Paboje the natural affliction of the Fulani

Paboje is depicted as mild fever since it comes and goes every other day and completely disappears on the third recurrence (approximately the 7th day from onset). It does not cause much harm but creates a great deal of discomfort to the afflicted. It is represented by high body temperature (hot body), loss of appetite, vomiting, and crying in children. *Paboje* is assumed to be a natural illness of the nomads that should be ignored. The fact that the fever appears every other day and finally disappears at the third recurrence is the major yardstick for distinguishing between *paboje* and other feverish illnesses. When the symptoms and

associated distress goes finally away at the third reappearance, it is referred to as *paboje* (the Fulani illness). Various groups of women and community leaders described *paboje* during interviews.

It is depicted by loss of appetite, vomiting, hot body with shiver spells. It is referred to as paboje. When the fever appears intermittently, then it is paboje. Whenever a child goes into incessant crying spells and won't eat or speak but mumbles. Or whenever an adult is unable to stand but weak and loses appetite completely then we assume it is paboje.

----Interview with Women Group 1

The illness comes up usually as the sun rises. It goes away when the sun goes down and on the second day one becomes well. On the third day it will come up again and so on until the day when it goes finally, then definitely it is paboje --- Camp community leader 2

Paboje is recognized as the normal illness of the Fulani nomads and it is not necessary to treat it. The Fulani will therefore observe fever signs for 7 days in order to rule out *paboje* which does not require treatment before taking the first step towards treatment-seeking.

ii. Djonte (or ordinary malaria)

According to the nomadic Fulani, the major difference is that the recurrence of *paboje* stops on the third reappearance but when neither the signs nor the distress abates on the 7th day the illness is classified as different from *paboje* and referred to as *djonte* (or mosquito-induced fever). The Fulani do not think it is a very serious illness at this stage and will patronize the medicine vendors and apply home remedies to what they refer to as “ordinary” or mild malaria. It should be noted that this moment the malaria may have been ongoing for about 10 days. *Djonte* is assumed to be more common in children than in adults.

iii. Kallude “Wicked” form of Fever

This form of fever is the more severe variant of *djonte* which only manifests after about 14 days of mimicking *paboje*. It is assumed to be more common in adults than in children. The major sign is inability to stand up due to exhaustion.

Some people have the bad type of djonte so it is very severe in their case. There is an old man in my camp that when he comes down with kallude you will think he will die

immediately. You will be scared to see the distress he goes through.---Camp member participant 5

The nomads assume this form of malaria is due to witchcraft and that it has the hands of the enemy in it. The nomads would not take this form of malaria to the hospital but rather seek spiritual healing or traditional medicine for it.

Some cases can be very severe, when the enemy takes hold of the ordinary paboje. It is dangerous to treat it in the hospital at that stage since this may lead to the death of the child. We know it is not malaria but a wicked person trying to use witchcraft to mimic malaria. You will hear people say this is kallude, the wicked fever.—Community leader 1

5.3 Perceived causes of malaria

The nomads believe that every Fulani has some *paboje* which remains nascent until it is triggered off by some actions or in the presence of some agents within the environment. Actions such as consuming fresh milk or perceiving the aroma of roasted maize at the onset of rain or the emergence of brightly coloured agents (red or yellow) such as maize flowers at the beginning of the rain season are factors that the nomads believe trigger the hitherto inactive *paboje* within to become active. These views about malaria were expressed mainly by the women and corroborated by the herbalists and the men.

I heard some people say the cause of paboje is mosquito but that is not true. I know that paboje comes on its own in the rainy season usually with harvest of fresh maize. You (pointing at the interviewer) know the cause of paboje better than us. You know it is caused by the aroma of fresh maize during the onset of the rain season
—Camp leader and an influential Clan Head

5.4 Decision-making Process and Treatment-seeking Behaviour

A number of factors influence decision-making and treatment-seeking behaviour in relation to malaria management. The most important factor is the home. Many of the women would only intervene against malaria illness when a series of culturally appropriate processes have been taken (Fig 3). The first step when a child is ill is to determine if the illness is fever or not. Once determined as fever, the mother will then ignore the illness as *paboje* which will go away on its own at the third recurrence.

However, the introduction of the community participation in malaria control by CHF and the attendant intensive awareness that has been raised, mothers now seek the permission of their husbands to treat it.

My husband has informed me that whenever any of the children is ill with fever I should go to the Ardo to collect the malaria drug and treat the child

.----A nomadic woman who had been recently informed by the husband Participant 4

i. Husbands make decisions about treatment and management.

The husbands make decisions on whether or not a sick child should be treated in the first place and the type of treatment a member of the household should receive. In this highly itinerant tribe the husband may be awaited for about three days before a decision can be made. When a man has reasons to leave the camp, he transfers authority over his household to his brother who may use his discretion in such matters as health. If the child's illness gets worse in the absence of the man, the husband's brother may be consulted to make the decision and take responsibilities. In cases of fever, the child is kept without any treatment for the first 7 days in order to exclude *paboje* before any form of treatment is sought. Even when home management is introduced, the permission of the husband is still required before the women or children could take advantage of the drugs as noted in many interviews.

My husband is the one to decide whether to see Ardo and collect drug for the child or not.

-- -A mother of under5 child Participant 8

*I tell my husband and he will go to the Ardo. Ardo will then give drugs if it is malaria, for three days. If the child remains ill after three days, I take him to health facility which is six kilometers. Our husbands take decision and we do their will---*Women group 3

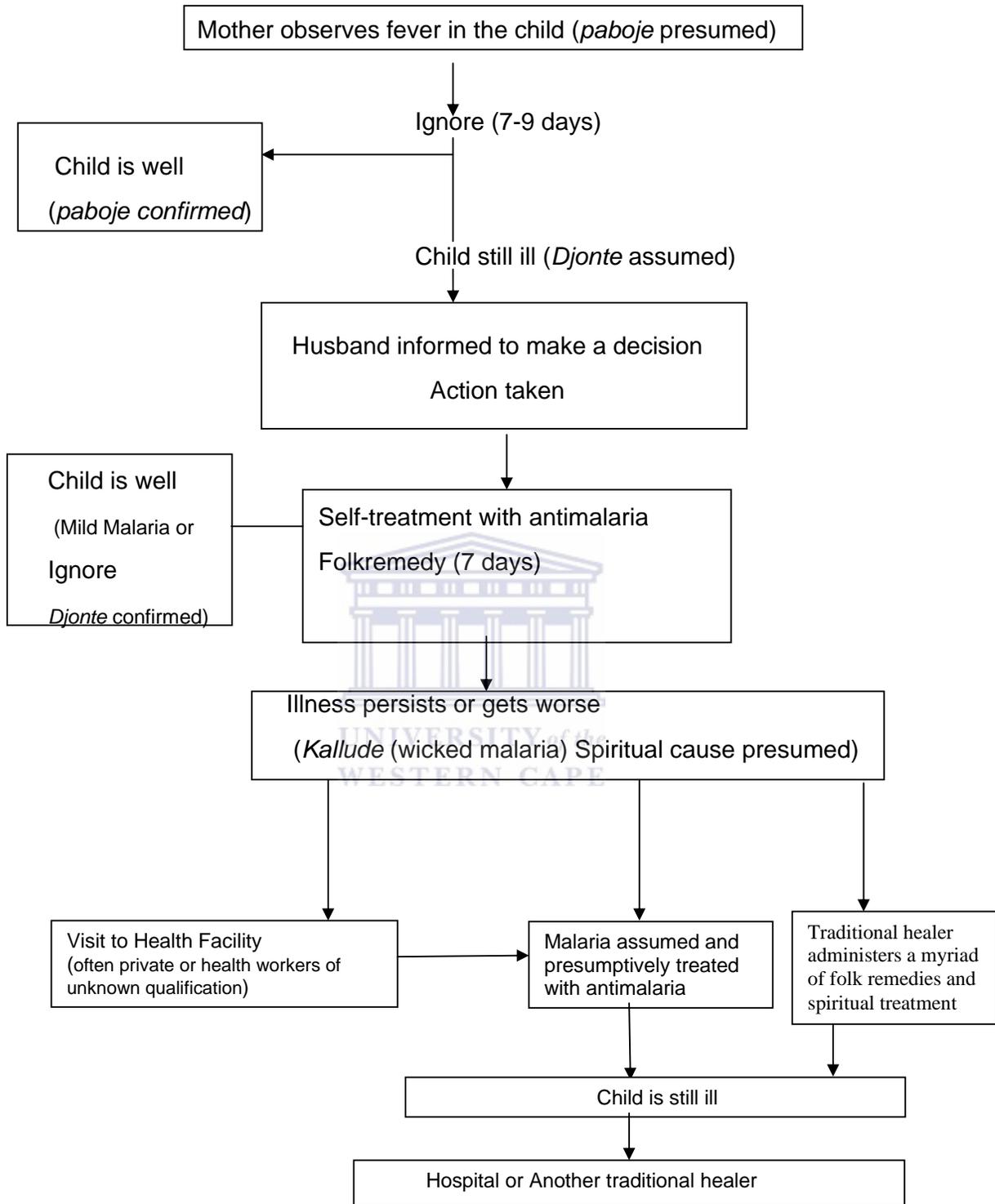


Figure 3. Home treatment pathway of febrile illness among nomads

Observations show that women use three major negotiating techniques for soliciting the husband's permission for particular type of treatment:

- a. By-stander input—the soliciting woman would seek the cooperation of another woman to be within earshot of the discussion and at the appropriate time make some favourable comment to the discussion on her behalf. The cooperating woman may be an inlaw, a second wife or a respected aunty. The aim is to sway the discussion in favour of the woman seeking particular permission or favour.
- b. Drawing similarity between the observed symptoms in the ill child with a known case with a pleasant outcome then narrating how the known case was resolved. The woman will describe the observed symptoms, explain how it was successfully resolved thus implying preference for that type of approach to resolving the case at hand.
- c. Drawing similarity between symptom and a known case with unpleasant consequence that must be avoided. The woman will narrate how a known case was ignored or a wrong decision taken with disastrous consequences and then soliciting that such situation could be avoided through considering her suggestion.

ii. Public Health Facility

Few women patronize the health facility when their children are ill. The reasons vary from being too busy or the unfriendliness of health personnel. Health personnel do not give the type of antidotes that nomads prefer. Health facilities have the habit of giving prescriptions for out of stock drugs after a long wait on the line to see the doctor or nurse. They also refer patients to other facilities without explaining the reasons or providing any temporary relief. Communication and lack of appreciation of the challenges nomads have reaching health facilities and the frustration they experience when referred to another facility after a long wait without explaining the reasons for such referral.

Most often we are too busy to go to the health facility. The health facility is a waste of time and they never have medicines. We now keep our drugs in the camp and do not need to travel a long distance. ---Women group 4

5.5 Treatment-seeking Preference

i. Home management of fevers.

On the third recurrence the fever may be given an attention and some remedy applied, such as chloroquine or drugs purchased from a itinerant health personnel. When the child remains ill for two months the child is taken to a traditional healer. If convulsion sets in, the traditional healer often ascribes it to the child been bewitched. Until recently the nomads had no access to the antimalaria drug for children which are freely given by the Federal Ministry of Health. An NGO, CHF has extended the service to them by training volunteers from each camp that is then given the antimalaria drug, CoArtem to be administered to children at the onset of fever.

My neighbours here in the camp too collect the drug for their children. When the child is very ill and starts convulsing most people suspect it is witchcraft and they seek traditional healing. The first thing I do is to take the child to Alhaji Gabdo. He is the one that keeps the drugs for the camp and treats every child that falls ill in the camp. Alhaji Gabdo will then give the drug to the child and ask you to come see him again the third day with the empty satchel. If he asks you some questions and he thinks he should not give the drug he will ask you to go immediately to the health facility.

---Mother of under5 child Participant 4

The nomads appreciate camp-based treatment of fevers. Mothers, that suspect fever in the child would approach the camp volunteer in charge of the drug and receive treatment within the camp. Some still believe that malaria (*paboje*) will go away on its own.

Most of our people now know the importance of Coartem. Your people brought it to us and we are happy for it. Some people always give their children the medicine (CoArtem) immediately. ---Participant No 9

The only drugs the nomads keep is CoArtem for malaria and others for animal health.

We don't usually keep drugs except the one the green doctors brought (CoArtem) but we keep drugs for our livestock. Most mothers now bring their children for drugs when they suspect malaria.

----- Women group 4

ii. Public Health facilities

It is not only the nomads that presume malaria at the onset of fever. Health facilities also use symptoms for diagnosis in the absence of laboratory support in health facilities.

We distinguish malaria from other fevers through the symptom. In malaria temperature goes very high sometimes and comes down for a while. We touch the body to feel it. Other common symptoms are vomiting. It is a pity that they will not bring their children until the child is about to die. That is our problem with them. This is a healing and life saving facility and not a mortuary.—Health personnel

The Local Government gives health Education and also makes Coartem available in the health facilities for malaria management but the nomads hardly patronize these facilities.

The facilities are unfriendly to the nomads, the procedures and processes are formal and a lot of paper work is involved. According to an official of the Local Government Primary

Health Department

These services are as much as possible, distributed evenly each ward has a health facility, a dispensary or health post are established in small villages. Yes they are accessible to everybody including the nomads.

---Primary Health Director

But wards are divisions of the LGA comprising of settled populations and nomads do not belong to them since they are transient citizens of the LGA. Accessibility is major problem for nomads since health facilities are situated in the cities and large settlements that are far removed from the routes that nomads follow. But the Local council insists that the facilities are evenly distributed.

We distribute everything to everybody we are not as bias as you are (laughs) because you are only concerned about the nomads-

--Local Government Supervisor for Health.

The health officials could not understand why nomads avoid the health facilities and prefer to patronize crooks.

I don't know why they avoid health centres. They don't like clinics may be because they feel shy of people or because they believe their traditional medicine is better. They are shy people. They are not educated so they don't know the importance of bringing their children early for treatment despite the fact that we always advise them about it.

---Health personnel No 3

Most nomads will only patronize public health facility when the illness is severe and other sources of treatment had been exhausted without relief or when the patient is at the point of dying.

In the absence of laboratory facilities in most of the health facilities, the health personnel use symptoms for the recognition of malaria. Only one of the three facilities that were observed had a laboratory facility for the diagnosis of malaria.

The only health facility here with a diagnostic laboratory is in MCA Demsa here so we use it to distinguish malaria from other febrile illnesses. Other health facilities use symptoms for determining if they should give treatment. But this is misleading since other ailments share the same symptoms and their prompt management may be delayed because they are initially assumed to be malaria. Another problem is that the cost of treating malaria when it is not malaria is high. When the money is spent the poor may not be willing to pursue the treatment of the real illness when it is eventually revealed by proper diagnostic tools.

---Health personnel in a Faith based Organization Participant 13

iii. Shops and Private health facilities

The shops are another source of drugs for the nomads. The shops hold an attraction to the nomads and they patronize them a great deal. Shops are fairly informal. At the shops the nomads are able to negotiate the amount of drugs to buy according to their financial capability or ask for alternatives. These options are not available in the public health facilities making the latter unattractive and insensitive.

Some of the nomads patronize private health facilities where they are able to negotiate the type of treatment they prefer and pay for it. The private health facilities have a more flexible procedure than the public ones.

5.6 Factors Influencing Home Management Of Childhood Malaria

Nomads continue to manage malaria at home and to avoid health facilities for several reasons.

i. Inaction, Delayed Action and Folk treatment

Most often and before the intervention by an NGO women would not treat malaria because they believe *paboje* does not deserve any treatment. Many still believe that *paboje* does not require any treatment since it is a natural affliction of the nomadic Fulani. Therefore they prefer to wait until they are sure it is not actually *paboje* before administering antimalaria.

However, with the provision of free CoArtem, many women now treat malaria since the drug is free of any cost. With the assistance of CHF the drug is made accessible within the camp and camp members are educated to promptly administer the antimalaria drug at the onset of *paboje* even if they assume that it is a natural affliction of the nomadic Fulani.

Men don't usually approve anything for paboje because they know it will go away on its own, except now that the green doctors (CHF) are giving us free drugs and insisting we should treat all the signs of paboje as dangerous. Mothers? They do nothing either. They take no actions. You heard what this woman said about her child. You heard her. She said she did nothing for the sick child in the first six days. On the 8th day the child was still ill
---Women group 2

ii. Sociocultural perspectives

The health system ignored and discriminated against the nomads. Sometimes the health personnel would bypass the nomads to attend to others, because the latter did not follow procedures such as obtaining registration card and standing in line. The lack of understanding of each other's culture causes friction between the nomads and health personnel. Health facilities require information during registration that nomads consider culturally inappropriate (names of the spouse, age, number of children, address) and which

in many cases the nomads are unable to provide leading to confusion, frustration or serious disappointments.

*The people in the health facility hardly attend to you. They know we are nomads we cannot read or write. Before now you hardly see our people go to the health facility because we assume that it is not made for us. We thought it was for the settled population and we find it difficult to mix up with them because of the difference in our cultures. So most of our people prefer traditional medicine or patronize local stores and itinerant vendors---*Camp leader No 12

An NGO, the Common Heritage Foundation (CHF) recently commenced a process of empowerment of the nomads to enable them benefit from the ongoing nationwide largescale campaign against malaria from which the nomads were largely excluded. The project officers from CHF (referred to as the green doctors by the nomads because they wear green vests), introduced a camp community-directed intervention strategy against malaria. The strategy involved encouraging each camp to select a volunteer camp leader (*Ardo*) who is then trained and kitted to manage malaria in the camp. The *Ardo* restocks the camp supply of antimalaria (CoArtem), insecticide treated nets (ITN) and ITN retreatment kits in designated areas that are convenient to the nomads along their normal routes. The nomads expressed immense gratitude to the NGO personnel and referred to them with glowing appreciation. The nomads cherish the rapport with the project officers and the awareness that it brought to them via radio and one-on-one information dissemination.

*We suffer a great deal during the rain when fever is very common. The drug CoArtem that the green doctors (CHF) gave us is very helpful to children and we thank them.---*Camp leader. *But for those green doctors we would have all died! They are doing us good and I wish they will keep coming to our camps and give us more information which we lack and drugs too. ---*Women group 2

The health facility waits for the community members to come to them but CHF works with the community to increase access to health service. They dislike modern medicine prefer traditional medicine. There is no special attention paid to the nomads by the health system.

The belief is that the nomads do not just like to come to the clinic. None of the health facility caregivers was able to give reasons for this.

We don't have any special plan for them now. Normally they don't like coming to the hospital until when the condition of their children is very bad. There is no special attention paid to them. They are treated like anybody else. The minorities like the nomads are welcome to use our services.--- Local Government Primary Health Care Personnel

iii. Cost

Cost is a major constraint to treatment seeking among nomads. The health facilities charge fees which nomads cannot negotiate. Nomads are used to negotiating cost, quantity and type of commodities they desire and cannot understand why health facilities should be so different.

It is unfair for the person prescribing the drug to sell it, determine the quantity required and also fix a non-negotiable price on it. It is unfair. ----Fulani camp leader no 5

When nomads try to draw attention to these practices they are treated with hostility or simply ignored leaving them confused.

If you are to take the child to the clinic you have to spend a lot of money. They tell you what to buy, they sell it to you and they tell you the price. You just do what they want you to do. No one listens to you or ask your opinion. It is so bad
---A 25-year old mother Participant No. 12

iv. Friendliness and Respect

The perception is that the nomads are uncivilized, ignorant and uneducated. They are treated with subhuman politeness which does not go unnoticed by these proud people.

The nurses do not like us because we are from the bush. Sometimes the health personnel may not even attend to you. Some health personnel may only attend to nomads when there are no other patients. While attending to us, they shout at us and treat us like dogs.

---- Mother of under5 child No 5

v. Exclusion from Routine health services

The nomads do not feel the health services are for them and perceive their use of public health facility services as intrusion into what belongs to other people. They feel that the

health system does not take their problems into consideration and in some cases actually actively discriminate against them. They are left in the waiting hall unattended while others (non-Nomads) are attended to. Sometimes they wait in the wrong place for a whole day before they are informed to go queue up on another line. Very few people speak their language or speak to them and they had to assume what is expected of them.

I once heard about medicine for worm over the radio. Why are we not benefiting from it up till now even though our children are not in school? –Fulani Camp leader No 2

vi. Women Participation in drug management solicited

Many of the women are keen to be involved in the organized home management of malaria. At the moment the men handle drugs on behalf of the camp members. Many of the women would like to be trained to provide services directly to the children. They complained that the men being distant from the children especially at the critical times of illness. They also argue that the women are the ones that give treatment to camp members and suggest that they also keep the drugs.

Please allow women to keep the drugs in the camp since they are the ones who actually have to treat the children and not the men---Women group 4

We want to suggest on behalf of all child minders that this drug be given to a woman to keep so that if the man travels the woman will give drugs to any child that falls ill. We are very grateful for your help to us---Women group 6

CHAPTER 6

DISCUSSION, CONCLUSION AND RECOMMENDATIONS

6.1 DISCUSSION

The relationship between malaria-induced fever (which the nomadic Fulani refer to as *paboje*) and environmental factors are not strange and probably explains the perceived cause of the disease and actions taken to resolve distress associated with it. The malaria season synchronizes with the onset of rains when mosquitoes breed in large numbers and malaria transmission is high. West African Fulani nomads are noted for associating the appearance of the red, pink and yellow coloured flowers, fruits and crops with *paboje* (Gordon, 2000) which they assume serve as “trigger” for a nascent “primary disease schema”. In an elaborate study of Fulani in Guinea, Gordon (2000) noted that Fulani believe that the disease entity for malaria accumulates over the years through the sole of the feet when in contact with wet soil or rain water. However, it remains nascent until triggered by the colours which resemble body fluids that are observed during disease episodes. Yellow maize, mangoes and roasted corn have colours that resemble eye discolouration and urine colours that accompany malaria hence the presumed association between the disease and those objects. As they are constantly mobile, the beliefs about the transmission of malaria is conveyed from one part of West Africa to the other hence the similarity in symbols irrespective of where the nomadic Fulani are found. Although the origin of this association between malaria-induced fever (or *paboje*) and brightly coloured flowers are not well known it is likely that due to years of observations of ecological changes and vegetation, the nomads have noted that fevers are more common during the early rains when corns and other crops are abundant and plants flower and have therefore associated malaria prevalence to their presence.

Besides the nomadic Fulani, other ethnic groups believe that some diseases and health problems are ethnic in origin. In The Gambia, it is generally believed that Fulani are

“carriers of malaria” illness (Aikens, 1993). Gambian Fulani hold the view that malaria is strictly a disease of light skinned Fulani and that the true Fulani has malaria in their genetic make-up waiting to be triggered into *paboje* which does not warrant treatment. The Fulani from Guinea share this belief about malaria which according to Gordon (2000: 319) is regarded as “Fulani disease *par excellence*” to which other tribes refer as “the Fulani thing”. It is not surprising that the nomadic Fulani in Nigeria refer to their fevers as “the Fulani disease”. The acceptance of fever as a natural affliction of the nomads explains the reluctance to seek treatment except it persists till the third recurrence or constitutes a major hindrance to performance of one’s duty. This unpleasant situation poses a major dilemma for control programmes. Delay in treatment associated with the nomadic Fulani belief is most likely to lead to complications and high child mortality while self-treatment on the basis of the belief is antecedent to the development of the much feared resistance.

The patronage of alternative health service particularly traditional healers when the disease gets worse is not surprising for a people with strong sense of shame self-respect and stoicism. It agrees with the findings of Gordon (2000) in Guinea that Fulani are likely to use plant-based medication rather than subject themselves to shame of being treated with disrespect at the health facility.

Although the location of the health facility is a major impediment to its utilisation other factors that are least addressed in many studies are the quality of services rendered. Lay people are unlikely to patronise health facility that uses presumptive diagnosis for administering treatment or trust illness management to health personnel that does not show respect to their customs. The nomads will recourse to home management so long as the prevailing conditions at the health facilities and discrimination by the health service subsist. Additional opportunity provided by the recent development of rapid diagnostic test kit for malaria management and its simplicity for rural health facilities in resource-limited

communities to incorporate them into routine practices. The operational effectiveness and the feasibility of deploying it to the community level and in remote health facilities are yet to be assessed.

Classification

The influence of local knowledge in malaria classification has been studied by Otusanya, Brieger, Titiloye et al. (2007). Unlike the Yoruba classification of malaria into *ako-iba* (male or severe) and female *abo-iba* (mild malaria) classification on the basis of disease duration is peculiar to the nomads and is a potential hindrance to control because of its influence on the commencement of treatment. Another major problem to home management of malaria is decision-making patterns among nomads. Only the father of the ill child or someone acting in that role could make a decision on treatment outside the home thus further creating delay.

It is not surprising that the “wicked form” of malaria is assumed to be spiritually induced. Many traditional societies do not view disease as progressive from mild to severe (or acute) but as single disease entities each with its distinct cause and management options (Brieger, Oke, Otusanya et.al., 1997). The nomads are not different. Among the Yoruba, severe malaria (*ako-iba*) is not treated the same way as convulsion (*giri*) even though the former is a milder form of the former and both are malaria illness deterioration.

Nomads will patronise traditional healers for malaria treatment. This provides an opportunity for involving traditional healers in the HMM campaign and empowering them to ensure prompt treatment of *paboje* and immediately referral of post-*paboje* episodes that are brought to them. Unfortunately there does not seem to be any referral linkage between the orthodox medical service scheme and the traditional one. Each operates as distinct system despite working under the general oversight of the Ministry of Health. It is difficult for the health authorities to follow up cases that go to traditional healers hence synergy and

partnership between orthodox and traditional health care systems is important in malaria management among nomads. Traditional healers remain an essential ally in the home management of malaria among nomads that the national government should not ignore. The need to explore the modality for incorporation of the traditional health system into the broad malaria campaign programme particularly to increase access of the nomads to malaria intervention is vital.

The nomads' acceptance to participate in community management using of malaria with the new antimalaria artemisin combination therapy (ACT) supports the opinion that when empowered, nomads are highly capable of effectively managing malaria at the camp as participants.

Omar and Omar (1999) noted that although nomads are willing to change their perception about diseases and their causes, their mentors for such a change must be trustworthy and helpful towards their course. The educators must also respect nomadic culture and leaders before an impact can be made. Communication with nomads is possible through their clan leaders who when assured of the same consideration as their settled community counterparts could convince them to use the health facilities. This corroborates findings from other studies that health personnel are not often very considerate about the nomadic ways of life and are therefore not often skilful in winning their confidence (Sheik-Mohammed and Veleam,1999). Health personnel orientation about the ways of life of the nomads and the strategy for extending health services to them is important for removing the current perception of nomads that the health service discriminates against them. Nomadic Fulani culture is built around *pulaaku*, which is code of behaviour requiring all Fulani to take suffering with stoic discipline, exercise self control over the body and emotions and have a sense of shame (Ver Eeke, 1987). A Fulani would therefore rather die of an ailment than be subjected to ridicule or shabby treatment. Gordon (2001:319) vividly

described through the words of a nomadic Fulani the degree of self control and discipline they could wield in situations that bring shame:

“ When a sick person thinks that by saying he is sick he will be humiliated, it is better to keep quiet..if he thinks the one who gives him medicine will then ridicule him, then it is better to hide ones illness...these are reasons we are obliged to guard our silence about problems of health to not be humiliated by our enemies.”

Nomadic ways of living is challenging and camp sites are dictated by needs of the animals hence their isolation from the settled population. Unfortunately this isolation alienates them from avenues for learning and understanding local rules, health rights and obligations. They depend on officials of government to inform them appropriately and become disillusioned when this is lacking hence they perceive that the health service meant for the settled people and not for them.

It is gratifying that the nomads in this study formed a committee that will meet regularly even if the composition continues to change as they move in and out of the study area. The committee plans to build a health post where trained health personnel of their choice will be responsible for their health. The establishment of a hotline for the nomads to maintain contact with the Local Government health office for information about the availability of antimalaria drugs and ITNs is another major improvement that could be scaled up. That the nomads are willing to contribute to malaria management within the camps is a desirable outcome that provides opportunity for planning an intervention that will involve them. Advocates of health intervention among nomads (Sheik-Mohammed and Velema, 1999) have emphasized participation of nomads in any health problem interventions involving them.

The willingness of the female nomads to take part in the commodity distribution and management of malaria at the community level may be surprising particularly coming from a conservative community population like the nomads. Yet it presents an opportunity for studying the role women could play in health care delivery among nomads.

It also underscores the concern that women have about their children and the influence the minimum education they received during the course of this study has on the nomadic community. Women can be trained to take on the responsibility for diagnosing malaria before treatment. Women could also be trained for health promotion in nomadic population camps. A control package must particularly address (within acceptable cultural norms), the delays in the treatment of malaria in the child. It is not necessary to insist that *paboje* is malaria if the people did not think it is. What the local people call the disease need not be the contention but what is done about it.

NGOs like the Common Heritage Foundation (CHF) will be most suitable to lead the dialogue between nomads and health care workers in the study area, particularly since it has won the admiration and trust of the nomads and the local health staff. Government should build on the relationship for changing the perception of health workers about nomads and vice versa.

The health system needs to take account of the nomads in allocating resources particularly antimalaria drugs and insecticide treated nets to health facilities since the exclusion of nomads is partly due to inadequacy of supply. Whenever supply does not meet the need of the local population, it is natural that perceived outsiders are last served.

Policy Implication

It is necessary to dialogue with the nomadic Fulani leaders before making plans for their health. Local populations are often opposed to nomads sharing resources meant for them particularly where supply is insufficient to meet local community requirements. Including the nomads' needs in resource allocation to local government health departments and supported programmes will likely guarantee that nomads have access to antimalaria commodities.

Until this becomes the norm, the home and the private health facilities and shops could be motivated to incorporate RDT kits for malaria detection. The potential advantages of RDT in complementing home management of Malaria should be tapped for the confirmatory treatment of malaria among nomads. Treatment of malaria based on presumptive clinical examination may lead to excessive use of the new antimalaria drugs, artemisinin based combination therapy (ACTs) (Pagnoni, Convellgo, Tiendrebeogo *et al.*, 1997), the consequence of which is unnecessary expenditure that will facilitate parasite resistance as is the case with chloroquine. It is unlikely that the current presumption that all fevers are malaria-induced will cease or that the use of antimalaria in the treatment of all fevers will abate. A more cautious approach will be to diagnose and treat only confirmed fevers involving malaria parasites and to halt the current presumption-based management approach (Rolland, Checchi, Pinoges, *et.al.* 2002)

Fortunately several simple-to-use and highly reliable malaria rapid diagnostic kits (RDT) are now available and approved for use by lay people. Besides being highly effective in distinguishing between malaria-induced and non-malaria induced fevers RDTs are comparatively cheap (Tidi and Akogun, 2005). The main concern is whether lay people at the community level such as the nomads can effectively use the RDT to confirm presumed malaria before initiating management.

6.2 Conclusion

The nomads are unlike many Nigerian tribes in their classification of fevers and their response to it. The presumption of malaria in every case of fever among the Fulani is based on the belief that infection is ethnic in origin that does not require intervention except it fails to disappear after a period. Unfortunately the duration-based diagnosis the nomads use leads to descent of the disease into the acute or severe form that is implicated in child mortality. The attendant treatment delay for about seven days is in direct conflict with the

programme message of “prompt and appropriate” malaria management “within 24 hours of recognising the signs”. Other factors that influence presumption are the inaccessibility of nomads to the health system. Health messages that are packaged without consideration for the uniqueness of the nomads is unlikely to make any meaning to them. Nomads do not consider health facilities that lack evidence-based diagnostic tools and that depend on presumptive treatment as dependable or worthy of patronage. Avoidance of health facilities and reliance on local beliefs as an alternative to treatment is maintained by the unfriendliness of the health personnel. Unless addressed, these factors will continue to pose major challenges to the ability of nomads to benefit from the activities of the national malaria control programme.

6.3 Recommendations

The challenge of building the trust between nomads and health system, addressing appropriate messages to change their current beliefs about malaria and encouraging “prompt management” of malaria “within 24 hours of recognition of fever” will require radical approach. Communication technology such as robots and digital messages that bypass the health personnel and posters can be produced to replace health personnel, increase access to health care through interactive communication techniques. Deployment of interactive robotic health assistants that incorporate RDT kits for evidence-based fever management and a dispensing unit containing antimalaria drugs will resolve current dilemma.

6.4 Limitations to the Study

A longer duration would allow a more detailed observation of how the nomadic way of life influence response to the malaria situation and collection of complementary quantitative data will enrich this study.

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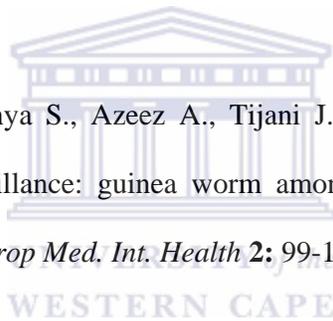
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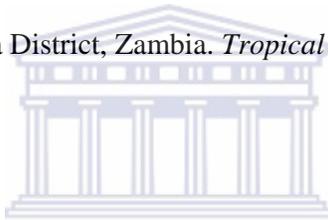
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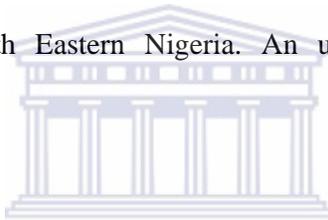
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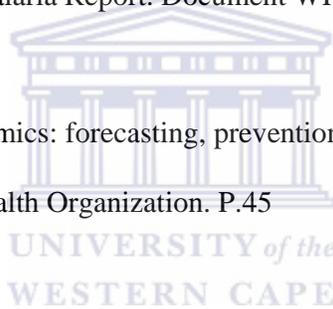
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APPENDIX 1. WORKPLAN

Duration: 18 Weeks

	JULY			AUGUST				SEPTEMBER				OCTOBER			NOVEMBER					
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Finalize proposal			■																	
Translate informed consent into Hausa				■																
Obtain approval					■															
Inform LG Health Department officials						■														
Train Research Assistants							■													
Pretest study instruments								■												
Collect data								■	■	■	■									
Analyse group interview data											■									
Reflect on group interview data and develop Key informant guide												■	■							
Collect key informant information													■	■						
Analyse data														■	■					
Feedback to stakeholders in the community, policy makers and health personnel															■	■				
Draft preliminary plan of action																■	■			
Meet policymakers, to discuss action plan for implementing recommendations																	■	■		
Followup recommendations																		■	■	
Submit minithesis																			■	■



APPENDIX 2

TOOL 1: GROUP INTERVIEW GUIDE

Ask for 6-8 women with children less than 5 years old. Interview as a group them using this guide

1. Is malaria common among children in this area? Probe for
 - a. When is a fever assumed to be caused by malaria?
 - b. Terms that are used for classifying malaria
 - c. Perceived severity, perceived distress, perceived cause
 - d. of malaria by severity

Process of presumptive diagnosis and the treatment of childhood malaria at home

2. What actions do mothers take when they suspect that their child has malaria
 - a. What is the first thing they do? Why do they act in this way?
 - b. What is the second thing they do when the first action fails? Why do they act in this way?
 - c. At what stage does a mother seek help outside the household? From neighbours? Health facilities? Providers?
 - d. Which type of help does she seek? Probe further for delay period in recognition of malaria and appropriate help
3. Why do mothers not use the health facilities when a child becomes ill with malaria?
Probe for
 - a. Who decides where and when to go when a child is ill?
 - b. How does money affect the place and time to take a child to health facility. What role does money play?
 - c. What is important in a health facility that will make the mother to use it?
4. What suggestions do you have for improving the management of childhood malaria in the camps?

APPENDIX 3

TOOL 2: INDEPTH INTERVIEW GUIDE

Interview purposefully selected local consultants: local healers, camp leaders one from each of the stratum and from a camp other than where women group discussions held

1. Is malaria common among children in this area? Probe for
 - a. When is a fever assumed to be caused by malaria?
 - b. Terms that are used for classifying malaria
 - c. Perceived severity, perceived distress, perceived cause
 - d. Classification of malaria by severity

Process of presumptive diagnosis and the treatment of childhood malaria at home

1. What actions do mothers take when they suspect that their child has malaria
 - a. What is the first thing they do? Why do they act in this way?
 - b. What is the second thing they do when the first action fails? Why do they act in this way?
 - c. At what stage does a mother seek help outside the household? From neighbours? Health facilities? Providers?
 - d. Which type of help does she seek? Probe further for delay period in recognition of malaria and appropriate help
2. When one is ill with malaria what does the person do and why? Probe for the sequence of action to get relief
 - First three days. If illness gets worse. At what point is help obtained from outside. Types of drugs kept by family when on the move.

Factors that may affect home management of childhood malaria practice

3. Factors which influence or hinder the use of health facilities by nomads in management of malaria in children. Probe for
 - a. Cultural factors: influence of parents, husbands,
 - b. Social and economic factors
 - c. Health system factors

APPENDIX 4

TOOL 3. INTERVIEW GUIDE WITH HEALTH PERSONNEL

Select the i/c of the nearest health facility to the camps where women group discussions were held, the Coordinator Primary Health care Department and one private health facility that serves the nomads

1. How common is malaria among children in this area? Probe for
 - a. Methods of distinguishing between malaria and other febrile illnesses
 - b. Perceived severity, perceived distress, perceived cause

Process of presumptive diagnosis and the treatment of childhood malaria at home

2. What actions are taken to resolve the health problem due to malaria in the Local Government/Health facility
 - a. Available services (diagnostic, preventive and curative measures)
 - b. How the services are distributed to the entire population
 - c. Accessibility of minorities, particularly nomads to the services
 - d. Any special attention being paid to the nomads
 - e. Conditions of nomad children at the time they are brought to the health facilities

Factors that may affect home management of childhood malaria practice

3. Factors which influence or hinder the use of health facilities by nomads for the management of malaria in children. Probe for
 - a. Cultural factors: influence of parents, husbands,
 - b. Social and economic factors
 - c. Health system factors

APPENDIX 5

INFORMED CONSENT RECORD OF INFORMED CONSENT TO CONDUCT AN INTERVIEW

Date:
Interviewer:
UWC Student no: 2520554
Tel: +2348037220460
E-mail: olaakogun@yahoo.com
Institution: SOPH, University of the Western Cape
Interviewee's pseudonym:
Place at which the interview was conducted: Demsa

Thank you for agreeing to allow me to interview you. What follows is an explanation of the purpose and process of this interview. You are asked to give your consent to me on tape when we meet to conduct the interview.

1. Information about the interviewer

I am Oladele Akogun, a student at the SOPH, University of the Western Cape. As part of my Masters in Public Health, I am required to conduct an interview on presumptive diagnosis and home management of malaria among nomads. I will be focusing on malaria among children below 5 years. I am accountable to Professor Mickey Chopra who is contactable at 021 9592872 or c/o SOPH Fax: 021 959 2872 or by e-mail at mickey.chopra@mrc.ac.za

Here is some information to explain the purpose and usage of my interview. This information can be exactly the same as in the Participant Information Sheet.

2. Purpose and contents of interview

The purpose of this study is to identify and understand factors that encourage and support presumptive diagnosis of malaria and its subsequent management within the home among nomadic Fulani populations in Nigeria. I am inviting you to participate in the research because I feel that your experience as a mother of children less than five years old and as a responsible citizen can contribute much to our understanding. Information that is received will be used for reviewing Demsa Local Government malaria control policy to ensure it reduces child mortality and morbidity associated with presumption-based malaria treatment.

3. The interview process

The study will include focus group discussions among mothers of under-five children who had had suffered episodes of fever in the past one month as well as individual interviews with key people within the camps and in the health facility. Discussions will be on the process of presumptive diagnosis and treatment of childhood malaria, reasons for presuming malaria when children suffer fever episodes. We will not ask you to share personal beliefs or any knowledge that you are not comfortable sharing. The discussion will take place in this village and no one else but the people who take part in the discussion a guide and myself will be present during this discussion. The entire discussion will be tape-recorded, but no-one will be identified by name on the tape. The tape will be kept with me. The information recorded is confidential, and no one else except will have access to the tapes. The tapes will be destroyed after 12 months.

4. Anonymity of contributors

At all times, I will keep the source of the information confidential and refer to you or your words by a pseudonym or invented name which I would like you to choose. See name above. I shall keep any other records of your participation locked away at all times, and destroy them after the data has been collected.

5. Things that may affect your willingness to participate

The interview may touch on issues which you find discomfoting although we do not mean to make you unacceptable. If there is anything that you would prefer not to discuss, please feel free to say so. I will not be offended and there will be no negative consequences if you would prefer not to answer a question.

6. Agreement

6.1 Interviewee's agreement

Do you accept to participate?

6.2 Interviewer's agreement

I shall keep the contents of the above research interview confidential in the sense that the pseudonym noted above will be used in all documents which refer to the interview. The contents will be used for the purposes referred to above, but may be used for published or unpublished research at a later stage without further consent. Any change from this agreement will be renegotiated with you.

Signed:

Date:

Place:

APPENDIX 6

INFORMED CONSENT FOR ILITERATES

RECORD OF INFORMED CONSENT TO CONDUCT AN INTERVIEW

Date: Interviewer: UWC Student no: 2520554 Tel: +2348037220460
E-mail: olaakogun@yahoo.com Institution: SOPH, University of the Western Cape
Interviewee's pseudonym:
Place at which the interview was conducted: Demsa

Thank you for agreeing to allow me to interview you. What follows is an explanation of the purpose and process of this interview. You are asked to give your consent to me on tape when we meet to conduct the interview.

1. Information about the interviewer

I am Oladele Akogun, a student at the SOPH, University of the Western Cape. As part of my Masters in Public Health, I am required to conduct an interview on presumptive diagnosis and home management of malaria among nomads. I will be focusing on malaria among children below 5 years. I am accountable to Professor Mickey Chopra who is contactable at 021 9592872 or c/o SOPH Fax: 021 959 2872 or by e-mail at mickey.chopra@mrc.ac.za

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5. Things that may affect your willingness to participate

The interview may touch on issues which you find discomforting although we do not mean to make you unacceptable. If there is anything that you would prefer not to discuss, please feel free to say so. I will not be offended and there will be no negative consequences if you would prefer not to answer a question. I would appreciate your guidance should I ask anything which you see as intrusive.

6. Agreement

6.1 Interviewee's agreement

Do you accept to participate?

6.2 Interviewer's agreement

I shall keep the contents of the above research interview confidential in the sense that the pseudonym noted above will be used in all documents which refer to the interview. The contents will be used for the purposes referred to above, but may be used for published or unpublished research at a later stage without further consent. Any change from this agreement will be renegotiated with you.

Signed:

Date:

Place:

ILLITERATES

I have read or witnessed the accurate reading of the consent form to the potential participant and the individual has had the opportunity to ask questions. I confirm that the individual has given consent freely

Interpreter/Witness' Name _____

Interpreter/Witness' Sign _____

Date _____ Date _____

A COPY OF THE INFORMED CONSENT FORM HAS BEEN PROVIDED TO THE PAR

Researcher Name _____ & sign _____ DATE _____

Participant' thumb print