Malaria Management in the Decentralized Health System of Mali
A case study of three rural communities in the Mopti Region

Sorayya Khan

Department of Geography
Royal Holloway
University of London

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Declaration

I confirm that the work presented in this thesis is my own. Where information has been derived from other sources, I confirm this has been acknowledged within the thesis.

Signed:

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Abstract

Renewed international calls for the fight against malaria have led to initiatives that have espoused community participation as a crucial strategy in its prevention and treatment. Concurrently, the introduction of decentralization within the neo-liberal paradigm has called for increased participation of communities in their own development planning. The considerable debate on the benefits of participation in development more broadly, and particularly in health has not led to a vast in-depth analysis into participation in malaria management. Through an examination of the existing institutional structures of participation within the framework of a decentralized health system in Mali, this detailed empirical study examines to what extent health decentralization and the discourse of participation has worked in rural Mali with a focus on malaria management. In an area of high malaria morbidity and mortality and inadequate health service provision, it investigates the constraints in accessing knowledge, prevention methods and treatment for malaria. Through a mixed-method approach, data was gathered with a survey of 300 households in three villages of the Mopti region, complemented by interviews, group discussions with diverse stakeholders at different levels. The study is a novel contribution to the literature on the influence of decentralization on malaria management. Decentralization in rural Mali is not clearly understood at the village level, reinforcing existing power relations of local governance and community health structures. Lack of financial resource transfer to the *commune,* the lowest level of administration, significantly inhibits effective health service delivery. Different understandings of the role of the CHW, low levels of recognition of the *relais communautaires* (community health workers) in the communities, and a strong hierarchical structure of established modes of governance and social relations affect access health care.

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Abbreviations and acronyms

ACT	Artemisinin-based Combination Therapy
ADBC	Agents de Distribution à Base Communautaire
AIDS	Acquired immuno-deficiency syndrome
ANICT	Agence Nationale d'Investissement des Collectivités Territoriales
ASACO	Association de Santé Communautaire
ASDAP	Association pour le développement et l'Aide aux population
BCR	Bureau Centrale du Recensement
BVG	Bureau du Vérificateur Générale du Mali
CCC	Centre de Conseil Communale
CHW	Community Health Worker
CMDT	Compagnie Malienne de Développement du Textiles
CNIECS	Centre National d'Information, d'Education et de Communication pour la Santé
CSLP	Cadre Stratégique de Lutte contre la Pauvreté
CPN	Consultation prénatale
CPS	Cellule de Planification et de Statistique
CROCEP	Comité Régional d'Orientation, de Coordination et d'Evaluation des Programmes sanitaires et sociaux.
CSCOM	Centre de Santé Communautaire
CSRCP	Cadre Stratégique pour la Croissance et la Réduction de la Pauvreté
CSREF	Centre de Santé de Reference
DED	Deutscher Entwicklungsdienst
DHS	Demographic and Health Survey
DDT	Dichlorodiphenyltrichloroethane
DRDSSPA	Direction Régionale de Développement Sociale, de la Solidarité et de Personnes Agées
DRS	Direction Régionale de la Santé
DRPSIAP	Direction Régionale de la Planification, de la Statistique et de l'Informatique, de l'Amènagement du Territoire et de la Population
EDSM	Enquête Démographique et de Santé du Mali
ENA	Ecole Nationale d'Administration
FCFA	Franc Communauté Financière Africaine
FELASCOM	Fédération Locale des Associations de Santé Communautaire
FENASCOM	Fédération Nationale des Associations de Santé Communautaire
FEMATH	Fédération Malienne de Tradithérapeutes
FERASCOM	Fédération Régionale des Associations de Santé Communautaire
GFATM	Global Fund for HIV, Tuberculosis and Malaria
GDP	Gross Domestic Product
GMAP	Global Malaria Action Plan
GMEP	Global Malaria Eradication Programme
GNP	Gross National Product
GOM	Government of Mali
GTZ	Deutsche Gessellschaft für Technische Zusammenarbeit GmbH
HCCT	Haut Conseil des Collectivités Territoriales
HDR	Human Development Report

HIV	Human immuno-deficiency virus
IFI	International Financial Institution
IMCI	Integrated Management of Childhood Illness
IMF	International Monetary Fund
INPS	Institut National de Prévoyance Sociale
IPTp	Intermittent Preventive Treatment for pregnant women
IRS	Indoor residual spraying
ITN	Insecticide-treated net
KAP	Knowledge, Attitudes and Practice
LLINs	Long-lasting insecticide nets
MATCL	Ministère d'Administration Territoriale et des Collectivités Locales
MDGs	Millennium Development Goals
MRTC	Malaria Research and Training Centre
MIM	Multilateral Initiative on Malaria
MOH	Ministry of Health
NGO	Non-governmental organization
ODHD	Observatoire du Développement Humain Durable et de la Lutte contre la Pauvreté
OOAS	Organisation Ouest Africaine de la Santé
OTC	Over the counter drugs
PALM	Participatory Analysis and Learning Methods
PCIME	Prise en charge integrée des maladies de l'enfant
PDDSS	Plan Décennal de Développement Sanitaire et Social
PDSC	Plan de Développement Sanitaire de Cercle
PFE	Pratiques familiale essentiels
PMA	Pacquet Minimum d'Activités
PLA	Participatory Learning and Action
PRA	Participatory Rural Appraisal
PRODESS	Programme de Développement Sanitaire et Social
PSPHR	Programme Santé Population et l'Hydraulique des Populations Rurales
RAOTAP	Reseau Ouest Africaine pour la Politique du Traitement du Paludisme
RAOPAG	Reseau Ouest Africaine pour la Prevention du Paludisme pendant la Grossesse
RBM	Roll Back Malaria
RGPH	Recensement Général de la Population et de l'Habitat
RPA	Rapid Participatory Appraisal
RRA	Rapid Rural Appraisal
SIAN	Sémaine integrée de l'alimentation et nutrition
SLIS	Système Locale d'information Sanitaire
SP	Sulfadoxine Pyrimethamine
SSA	Sub-Saharan Africa
UEMOA	Union Economique et Monetaire Ouest Africaine
UN	United Nations
UNDP	United Nations Development Fund
UNICEF	United Nations Children's Fund
WHO	World Health Organization

Glossary

Arkilla	Fulani term for bed-net
Bè jè fanga	Bamanan term for popular power
Bè ya	Bamanan term for negotiated power
Boubal	Fulani term for malaria
Dugu	Village
Fari-gouan	Bambanan term for fever
Foondu	An illness thought be caused by a bird, usually an owl
Gabi yee hou	Sonraï term for decentralization
Geynou	Dogon term for malaria
Haggitere-laame	Fulani term for decentralization
Hakkilo	Fulani term for self-discipline
Hawringol	Sensitization
Hendu	Wind
Immingel	Sensitization
Jamana	Region
Jèèmu fanga	Bamanan term for consensual power
Jonte	Fulani term for fever/malaria
Kafo	Canton
Keyfii	Fulani term for an illness which can lead to *jonte*
Kumo gire	Dogon term for decentralization, directing oneself
Lamamoragol	Fulani term for decentralization, self-governing
Lekki	Medicine trees
Mara segi so	Bamanan term for decentralization
Marabout	Religious, learned figure
Mi bante hore ameen	Fulani term for decentralization
Pakke pamaro golleej	Basic health care package in Fulani
Plateforme moltifonctionelle	Village development tool
Relais communautaire	Community Health Worker
Safereeji waaji biiji	Essential drugs in Fulani and Bambanan
Sanghe	Bamanan term for bed-net
Saniya	Bamanan term for cleanliness
Sembe warti soudou	Fulani term for decentralization
So-so	Bamanan term for mosquito
Soumaya	Bamanan term for fever
Yeii	Fulani term for malaria
Yere djow bno gno	Sonraï term for decentralization

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Chapter 1

Introduction

The end of development must be human well-being[1]

Introduction

The overarching aim of achieving human well-being has been voiced in recent years through the call to reduce poverty, in particular through the international Millennium Development Goals (MDGs), articulated at the United Nations General Assembly in 2000 and signed by 192 of the UN member states and 23 international organizations. Through a series of goals and targets the MDGs aim to address economic, social and health inequalities. The reduction of the burden of malaria, and other diseases, is articulated in Goal 6 of the MDGs through the reduction of morbidity and mortality by 2015. Within this framework, the control of malaria is increasingly recognized as playing a key role in poverty reduction in countries with high burdens of malaria (WHO, 2006). In resource-poor countries, an acute shortage of qualified health personnel and a poor public health infrastructure contribute to the numerous challenges of seeking improvements in health, well-being and quality of life. To address health inequalities, the WHO has pioneered global efforts to focus on the social determinants of health to reduce such inequalities and achieve social justice (CSDH, 2008).

This thesis is concerned with access to health care for malaria in three rural communities in Mali. It examines the intersections between decentralization, processes of participation and knowledge of malaria, its prevention and treatment. In particular, it examines how health sector reform, through a decentralized health system, has affected access to health care in relation to the prevention and treatment of malaria in these communities. In recent years, with the implementation of decentralization as a vehicle of health sector reform and the increasing call for participation in health service planning and delivery, diverse participation mechanisms have evolved to improve rural communities' access to health care. The focus is on malaria due to the high burden of malaria in the country, affecting socio-economic development, which will be elaborated upon in the course of this chapter.

[1] UNDP, 1990: 10.

My personal journey towards this research began long before embarking on my doctoral work. My Master's degree in Public Health at the University of Liverpool, in 1993/94, in which my dissertation was on health promotion through community participation, stimulated further interest in deepening the study of community participation in health that eventually brought me to Francophone West Africa.

The Burden of Malaria

> Where malaria prospers most, human societies have prospered least
>
> Sachs & Malaney, 2002: 680

Malaria is the most important parasitic infection[2] world-wide, accounting for more than 1 million deaths a year (Greenwood *et al.,* 2005). Malaria[3] is the leading public health concern in sub-Saharan Africa (SSA). An estimated 250 million cases of malaria led to nearly 1 million deaths in 2006, of which over 90% were in Africa and 85% were of children under 5 years of age (WHO, 2009). Fighting malaria requires significant financial and organizational resources, yet malaria itself restrains economic development, threatening a vicious circle. Malaria has been widely recognized as being both a cause of poverty and a disease of poverty (Sachs & Malaney, 2002; Worrall *et al.,* 2005; CPS/MS, 2007). Malaria-endemic countries "are not only poorer than non-malarial countries, but they also have low rates of economic growth" (Sachs & Malaney, 2002: 681).

A variety of reasons, including climate change and the spatial distribution of parasite and anopheles species, give an uneven distribution of malaria. SSA suffers the highest exposure rates, followed by parts of Asia and Latin America (McCarthy *et al.,* 1999) (see Map 1.1).

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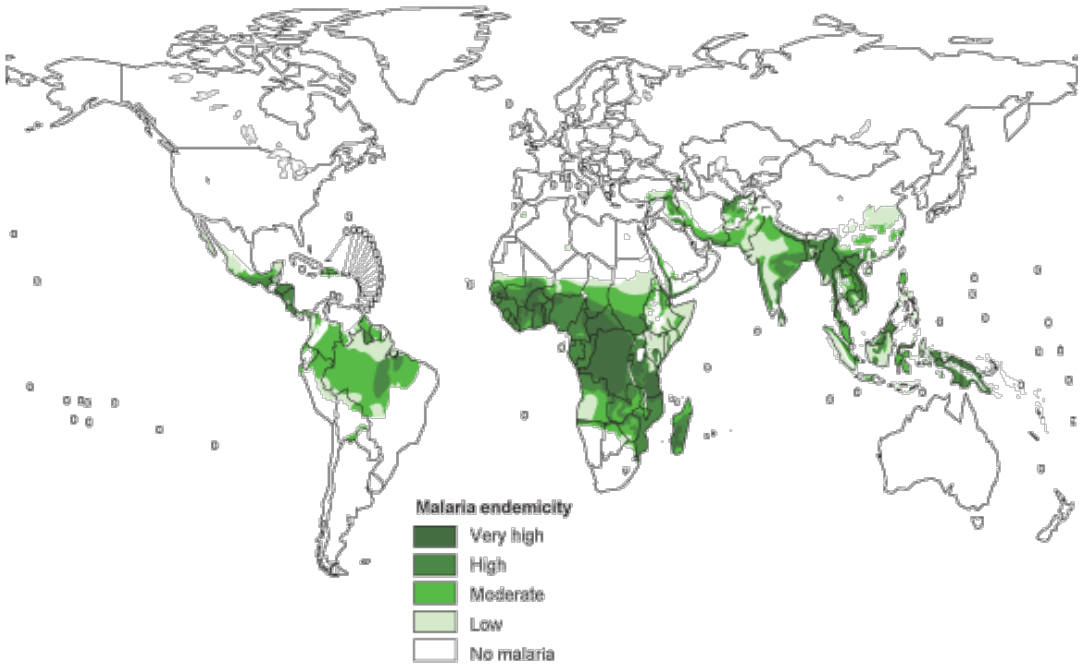
[2] Malaria is caused by protozoan parasites belonging to the genus plasmodium. There are four species of *plasmodium*, which cause malaria in humans: p. *falciparum*, p. *vivax*, p. *ovale* and p. *malariæ* (Knell, 1991; Dunn, 1993; Anderson *t al.,* 1996; WHO, 1997). P. *falciparum* (125 species of plasmodium are known, infecting both humans and animals) is responsible for the most severe disease and mortality and is the most prevalent in SSA. Malaria can be transmitted by several species of the female *anopheles* mosquitoes that differ in behaviour. This contributes to the varying epidemiological patters of the disease seen worldwide. There are about 400 species of *anopheles*, of which about 60 transmit malaria under natural conditions and only 30 are of major importance. Of these, *anopheles gambiae* complex and *anopheles funestus* are the most efficient vectors of *p. falciparum* transmission (Breman, 2001: 4).

[3] The WHO offers standard case definitions in Annex 5 of the World Malaria Report, 2005 (Roll Back Malaria, www.rbm.who.int/wmr2005/html/a5.htm accessed 13th July 2007.

Map 1.1: Global distribution of malaria transmission risk, 2003



Source: WHO, 2006

The burden of malaria falls disproportionately on poor and vulnerable individuals. The economic consequences have been widely studied internationally (Sinton, 1935; Winslow, 1951; Khan, 1966; Mills, 1983; Shepard *et al.,* 1991; Picard & Mills, 1992; Najera & Hempel, 1996; McCarthy *et al.,* 1999; Gallup & Sachs, 2001; Chima *et al.,* 2003; Fernando *et al.*, 2003; Hanson, 2004). Indeed, "minimizing the malaria burden not only saves lives, but keeps parents at work, children at school and helps societies achieve prosperity and security" (APPMG, 2010: 3).

Roll Back Malaria (RBM[4]) claims that malaria "has slowed economic growth in African countries by 1.3% per year, the compounded effects over 35 years of which are a gross domestic product level now of up to 32% lower than it would have been had malaria been eradicated from Africa in 1960" (RBM, 2003: 4). Malaria costs Africa about US $12 billion every year (Sachs & Malaney, 2002; RBM, 2003). Over the period 1965-1990 GNP has risen

[4] RBM is a partnership of countries with endemic malaria, UN agencies, bilateral development agencies, the research community, private sector, NGOs, foundations and the media (WHO, 2000). Its founding partners include the WHO, UNDP, UNICEF and the World Bank.

0.4% per year in countries with endemic malaria compared to an average growth of 2.3% in other countries (Sachs & Malaney, 2002).

Koram and Molyneux give us three distinctions of malaria:

1. Malaria in an individual is *an illness or disease* that is due to parasites of the genus *plasmodium* in the blood or tissues;
2. Malaria is a generic term often used for protozoa of the genus *plasmodium,* usually as part of the compound term 'malaria parasites'. *Malaria transmission* is a phrase utilizing this definition (malaria parasites are transmitted, malaria disease is not). The presence of parasites of any stage, in any part of the human body indicates the presence of malaria *infection*, which may or may not be causing the disease;
3. Malaria is a *public health problem* afflicting a community, and consisting of the combined effects of the infection on the population as a whole.

Koram & Molyneux, 2007: 1, emphasis in the original

It is the last distinction that is of central relevance to this thesis, which is looking at malaria control from a public health perspective, which has not been widely addressed within Mali.

Signs and symptoms of malaria

The symptoms of malaria do not vary significantly between the four infecting parasites (see footnote 2). The common symptoms of clinical human (uncomplicated) malaria are repeated chills, regular and repeated high fever (40-41°C), sweating, nausea, vomiting, anaemia, an enlarged spleen, abdominal pain, headache and lethargy (Gebreyesus *et al.,* 1996). The symptoms of severe malaria include, in addition to those of uncomplicated malaria: persistent vomiting, inability to eat and drink, walk, sit, or speak, difficulty with urination and breathing, yellow skin, eyes and urine, disturbed or impaired consciousness, mucosal bleeding, weakness and jaundice.

Prevention and treatment of malaria

In 2001 the WHO recommended the use of artemisinin-based combination therapies (ACTs[5]) as treatment of malaria "in response to the increasing burden of malaria caused by parasitic resistance to the conventional anti-malarial medicines" (Bosman & Mendis, 2007: 193). This policy was adopted in SSA in 2003 as a result of the vector resistance to conventional anti-malarials, such as chloroquine, sulphadoxine-pyrimethamine (SP) and amodiaquine (AQ), which were previously the first line of treatment (WHO, 2003). Through their respective National Malaria Control Programmes (NMCP), many countries in SSA include the provision and distribution of insecticide-treated nets (ITNs), indoor-residual spraying (IRS) and treatment by ACTs as their key malaria prevention strategies. While ACTs provide the highest cure rates (Adjuik *et al.,* 2004) and could reduce the spread of drug resistance (White & Olliaro, 1996), the new treatments are unaffordable for the majority. Thus the continued economic and social burden of malaria lends urgency to assisting local communities to voice their needs and participate in health planning in order to lead healthy and productive lives.

International focus on malaria

The striking correlation between malaria and poverty (Sachs & Malaney, 2002; Worrall *et al.*, 2005) has led to a reorientation of political commitment to fighting malaria as espoused in the MDGs. The renewed interest in malaria eradication has been articulated through the establishment of international initiatives, including the Multilateral Initiative for Malaria, Malaria Vaccine Initiative and the Malaria Consortium. The World Bank earmarks US$100-150 million in all regions for malaria control and RBM and UNICEF report that $1.8 billion was spent in 2009, a ten-fold jump since 2004 (Cheng, 2010).

[5] Artemisinin-based combination therapy was incorporated in the Malian National Malaria Control Programme Strategy in 2006. Artemisia is defined as any herbaceous, perennial plant of the *genus* Artemisia that includes wormwood, mugwort and sagebrush (The Cassell Paperback Dictionary, 1998:58, New Edition, Cassell, London). A Chinese herb (*pinyin*, *qīnghāo* or *artemisia annua*), used for more than 2,000 years to treat fevers for its active ingredient, artemisinin, and its chemical derivatives have been found to be highly efficacious as an anti-malarial treatment of adults and children (Bates & Herrington, 2007: 315). Combination therapy works using two or more drugs together with different mechanisms and sites of action, causing the fastest decline in parasite numbers of all the anti-malarial drugs (Bell & Winstanley, 2004: 32). Artemisinins include artesunate, dihydroartemisinin and artemether (Bell & Winstanley, 2004: 37).

This reorientation of political commitment has led to a more inclusive approach in the fight against malaria with a gradual shift from a biomedical approach to a more social science oriented one. This began after the largely failed efforts in the 1950s and 1960s of the Global Malaria Eradication Progamme (GMEP) that ran between 1955 and 1969 as a major strategy[6] to eradicate malaria. Following increased resistance to the insecticide dichlorodiphenyltrichloroethane (DDT), and perceived health and environmental risks, and due to its predominantly vertical[7] nature, GMEP largely failed[8] and disappeared from the international agenda (AAPMG, 2010). Crucially, SSA was excluded from the GMEP, as malaria eradication there "was hardly attempted" (Kager, 2002: 1042) due to fears of DDT's potential health and environmental effects. Furthermore, as countries in SSA gained independence from former colonial administrations, the challenging economic landscape within these countries and the collapse of public health spending left little political will to continue to invest in malaria eradication activities (Trigg & Kondrachine, 1998; Kager, 2002). However, it is suggested that a deeper reason for abandoning the campaign may have been geo-political (Sachs, 2002).

The 1980s saw an increasing call for a reorientation of malaria control strategies centring on the inclusion of voices of the affected, and social and behavioural contexts of communities affected by malaria (Oaks *et al.,* 1991; Agyepong, 1992; Packard & Brown, 1997; Heggenhougen *et al.,* 2003). To replace the GMEP, the Global Malaria Action Plan (GMAP) was launched in 2008 as a comprehensive consensus strategy on malaria, with SSA one of the main foci, and a roadmap for reaching key malaria targets[9] (APPMG, 2010), reflecting "global power relations…in the form of political and economic policies which structure health care" (Madge, 1998: 308).

[6] This comprised insecticide-spraying within and outside households and medication.
[7] Vertical and horizontal health programmes are two approaches in the implementation of health policies (Hutton, 2002) and are discussed more in detail in Chapter 2.
[8] With the exception of the USA, Italy, Venezuela, Greece, Guyana, Sri Lank (Kager, 2002).
[9] The GMAP targets include: achieving universal coverage of ITNs by 2010 and sustain coverage indefinitely; reducing global malaria cases from 2000 levels by 50% in 2010 and by 75% in 2015; reducing global malaria deaths from 2000 levels by 50% in 2010 and to near zero in 2015; eliminating malaria in at least 8 countries by 2015 and afterwards in all countries in the pre-elimination stage today and in the long-term, eradicating malaria world-wide through the progressive elimination in countries (APPMG, 2010: 28).

Despite the call for a reorientation of malaria control towards a more participative approach, there is still a wide discrepancy between policy and reality. Possibly the challenges of adopting participatory strategies or participation have not encouraged this approach at rural level. Such challenges can include the complex nature of participation itself, multiple definitions of participation, lack of agreement on the aims of participation and the unequal power relations within participatory mechanisms (Chapter 2). Overcoming these challenges may come from incremental steps involving better and more widespread use of the methods that have already proved to be effective, as well as the step-wise introduction of new treatments and partly effective control measures shown to be of benefit.

The study and analysis of knowledge, practices and attitudes of communities is increasingly acknowledged as important in improving the design of sustainable and successful malaria control interventions and establishing epidemiological and behavioural baselines incorporating community participation suited to local conditions (Lipowsky *et al.*, 1992; Service, 1993; Schultz *et al.,* 1994). In particular, the often wide divide between malaria knowledge and practice of prevention and treatment malaria can be addressed by employing the results of these studies in the decision-making process, the design of interventions and the implementation of educational strategies (Shultz *et al.,* 1994). Active participation of the communities, which is not added just as an after thought (Bradley, 1991) may result in more effective malaria control interventions. By analyzing the current situation in Mali, this research contributes to this gap in the wider body of knowledge on malaria management in a rural sub-Saharan context through an examination of community participation mechanisms that have followed from decentralization of the health system.

Acknowledging that malaria management is widely understood as treatment of malaria, and often referred to as home-based strategies for malaria treatment, in this thesis I refer to malaria management[10] as both prevention *and* treatment of malaria. In addition, I am considering malaria management as participation within prevention and treatment strategies rather than specific treatments *per se*.

[10] In this thesis, the terms malaria management and management of malaria are used interchangeably to reduce monotony.

Decentralized health care

Decentralization has been a feature of the neo-liberal paradigm for development for at least two decades. Largely driven by the ideals of efficiency and democracy, decentralization has become an intrinsic element of changing modes of governance around the world, particularly in the Global South[11]. Furniss defines decentralization as:

> relatively autonomous board; the development of regional economic inputs into national planning efforts; the transfer of administrative functions either downwards in the hierarchy, spatially or by problem; the establishment of legislative units of smaller size; or the transfer of responsibility to sub-national legislative bodies, the assumption of control by more people within economically productive enterprise, the hope for a better world to be achieved by more individual participation.
>
> Furniss, 1974: 973

Decentralization is considered to be a way of increasing responsiveness of government programmes and enhancing citizens' participation and community involvement (Conyers, 1983; Axline, 1986; Diarra, 2001). Decentralization is intimately intertwined with participation. Indeed there is an assumption that there is a symbiotic relationship between the two (Litvack & Seddon, 1999). The growing role of participation and its benefits both within wider theoretical discourse and development agendas, however, are not always matched by improvements in the health arena. It is conceivable that participation remains an ideological concept, where participation in planning and organization of health services remains an elusive ideal. While there are numerous studies in participation in malaria control (Rajagopalam & Panicker, 1984; Pribadi *et al.*, 1986; Sharma, 1987) these have lacked the wider policy context of decentralization.

Community participation has come to be seen as a way of rapidly improving the health services available for the majority of the world's people (Oakley, 1989). With recent health sector reforms in countries of the Global South, and the advent of decentralized health systems, however, much of the responsibility of health service provision is in fact placed with local communities with the purported aims of increasing local level planning and

[11] Global South is the preferred term used in this thesis to refer to countries in Latin America, the Caribbean, Middle East, North and sub-Saharan Africa, South and South-East Asia and the Pacific. It rejects the notions of 'First' and 'Third' Worlds and 'developing countries' the implication being that all 'under-developed' countries aim to be like 'developed' nations, whatever that means. For a more extensive discussion on these terms see Harris, 1986/7; Wolfe-Philips, 1987; Norwine & Gonzalez, 1988; Friedmann, 1992; Hettne, 1995; Mercer, 1999; Third World Quarterly (2004) Special Issue: *After the Third World?* 25 (1).

delivery (see Chapter 4). Community involvement in health development is a "process by which partnership is established between the government and local communities in the planning, implementation and utilization of health activities in order to benefit from increased local self-reliance and social control over the infrastructure and technology of primary health care" (Oakley, 1989: 13). Such partnership development is advocated by Rifkin and Pridmore (2001) whereby different stakeholders can forge collaborations through participatory approaches.

Structural dimensions in decentralized health care

Pivotal in reducing health inequalities is improving access to health care. Access to prevention and treatment of malaria is dependent upon diverse structural determinants of health existing at the rural level. Within the decentralized health context, these structural factors are invariably linked with the heterogeneity of rural communities, an element that is not always recognized or taken into account when planning health services. The study thus considers this heterogeneity through the spatial and socio-economic factors of the research lcoations. As such, the analysis is guided by examining different dimensions of health care access. Specifically, the influences of location, gender and socio-economic status (SES) are the main considerations within the ambit of decentralization and participation in health care. These factors together form the basis of the analysis which can assist us in addressing the constraints and opportunities that affect on health-care seeking behaviours. Each of these factors is now examined in turn, and will be the focus of more in-depth discussion in Chapter 2.

Gender

A key social determinant contributing to health inequalities is gender. As Standing (1997: 1) clearly states, gender is "a significant marker of social and economic vulnerability which is manifest in inequalities of health care and in women's and men's different positioning as users and producers of health care". The incorporation of gender provides a more holistic approach to disease control, and challenges existing policy paradigms which may include a gender perspective but do not adequately address existing power relations (Tolhurst *et al.*, 2008). Health care seeking behaviour in many countries in SSA can be a complex process influenced by cultural beliefs, socio-economic and other structural factors (Dzator & Asafu-

Adjaye, 2004). As gender attitudes and roles are important determinants of health seeking behaviours (O'Donnell, 2007), gender influences on malaria management are examined in my study. Thus the inclusion of gender in all aspects of health planning and health service provision, also known as gender mainstreaming (Theobald *et al.*, 2004), is increasingly being recognized as an important policy dimension in addressing health inequalities (Rathgeber & Vlassoff, 1993, Vlassoff & García-Moreno, 2002; Heggenhougen *et al.*, 2003).

Poverty

Socio-economic status (SES) is a second key determinant influencing access to health care (Worrall *et al.*, 2003). There have been increasing calls for better analysis of the factors affecting equity of access and treatment to illnesses such as malaria (Barat *et al.*, 2004). Studies suggest that the poorest households' health behaviour is influenced by the low level of education of the mothers, weak geographical access to health services and the lack of information and awareness about positive health behaviours (Konaté *et al.,* 2003; Worrall *et al.*, 2003; ODHD, 2006). This study, therefore, examines how access to prevention and treatment of malaria as well as knowledge of malaria is affected by SES. It also provides an analysis of how these differences in SES (poverty) affect knowledge of malaria. In particular, it examines what sources of information exist for malaria among the different groups in the study. A detailed explanation of how the sample population in this study is classified in different poverty groups follows in Chapter 3.

Location

This study examines how the different locations influence knowledge, prevention and treatment of malaria. Place effects on health, distance to district capitals and hence to health centres, where these are located and social networks enabling information exchange are important factors affecting access to health care. More details of the research locations follow in the next section, as well as in Chapter 3.

Research context: Mali

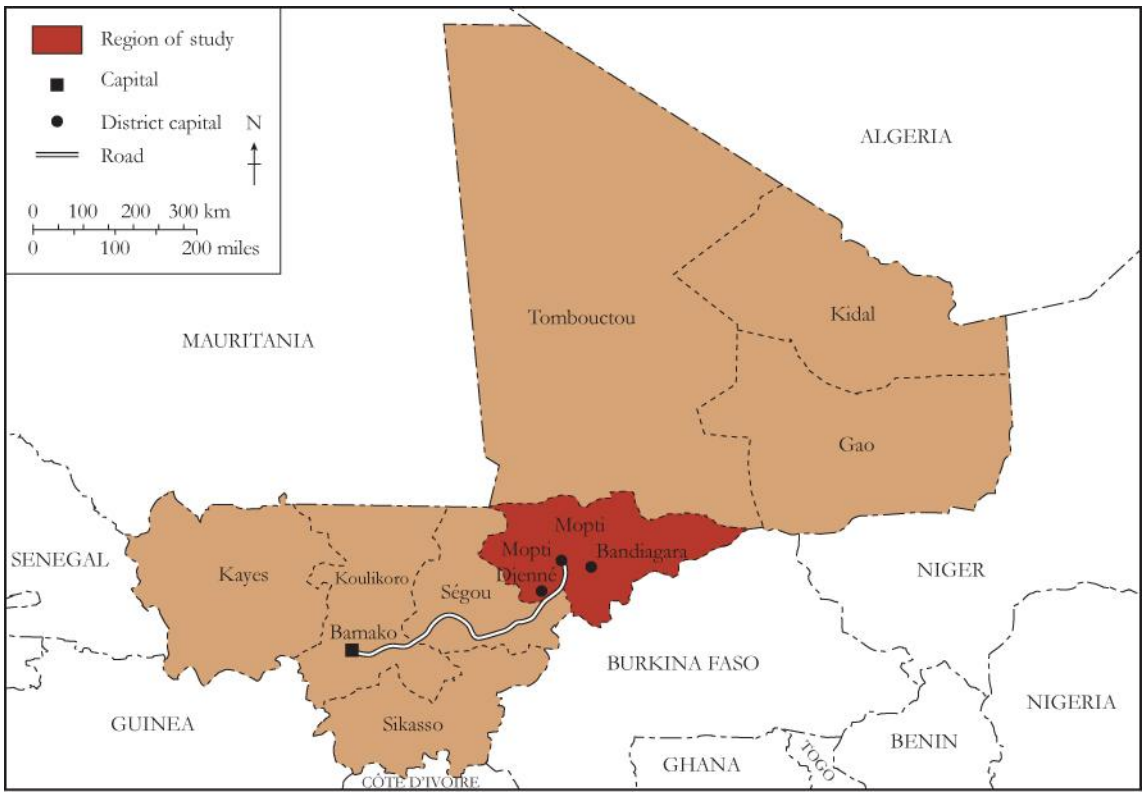
Mali was selected for its high incidence of malaria and poverty indicators, described later in this section. The Mopti region, the focus of the study, is an endemic area for malaria, where

it is the leading cause of out-patient consultation of health services, primary cause of death for under-fives (Région de Mopti, 2008). These indicators, together with the context of decentralized health services, were the prime motivators for carrying out research in a country and region where malaria is the primary cause of mortality and morbidity. My research was concentrated in 3 rural villages in the region of Mopti (Chapter 3), known to be one of the poorest within Mali (see Table 3.2, Chapter 3).

Mali lies landlocked in West Africa, enclosed by seven countries (Map 1.2). With a population of 14,517,176 (RGPH, 2008) and a population growth rate of 2.7%, it ranks 160 out of 169 in the Human Development Report (HDR) rankings of the Human Development Index (HDI) (UNDP 2010). Primarily an agrarian economy and society, the rural population is 73% (CPS/MS, 2007). Cotton is the largest export, followed by rice and cereal crops (millet, corn), vegetables and tobacco. The 50% devaluation of the currency, the FCFA[12], in 1994, following the structural readjustment policies of the International Monetary Fund (IMF) stimulated exports, particularly of cotton and pushed up economic growth to a 5% average over 1996-2007/8[13]. Gross domestic product per capita is US$ 1,083. GDP was US$ 6.9 billion in 2007. The poorest 10% have a 2.7% share of total income or expenditure, with the richest 10% having an income or expenditure of 30.5%. Public expenditure in health was US$ 34.5 per capita in 2006, with total government expenditure in health 12.2% of the total budget in 2006. Aid allocation to social sector as % of total aid was 39.6% in 2007 (UNDP, 2009).

[12] Franc Communauté Financière Africain
[13] See: www.theodora.com/wfbcurrent/mali/mali_economy.html accessed 18th June 2010.

Map 1.2: Map of Mali[14]



Mali is a beneficiary of the Highly Indebted Poor Country (HIPC) and the Multilateral Debt Annulment Initiative (MDAI). Mali qualified for debt cancellation in 1999 and was granted debt relief of about US$ 540 million in 2005 (or 75,000,000,000 FCFA[15] over the period 2000-2004 (ODHD, 2005), to be invested primarily in education and health (Bertelsmann Stiftung, 2009). However, of the total debt cancellation budget, only 15% was allocated to health and population. Mali receives both bilateral development assistance from several countries and multilateral development assistance in health and social development in the form of technical and financial assistance (République du Mali, 2007b).

Mali, renowned for its music and culture, is a multi-ethnic country, with a diversity of languages and cultures of the Mandé (Bambara, Malinke and Soninke) comprising 50%, Peul (or Fulani) comprising 17%, Voltaic 12%, Songhaï (6%) and Tuareg and Moor (10%)[16].

[14] Map derived from UN Map 4231, 2004.
[15] The exchange rate was £1=FCFA 900 in 2006 and FCFA 700 in 2007. Subsequent to the financial crisis of 2008, this fell to £1= 600 FCFA in 2009.
[16] See http://www.theodora.com/wfcurrent/mali/mali_people.html accessed 14th April 2010.

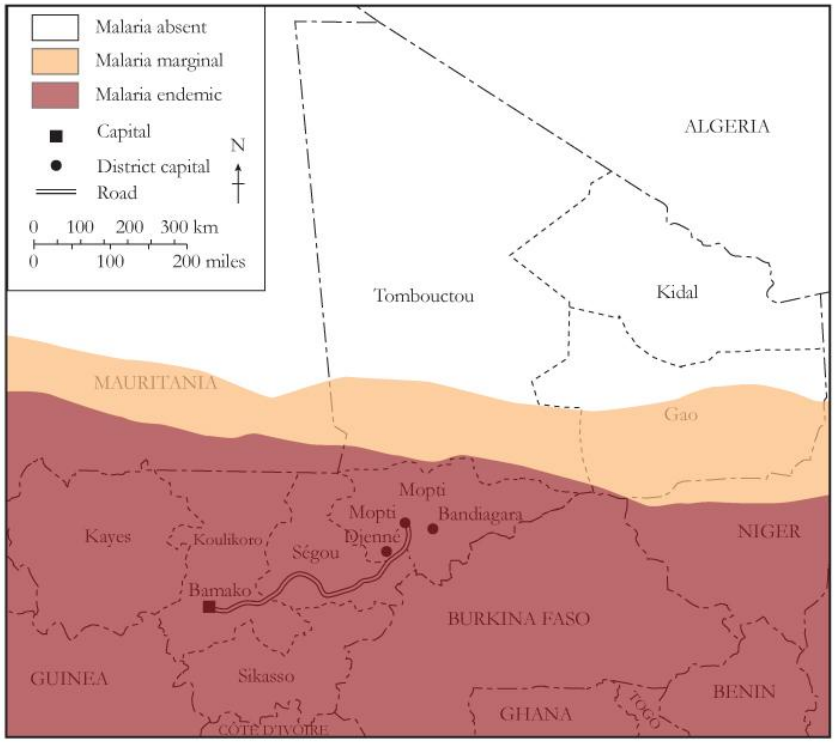
While French is an official language, *Bamanan* is the lingua franca with *Bamanan*-speakers constituting the linguistic majority among 40 other languages. Islam is the predominant faith but there are also sizeable Christian (Catholic and Protestant) and Animist communities. Mali's international reputation as a largely peaceful nation has been marred in very recent years by rebel, secessionist movements in the north of the country and has been the focus of wider attention in the context of global security.

Burden of malaria in Mali

Plasmodium *falciparum* is a major public health problem in Mali (Djimde *et al.,* 1998). Malaria is the leading cause of morbidity and mortality, with an estimated 4.3 million malaria cases in 2006, which account for 2% of the total for the WHO African Region, and an estimated 24,000 deaths for all ages, of which nearly 92% were of children under five (WHO, 2008). Malaria is responsible for approximately 50% of outpatient consultations for persons over 15 and the leading cause of morbidity and mortality in children under five years of age and the main cause of school absenteeism (Région de Mopti, 2008). The extreme geographical variability, epidemiology and transmission patterns[17] are shown in Map 1.3.

[17] Malaria endemic with a long seasonal transmission zone (May to November); malaria marginal with a sporadic epidemic transmission zone in the Sahara oases; malaria absent due to unfavourable climate for transmission (Doumbo *et al*., 1991).

Map 1.3: Malaria endemicity in Mali



Source: Adapted from MARA/ARMA, 2001.

Mali is a signatory to several international initiatives to combat malaria, most notably RBM, is a signatory to the Abuja Declaration and the Millennium Declaration. Mali is also involved in sub-regional collaboration with a number of West African networks[18] working on policy, advocacy, monitoring and capacity building for the fight against malaria (République du Mali, 2006a).

Decentralized structures in Mali

This section discusses the decentralized structures of Mali, with a brief historical account of decentralization in Mali. Pre-independence and pre-colonial democracy was based on a succession of empires that led to what is the current nation state of Mali[19]. Mali was subject

[18] These include RAOTAP (advocacy, monitoring and evaluation and capacity-building in health services), RAOPAG (advocacy, monitoring the strategy of malaria prevention in pregnancy, capacity-building in health services), UEMOA (policy framework in the health sector), OOAS (Regional framework of fight against malaria) (République du Mali, 2006a).

[19] The present Republic of Mali underwent several administrative re-organizations during the colonial period. In 1890 it was named Soudan Français, in 1902 Térritoires de la Sénégambie-Niger, in 1904 Haut-Sénégambie-Niger, in 1920 Soudan Français, in 1958 République Soudanaise, and from 1960 Mali (Brenner, 2001: 39fn).

to French administration from 1890 to 1960. The first initiatives to decentralize Malian administration date back to 1918 when the first municipalities (*communes*) of Kayes and Bamako were created (Coulibaly & Hilhorst, 2004; Konaté, interview, May 2007, Sevaré). These *communes* were administered by a commandant of a district (*cercle*) who was assisted by a municipal commission, comprised by governor–appointed seven members, five French and two French-speaking Malians (Sy, 1993). These types of communes were known as *commune mixte du premièr degré.* At independence[20], Mali had five fully autonomous *communes* and eight semi-autonomous *communes*. However, it was not until 1966 that all the *communes* gained full autonomy (Sy, 1993). While Mali is now a constitutional democracy, it was marked in its early post-independence years after 1960 by a military dictatorship, known as the First Republic, until 1968 when it was overthrown by people within its ranks (Coulibaly & Hilhorst, 2004). The second republic was established as a military regime under Lt. Moussa Traoré, which ran for 23 years[21].

The different decentralized structures operating within Mali that are of relevance to this study are discussed next. These include the national administrative division and the health structure.

National administrative division

Mali is divided into eight regions plus the district of Bamako. There are 49 districts in the eight regions, governed under a decentralized administration of governors, prefectures, and communes. The national administrative division in Mali is made up of four levels (Figure 1.1): national (*centrale),* regional (*la région*), district (*le cercle*) and municipality (*la commune*). The *commune* is a grouping of several villages and is managed by a council (*conseil communal*), whose size varies according to the population of the *commune*. The council elects the mayor (*le maire*) who holds office for five years with his or her deputies. Each *commune* selects representatives to sit on the indirectly elected district council, which is responsible for managing the district. Regional assemblies are elected from the district councils.

---

[20] Mali achieved independence on 22nd September 1960.

[21] Mali's presidents were as follows: 1960-1968: Modibo Keita (1st Republic, the socialist era); 1968-1991 Lt. Moussa Traoré (2nd Republic, nearly 23 years); 1991-1992: Amadou Toumani Touré (President of the Transition Committee for National Safety), led an 18-month transitional government, having arrested Moussa Traoré in 1991; 1992-2002: Alpha Oumar Konaré (3rd Republic); 2002-2007: Amadou Toumani Touré (4th Republic); 2007- present: Amadou Toumani Touré (5th Republic).

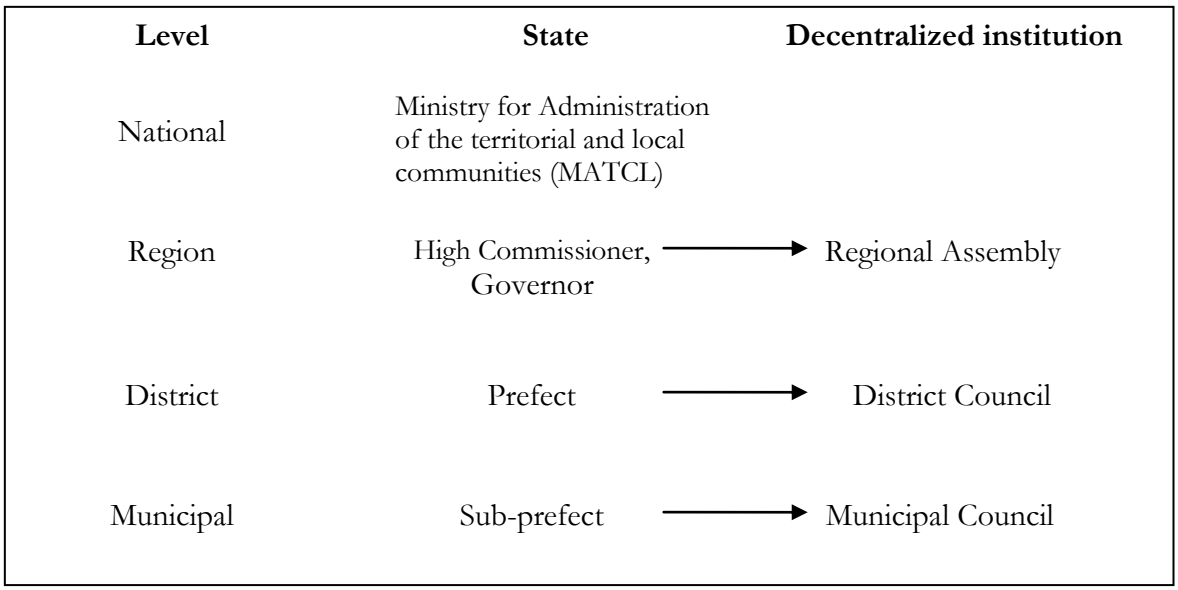


Figure 1.1: The administrative structure of Mali
Source: République du Mali, 2002a: 24

There are currently 703 *communes* in Mali, across 49 *cercles* in 8 regions including the district of Bamako (MATCL, 2002). *Communes* are supervised by prefects (*le prefet*), whose duties include ensuring that municipal proceedings conform to government legislation and endorsing municipal development plans (Coulibaly & Hilhorst, 2004). The communes can draw on significant advice from the administration and other state technical services, according to their skills, opportunities and capacities.

The reduction of poverty in Mali

Given the high poverty levels of Mali, and the global context of poverty reduction highlighted at the start of this chapter, Mali has joined the global fight against poverty with a number of policies and strategies in the form of five and ten-year development plans. Poverty in Mali is defined as those living on less than 420 FCFA per day, or less than 50 pence or US$ 1 a day, the poverty line being 153,310 FCFA per annum (£170) (CPS/MS, 2007). These significant levels of poverty and a nationwide study[22] led the Government of Mali (GOM), through its Ministry of Finance and Economic Affairs, to develop a Strategic

[22] *Etude Nationale Prospective* "*Mali 2025*" considers Malians' vision and perspectives of Mali in 2025.

Framework for the Fight against Poverty[23] now in its second generation (2007-2011). This framework is the principal frame of reference guiding development policies and strategies in Mali. The framework aims to reduce poverty levels, promote economic growth, improve public administration and institutional reform and improve the social sector through dialogue, collaboration and active participation of local populations in decision-making and management of resources (République du Mali, 2004). It aims to improve access to health care, through the establishment of new health centres closer to villages, strengthening existing health centres and re-launching non-functioning health centres, as well as reinforcing or optimizing mobile teams and services to the communities (*strategie avancée)*.

Despite their laudable aims significant challenges remain in the implementation of these strategies. These include ensuring competitiveness of the Malian economy in the current economic climate and globalization, diversification of growth, and developing the private sector. While the *Cadre Stratégique pour la Croissance et la Réduction de la Pauvreté*[24] (CSCRP) analyzes Mali's progress towards achieving the MDGs for malaria by 2015[25], the focus remains entirely on the HIV/AIDS. There is an absence of any mention of participatory approaches to malaria control and it suggests that the reduction of morbidity and mortality of malaria remains technically driven, without consideration of the wider socio-political structures affecting prevention and treatment of malaria.

Decentralization of the Malian health system

In the early 1980's, the GOM launched a large reform of the health system, which included restructuring the Ministry of Health and implementing the functions of planning, management, research, training and health promotion (Diarra, 2001). International health sector reform has included decentralization of health services and the health policy of Mali adopted in 1991 was based on the precepts of the Alma Ata Declaration of 1978 of increased community participation in health planning. The general aim of the national health policy is to extend the coverage of health services at rural level to facilitate access to medicines in all the population. The key limitation of such reforms has been the weak

[23] This is known as the *Cadre Strategique de Lutte Contre la Pauvreté* (CSLP).
[24] Strategic Framework for Growth and the Reduction of Poverty
[25] *Rapport d'étude «l'impact de la mise en oeuvre du CSCRP sur l'atteinte des OMD au Mali» à l'aide du modèle T21_Mali*

focus on the social aspects where local preferences and knowledge have not been taken into account, particularly in disadvantaged areas.

Within decentralized health services, community involvement in health service provision has largely manifested itself at the lowest level of national administration (Figure 1.2). At this level, the establishment of community health centres (referred to as *centre de santé communautaire*, or CSCOM) and their respective management committees (referred to as *association de santé communautaire*, or ASACO) are the main mechanisms of participation in the health arena at rural and community level. At the village level the cadre of the community health worker (CHW) or *relais communautaire* is the focal point of health and the main interface between village residents and formal health services. A more in-depth discussion of the different levels and analysis of the role of CHWs takes place in Chapter 4.

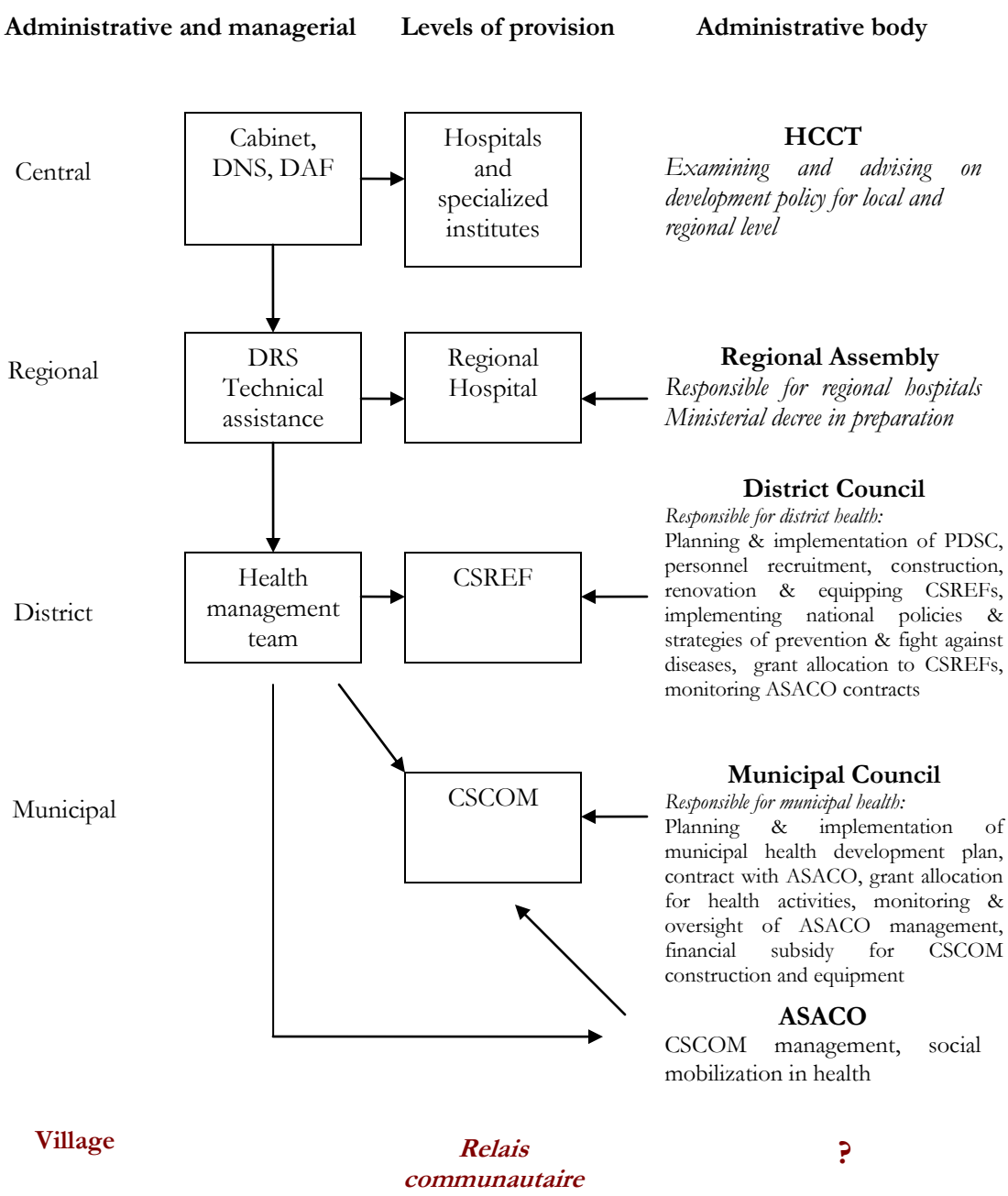


Figure 1.2: Health Structure of Mali, adapted from République du Mali, 2007d

National Malaria Control Programme

The GOM considers the fight against malaria as crucial in the reduction of poverty. To this end, Mali's NMCP[26] was established in 1993 with the aim of reduction of morbidity and mortality of malaria, particularly in children under five years of age and among pregnant women and to prevent and reduce the risk of an epidemic. The national malaria control policy adopts a multi-sectoral communications strategy which includes advocacy towards and mobilization of policy makers, communities, universities, health training institutes, civil society, the private sector and development partners for behaviour change (République du Mali, 2006b). A key strategy in the fight against malaria is the free distribution of ITNs at health facilities to pregnant women during the first ante-natal session and to children under 5 on completion of a vaccination schedule.

Research questions

Through a case study of three villages in the Mopti region in Mali this research examines the interconnections between decentralization, processes and mechanisms for participation, and individual/household knowledge and behaviour with regard to malaria prevention and treatment. These interconnections are examined through the research questions as follows. Within each of the broader questions are sub-questions to address specific and different dimensions of the main over-arching questions.

1. How does the decentralized health system affect access to prevention and treatment of malaria in rural Mali?

- 1.1 What are the sources and levels of knowledge of malaria in the three villages?
- 1.2 What preventive measures are used against malaria?
- 1.3 What treatment is sought for malaria?
- 1.4 How do community health workers facilitate access to prevention and treatment of malaria at village level?

[26] Following restructuring of the health directorate (*Direction National de la Santé*), from formerly being a department, the NMCP became a directorate in 2008. The NMCP received a subsidy of 1 billion FCFA, as well as further financial and technical assistance (République du Mali, 2009). The Auditor General's annual report of 2008 reports an insufficient involvement of private sector providers, CSCOMS, local government and civil society and training institutes, lending urgency to widening participation in malaria control efforts (see www.bvg-mali.org, accessed 27th February 2010, for a full report by the *Vérificateur Générale du Mali*). Based on the Canadian model, the *Bureau du Vérificateur Générale* (BVG) is an independent auditing authority at the service of the citizens for the promotion of good governance and oversight of development programmes. The BVG reports to the Presidency, which in turn reports back to the Ministries (Diadié, interview, February 2009, Bamako). It is designed to increase trust and improve efficiency.

2. How do gender, poverty and location affect access to health care, prevention and treatment of malaria?

2.1 How and why do levels and sources of knowledge of malaria vary?
2.2 How and why do preventive measures vary?
2.3 How and why do treatment practices vary?

These research questions will be discussed through an examination of the empirical findings from the research locations. The findings are largely based on a household survey, complemented with wide-ranging qualitative methods, which will be discussed more extensively in Chapter 3.

Summary

This chapter has presented the conceptual framework guiding this study. The thesis is presented in a further six chapters as follows:

Chapter 2 presents the theoretical context for the study and where it is situated in relation to wider theoretical debates in health, decentralization and participation and access to health care. In particular, decentralization, participation and health reforms in developing countries are a key focus of discussion.

Chapter 3 presents the study design and is a more reflexive consideration of methodology applied in the fieldwork. The chapter examines the strengths and limitations of the data gathering methods of the study. Ethical issues and positionality of the researcher, constraints faced and issues of translations and gatekeepers are also discussed in this chapter. The rationale for selecting the research locations and their characteristics are described.

The next three chapters are devoted to an analysis of empirical material. These are organized around areas of particular thematic importance in the research findings which relate to the conceptual framework of the thesis outlined above:

Chapter 4 examines the historical context and current reality of decentralization in rural Mali. It draws on empirical data gathered qualitatively among diverse stakeholders in the study. In particular, the findings related to research question 1 are discussed in this chapter.

Chapter 5 focuses on knowledge of prevention and treatment of malaria. It is based largely on the survey data complemented by participant observation, semi-structured interviews, focus groups and informal discussions in the research settings. It gives a picture of the knowledge and attitudes pertaining to malaria in the three rural locations. In particular it addresses how and why knowledge of malaria and prevention measures varies in rural Mali thus answering research questions 1 and 2.

Chapter 6 focuses on issues of access in the prevention and treatment of malaria, prevention practice and behaviours vis-à-vis malaria in the three rural locations. It draws on the survey data complemented with qualitative insights. In particular it examines how and why access to prevention and treatment of malaria varies in rural Mali, drawing on a multitude of factors present within the context of decentralized health. It highlights wider socio-economic factors that influence access to prevention and treatment of malaria and addresses research question 1 and 2.

Chapter 7 summarizes the main findings of the thesis and their policy implications. It offers direction for potential further research. In particular it summarizes how decentralization in rural Mali has enabled or otherwise malaria management in the three rural locations of the study. It encapsulates the value of researching malaria management in a region not previously looked at and which is deeply affected by malaria.

Chapter 2

Theoretical Context

Introduction

This chapter presents the theoretical context to my study with an examination of the literature relevant to the enquiry. As introduced in Chapter 1, the research falls across several bodies of knowledge: firstly I examine the wider debates surrounding decentralization within the neo-liberal paradigm. I then examine diverse meanings of participation, acknowledging that there are multiple interpretations and definitions. The discussion continues with an examination of decentralization in health. An in-depth examination of the participation-decentralization nexus follows, particularly its impact on health in SSA. I further examine how community participation has been implemented in health programmes, particularly in primary health care (PHC) in the Global South. I then track how participation has been incorporated in specific disease control programmes and in malaria control in particular. These themes form the theoretical framework for this thesis and examine how the theoretical ideas of decentralization and participation are relevant to broader issues of access to health care and prevention and treatment of malaria in particular.

The discussion encompasses an examination of the structural factors affecting the decentralization process and health care in SSA. These include gender, wealth and location as the main factors influencing access to health care and that form the main framework for the analysis of data that follows in the empirical chapters 4, 5 and 6.

Decentralization: "*great expectations*"[27]

> People have great expectations of decentralisation: that it will lead to a higher level of popular participation in local development processes and increase the efficiency and effectiveness of state services.
>
> Hammer, 2001: 1

[27] Hammer, 2001:1

This quote encompasses a number of key aspects of decentralization: as an efficient and effective process to increase participation for development. This section discusses the notion of decentralization, as a vehicle of participation in local, rural arenas. In particular, it presents the theoretical underpinnings of decentralization and its purported benefits for governance, in light of the neo-liberal paradigm.

The emphasis and rationale for decentralization came about as a result of the realization that centrally driven, economic-growth development and administration had not achieved its goals (Cheema & Rondinelli, 1983; Friedmann, 1993; Escobar, 1995; Kothari, 1999; Esteva, 2007). Decentralization may be considered as "an alternative system of governance where a 'people-centred' approach to resolving local issues is applied to ensure economic and social justice" (Kothari, 1999: 48). Four different kinds of decentralization have been explained by Cheema & Rondinelli (1983): deconcentration, devolution, delegation and privatization[28]. As introduced in Chapter 1, decentralization has become the *modus operandi* embraced by a number of actors in development and many governments. In particular, the democratizing role of decentralization has been a driving force in its implementation in the Global South.

Decentralization is premised on the idea that 'the government becomes closer to the people' in both spatial and institutional terms (Crook & Sverrisson, 2001) and therefore more efficient in self-planning and self-development. In their in-depth analysis of decentralization, Crook & Sverrisson claim that,

> in fact, political variables determine the outcomes of decentralization, not because of variations in formal structure or broad regime context, or technical failures of implementation, but because decentralization is essentially about the distribution of power and resources, both amongst the different levels and territorial areas of the state, and amongst different interests in their relationship to different elites.
>
> Crook & Sverrisson, 2001: 2.

[28] **Deconcentration**: transfer of responsibilities and powers to lower levels within the administrative hierarchy of central government**; Delegation**: transfer of specific tasks to usually non-governmental or para-statal bodies in civil society; **Devolution**: actual transfer of legislative and executive functions to local authorities; **Privatization**: transfer of functions to the private sector, the difference from delegation being that central government does not continue to perform supervisory and monitoring functions (Thomi in Brandt & Otzen, 2004).

Proponents of decentralization believe that it increases popular participation in decision-making since it enables closer access and knowledge about local situations thereby becoming more responsive to local needs (UNDP, 2003). As such, decentralization is not a stand alone concept given that it is reliant on and driven by participation of local communities. Some preconditions for effective decentralization include stability of government, transfer of resources and responsibilities, with a 'three-way dynamic' between the central government, local government and an active civil society (UNDP, 2003: 137). Ideally, such a system would be a most efficient way of governing. Furniss (1974) cautions us about the divergent expectations that may result due to the diverse nature of these elements. Hence the participation-decentralization-governance nexus is crucial to this thesis. In this section I argue that the participation-decentralization-governance axis is mired in complexity and unequal power relations between the governed and the governing.

A comparison between twelve countries across Asia, Latin America and Africa on the outcome of decentralization on participation levels and impact on social and economic poverty suggested that in some there was little or no evidence of an increase in participation while other countries reported mixed to fairly good results (UNDP, 2003). This suggests that decentralization is also not a guarantee to participation or a magic bullet that will automatically lead to higher levels of community participation and therefore to better health services (Bach, 2000; Messer, 2001).

While a distinction has been made between political decentralization, implying a redistribution of power, and administrative decentralization, implying a distribution of function (MacLean, 2003), decentralization is essentially about allocation of power and resources amongst "the territorially defined and nested hierarchies" (Crook & Sverrisson, 2001: 7). Such 'nested hierarchies' are 'not technically neutral devices' (Boone, 1998: 25), which can be implemented without constraints, as if there were no pre-existing context (Crook & Sverrisson, 2001: 8). Such nested hierarchies play a pivotal role in perpetuating existing power relations within communities.

In many rural settings, however, decentralization may only promote existing power relations and bolster the power of elites within unequal power structures and do little if anything to remove existing disparities between different tiers in rural areas. As Griffin stated in 1981,

> …it is conceivable, even likely in many countries, that power at the local level is more concentrated, more elitist and applied more ruthlessly against the poor than at the centre. Thus, greater decentralization does not necessarily imply greater democracy let alone 'power to the people'. It all depends on the circumstances under which decentralization occurs.
>
> Griffin, 1981: 225

The disadvantages of decentralization include the lack of effective power that a decentralized administration can have due to a lack of transfer of financial and human resources. While the benefits of decentralization, where transfer of resources, financial, human, technical and other, has occurred, are laudable, there remain tensions between the over-riding era of globalization on the one hand and local self-governance on the other (Kothari, 1999). The wider political context of decentralization needs to be taken into account by policy-makers and implementers (Bergh, 2004). Mohan and Stokke (2000) have cautioned against the romanticization of the local suggesting that "decentralization in its neo-liberal guise treats the local as a functional economic space with policies designed to increase the efficiency of service delivery" (Mohan & Stokke, 2000: 251), as if the 'local' is in isolation from broader political and economic structures.

Kothari (1999) suggests that decentralization is a process along a continuum. The establishment of decentralized structures of governance is not in itself an assurance of effective decentralization. As argued above, it requires the effective transfers of power and resources. More importantly, he asks which type of set-up will promote effective decentralized governance (Kothari, 1999). Here, the distinction is made between a local government established by the central authority and a dynamic 'bottom-up' structure, which is based on voluntary action, and the processes of civil society, with local communities asserting power. We will see in Chapter 4 whether decentralization has been effective, given its relatively new place in Mali's governance, suggestive of the process that Kothari alludes to. With the advent of decentralized government, whose aim is to make government more responsive to grassroots communities, it may be precisely the processes of participation of

local communities that may bring about the structures to facilitate access to resources. The inter-relationship between decentralization and participation is a theme to which I now turn.

Participation: panacea for all?

The (community) participation mantra has become a cornerstone of development activity internationally particularly since the 1970s. In the more than thirty years since the declaration of Alma Ata (Chapter 1), the concept of participation in health has remained largely elusive. The complex nature of the concept has led to a substantial debate on the various forms and degrees of participation (Arnstein, 1969; Goulet, 1989; Choguill, 1996; White, 1996). In particular, the challenges of defining community participation (Pearse & Stiefel, 1979; Uphoff *et al.,* 1979; de Kadt, 1985; Tri *et al.,* 1986; Oakley, 1989; Desai, 1995; Rifkin & Kangere, 2002; Mansuri & Rao, 2004), suggest that it remains a contested term (Mercer, 1999; Cornwall, 2008). Cornwall suggests that "participation as a praxis, is after all, rarely a seamless process; rather, it constitutes a terrain of contestation, in which relations of power between different actors, each with their own 'projects', shape and reshape the boundaries of action. While a frame might be set by outsiders, much then depends on *who* participates and where *their* agency and interests take things…" (Cornwall, 2008: 276, emphasis in the original).

While a plethora of definitions of participation has been proposed, the preferred definition used for this thesis is one by the WHO, whereby community participation is

> The process by which individuals and families assume responsibility for their own health and welfare and for those of the community, and develop the capacity to contribute to their and the community's development
>
> Quoted in Bracht & Tsouros, 1990: 201

Participation: means or end?

One of the underlying debates of participation is the distinction that is made between the aim of participation as a *means* to a specific objective and participation as an *end* in itself (Moser & Sollis, 1991; Rifkin, 1996; Nelson & Wright, 1997). The latter's over-riding objective is the empowerment of the participants in the process of participation. The former considers participation as a way of achieving certain predetermined targets or objectives,

often through community mobilization. This means that the results of such a participative process are more important than the process of participation itself. Moser & Sollis add that "where participation is interpreted as a means, it generally becomes a form of mobilization to get things done…where participation is defined as an end, the objective is not a fixed quantifiable development goal, but a process whose outcome is an increasingly 'meaningful' participation in the development process" (Moser & Sollis, 1991: 19).

Participation applied as an end in itself considers participation as a process for longer-term development with the aim of empowering communities, both at the individual and collective level, and increasing self-esteem and confidence through the process of participation (Rowlands, 1997; Hickey & Mohan, 2004). Purportedly being more dynamic, it aims to respond to local needs and adapt to changing circumstances. The process of participation is seen as a long-term effort and an intrinsic factor enhancing any development project and lasting long after the aims of a project have been achieved.

Participation debates have largely focused on the binary between means and end or efficiency and empowerment of participation. However, it may now be time to synergize the binaries and create an alternative paradigm which harnesses the means-end axis, resulting in more fluidity in participation (Rifkin & Pridmore, 2001). Pridmore and Rifkin (2001) suggest that such fluidity can develop through partnerships for longer-term development objectives, whereby different stakeholders can forge collaborations through participatory approaches for betterment of their communities.

The widespread calls for increased community participation both at the international policy level as well as at the local community health level depend very much upon the political structures enabling participation. Despite Yeneneh *et al.'s* (1993) call for the need for research on community participation in malaria management in the late 1980s, there is still a dearth of research in this area. This study aims to address this lack and contributes to the gap in knowledge on participation in malaria management through a case study of three rural villages in Mali.

Decentralization in health in sub-Saharan Africa

Within health systems, there are two main kinds of approaches which have taken hold for the implementation of health policies (Hutton, 2002). Firstly, there are the vertical approaches. These refer to those health programmes which are designed at federal or national government level that specifically target a single disease or specific health conditions, for example tuberculosis or guinea-worm disease. The GMEP (Chapter 1) was an example of this type. Secondly, there exists the horizontal approach to PHC, which is predominant in the Global South. This is concerned with integration of health services provided at the same level with the aim of improving efficiency and quality of health services (Briggs *et al*., 2002). Commonly applied for prevention of disease, examples include family planning and malaria. Normally, less participation is implied in vertical programmes than in horizontal ones. Elzinga (2005) proposes collaboration between the vertical-horizontal axis to enable health programme targets to be achieved. He acknowledges that this remains a key challenge in the vertical-horizontal interface of different health programmes, given that vertical approaches tend to be "fragmentary in nature" (Tarimo, 1991: 72). The vertical-horizontal nature of health programmes are important as they provide the context within which participation takes place and how health policies, then, are implemented within each context. This is important in the discussion of decentralized health, which ideally looks to a higher level of community participation vis-à-vis health care.

International health reform has centred on decentralization of health services and has been the dominant trend in many countries of the Global South. West Africa's move towards decentralization has been the cornerstone of democratization in post-independence years in the region (Chapter 1). Research on the impact of decentralization in health in diverse countries finds that decentralization must have adequate support structures and effective mechanisms of participation (Crook & Sverisson, 2001). On its own, decentralization is inadequate in promoting community participation, as decentralization of health service management in most likely to result in strengthening the district level, leaving a significant distance between health service managers and communities (Mills, 1990). This will be examined more in detail vis-à-vis the research locations in Mali in Chapter 4.

Decentralization and access to health care

Community involvement in health has largely manifested itself in the health service provision at the lowest level of national administration, in line with decentralization's aims of local health service delivery. Having wide resonance internationally, this is carried out through local community-based mechanisms of community health centres. These are managed by management committees, whose members are drawn from the local community, normally elected in a democratic manner. This aims to ensure that there is local community involvement and that local health needs are taken into account. Further, the representativeness of committees can be subject to scrutiny, since their accountability and reporting mechanisms to the communities they serve are not always clearly defined or implemented (Ramiro *et al*., 2001). Often there is a conflict of interest when members serve on different committees within a community, attempting to exert power in various domains and varying agendas, raising the question of the 'democratic' nature of such committees. The WHO HFA Global Strategy reported that community participation through health management committees was not significant (WHO, 1994), suggesting that such committees are often set up to enable disbursement of funds rather than have any significant input from the community. This view is echoed in McPake *et al's*., (1993) evaluation of the Bamako Initiative, whose aim is to ensure access to affordable essential health services by the majority of the population.

Even where local health management committees may provide vehicles towards self-management and decision-making over resources and operationalization of the health service, Standing (1997) argues that local management is intrinsically tied to wider organizational decisions about financing mechanisms and bureaucratic and political control. As there has been little examination of the provision of health services within the context of decentralization in SSA (Kyaddondo & Whyte, 2003; Golooba-Mutebi, 2005) this thesis contributes to this area through the empirical work in Mali. We will see in Chapter 4, how decentralization has influenced community health service provision in rural Mali.

Despite the establishment of decentralized health structures in Mali, namely CSCOMs and ASACOs (Chapter 1), health service provision at community level does not guarantee easier access to health care. While CSCOMs can serve as valuable networking sites and therefore

for opportunities to exchange information and knowledge-sharing access to them may be depend on a number of socio-economic factors. This will be examined more in depth in the examination of access to health care in Chapter 6.

Community health workers in the decentralized health system

Loewenson suggests that "perhaps the most explicit strategies for engaging communities in health are through the work of CHWs" (Loewenson, 1998: 14). Such a strategy has been widely adopted internationally as a way of enhancing community health through community mobilization. However, she points out, giving examples from Zimbabwe, that participation in health requires a "move from mobilization…to mechanisms through which communities can shape their health systems and make services more responsive to their needs" (Loewenson, 1998: 17). Indeed, we will see in the empirical chapters (Chapters 4, 5 and 6) how CHWs in rural Mali engage with communities in the promotion of health and behaviour change for malaria control.

Community participation or involvement in health service provision plays out primarily with the appointment of health workers at village level. CHWs have been the cornerstone of PHC for many years, often forming the backbone of rural health in many areas of the world. As such they have "formidable expectations thrust upon them" (Walt, 1988: 1). In Latin America and South East Asia this cadre has been successfully implemented in many diverse health projects and incorporated into national health systems. In SSA, such health workers are also established, with varying degrees of success. Within the decentralized health system of Mali, CHWs or as they are known in Mali, the *relais communautaires*, are the main actors of community health. This system however is not without its challenges, some of which will be elaborated upon in Chapter 4.

Due to the voluntary nature of the role, one of the prime areas of concern for CHWs is that of motivation, considering the lack of incentives provided. While the voluntary nature of the role continues in national programmes, the assumption that they will have a higher motivation than salaried health workers does not seem to be borne out. Indeed, there is a limit to how much voluntary work one is prepared to do and this clearly affects their motivation and performance (Chapter 4).

The issues of health worker motivation, performance and incentives, ongoing training and supervision, roles commensurate with ability, and increasing responsibility and improving mechanisms for recognition have been widely documented (Okanurak & Ruebush II, 1996; Alihonou *et al.,* 1998; Stilwell, 2001; Dieleman *et al.,* 2006; Jenkins, 2005). In Mali, however, these have yet to be addressed in a satisfactory manner at both national and district levels[29]. In particular, despite community involvement being a central tenet of PHC, health programmes designed with little or no community consultation ensure limited interest and success in community-based health programmes.

MacCormack adds that CHWs can be effective, if they are well-chosen and have the confidence of the community. Importantly, she emphasizes that "they must also have dependable supplies and support from the higher levels of the health service" (MacCormack, 1983: 51). Jenkins (2005) adds that details like training, a trip, or inviting the CHW somewhere can make a difference in performance and enhance recognition and motivation of the health workers in the communities they serve. She further adds that a process of professionalization of CHWs could position them as local experts, thus adding to their credibility in the eyes of the community as well as giving them an opportunity to engage with new ideas while renewing their knowledge (Jenkins, 2005). However, this may in itself be challenging in a system where such professionalization of CHWs is not encouraged, or is encouraged only for a few cadres in the wider health system. Through a detailed empirical analysis of how these key health actors operate in the context of rural Mali, these issues will be examined in Chapter 4 and will contribute to gaps in knowledge of how CHWs operate within the decentralized health context in rural Mali.

This research, therefore, examines the extent to which there is a juncture between the higher levels of the health service and rural health service provision, by providing a comparative study on CHWs in rural Mopti (Chapters 4, 5 and 6). Village health worker networks, such as those prevalent in Latin America have become the principal means of malaria surveillance

[29] An effort towards addressing these issues has been the National Forum on Primary Health Care, held in Bamako, March 2009, under the auspices of the Government of Mali and international donor agencies. This will be elaborated more in Chapter 4.

and anti-malarial drug treatment in many national malaria control programmes (Winch *et al.,* 1992: 344).

One of the factors that may hinder full community participation with the implementation of CHWs, is the professionalization of health. Research on community participation for health in Latin America revealed that medical professionals have found it hard to see why their authority in matters of health should be shared with anyone (De Kadt, 1982). This is a theme that recurs in present-day Mali, as I shall discuss in the empirical chapters on knowledge and access to health (Chapters 5 and 6 respectively). Similarly, while there are successful international examples of community participation in health and in malaria control, through CHWs, their role in the decision-making and planning for health is decidedly lower (Rajagopalam & Panicker, 1984; Moir *et al.,* 1986; Pribadi *et al.*, 1986; Sharma, 1987; Bentley, 1989; Jacobson *et al.,* 1989; Johnson *et al.,* 1989; Kaseje & Sempebwa, 1989; Okanurak *et al.,* 1991).

Community participation in health programmes

> Community participation in health care programmes is considered to be axiomatic in health development.
>
> Woelk, 1992: 419

Community participation in health has been taken on board by policy-makers, health planners and practitioners alike (Morgan, 2001). The binary between efficiency and empowerment, or means-end, in the theoretical debates about participation echo within health programmes that attempt to include community participation as a strategy for improved health outcomes (Rifkin, 1996). Given the importance of decentralization in health introduced in Chapter 1, this section examines the ways in which participation in health has been considered internationally.

Community involvement has been a key feature of the Health for All Strategy 2000, an initiative of the WHO. The WHO makes a distinction between community involvement and community participation in primary health care, which can be seen from the following statement:

> To be successful, primary health care needs individual and community self-reliance and the maximum community involvement or participation, or active involvement of people living together in some form of social organization and cohesion in the planning, operation and control of primary health care using local, national and other resources. The term involvement is preferable to participation as it implies a deeper and more personal identification of members in the community with primary health care.
>
> WHO, 1984 in Oakley, 1989: 8

Community involvement in health implies a more active and in-depth contribution by the community in setting, defining its own plans and objectives to achieve a common goal, with ownership of a project or planning in a project. However, it can also be coercive in its approach, and driven by external agendas. It is argued that community involvement in decision-making for health builds self-esteem and encourages responsibility. Therefore community involvement in itself, and not only as a means to achieve a development objective, is seen as having beneficial effects on individuals and is therefore of intrinsic value (Oakley, 1989: 5). Furthermore, community involvement in areas where there are limited resources in health services, local knowledge and resources can be significantly drawn upon to complement formal or state health provision, with the potential added benefit of lowering overall costs of health service provision. Involving local communities in the planning of health services may prove beneficial in meeting the needs of the local communities in more appropriate ways and may ensure the success of such projects or programmes. There have been international studies on community participation in specific health projects which identify different steps in the community involvement process, for example from situation analyses to evaluation of plans (Moser & Sollis, 1991; Turan *et al.,* 2003). These stressed the importance of negotiation as a key element of participation within projects and not only consultation or discussion. Furthermore, the success or otherwise of participation in health projects cannot be determined by an evaluation of the project itself; it requires an examination of the contextual conditions that occur before and after a project is implemented. Contextual conditions can be structural dimensions, some of which will be discussed later in this chapter.

By breaking the cycle of dependency on the external agents, local people can also achieve a sense of ownership, which is the premise behind community health centres in Mali (Chapter 4). A word of caution, however, is offered by Madan who claims that "community

involvement can be employed to describe euphemistically the manipulation of people by politicians, bureaucrats, and technocrats for purposes, which are believed to be for the people's good – and may well be so – but which are conceived by these others in a manner that objectifies and infantilizes people" (Madan, 1987: 619).

Oakley (1989) argues that community participation has come to be seen as a way of rapidly improving the health services available for the majority of the world's people, whilst at the same time not putting the entire responsibility of health service provision on the local communities, taking into account current distribution of health resources in a particular country. With recent health sector reforms in countries of the Global South, however, it can be seen that much of the responsibility of health service provision is in fact placed with local communities with the purported aims of increasing local level planning and delivery (see Chapter 4).

Rifkin, in her critical examination of community participation in PHC, argues that its failure lies in the mis-conceptualization of the paradigm that community participation is a "magic bullet to solve problems rooted both in health and political power" (Rifkin, 1996: 79). She proposes that a different paradigm be adopted which views participation as an iterative learning process, allowing a more realistic view of what participation can achieve, and advocates the use of participatory rapid appraisal for community participation in health programmes. Rifkin states that,

> …community participation in health programmes will act as a catalyst for social change by empowering local populations to become involved in the political process.
>
> Rifkin, 1996: 81

Given this impetus for change, Rifkin adds to the different spectra of participation by suggesting a continuum of participation within health programmes specifically (Rifkin, 1986). As with other continua, there are different elements: participation in the benefits of the programme (the narrowest level), participating in the activities of the programmes, participating in the implementation of the programme and participating in monitoring and evaluation of the programme, with participation in the planning of the programme constituting the broadest level of participation (Rifkin, 1986).

In terms of health programmes, as will be considered later in this chapter, the reduction of cases of malaria with community participation (that is, community participation being beneficial and instrumental for a reduction in malaria morbidity and mortality), for example, may in itself be meaningful and there its instrumental usefulness (or instrumentality) ends. The fact that participation may be followed by a concomitant reduction in loss of income due to malaria may in itself be highly significant and empowering for those individuals, or families that benefit from continuing work and education opportunities. This will be discussed more in the empirical work presented in Chapter 6, while the effects of the loss of income from malaria have been introduced in Chapter 1.

Further, where there is community investment of time and resources in health, there is likely to be more of a commitment to maintaining and owning such activities. However, this is not guaranteed, especially where a community has become accustomed to external agents initiating projects and then leaving them to manage them without the relevant skills and training.

In order to assess the level of participation in health programmes, Rifkin *et al.* (1988) developed a framework that measured five factors that influence community participation on a continuum. These included: needs assessment, leadership, organization, resource mobilization and management. Such a framework served as a foundation for comparing specific health programmes across different points of reference[30] in a spider diagram. This framework has evolved to incorporate different indicators[31] of participation in an analytical tool to evaluate its relationship with health improvements and outcomes (Draper *et al.*, 2010). Such tools enable planners and communities alike to visualize improvements in the multiple elements within the framework and see how their involvement or participation is instrumental in affecting changes in health status. It is important to note that this current study is not an examination of participation's effects on health outcomes.

[30] These included different timeframes, different evaluators and participants (and their perceptions of these factors).

[31] These include: leadership, planning and management, women's involvement, external support for programme development, monitoring and evaluation (Draper *et al.*, 2010).

While there have been examples suggesting a relationship between empowerment and positive health outcomes, Rifkin (2003) acknowledges that there is a need for more evidence to confirm these links, based on a framework considering the level of Capacity-building, Human rights, Organizational sustainability, Institutional accountability, Contribution and Enabling environment (hence CHOICE), for assessing health outcomes. Of relevance to my research in the context of rural Mali is the consideration of a politically and socially enabling environment of decentralization and capacity-building in health services. However, an analysis by Ratna & Rifkin (2007) on the application of individual elements within this framework suggests that they may not in themselves be sufficient to address the broader issues of empowerment and equity.

However, for all the enthusiasm and espoused benefits of participation in health programmes, the question of sustainability of community participation in health has been raised by a number of quarters (Bracht & Tsouros, 1990; Woelk, 1992; Zakus & Lysack, 1998; Morgan, 2001). The heterogeneity of communities will reflect motivation in participation levels in health programmes. Where there is a lack of supportive political environment, participation in health or development is likely to falter. The added burden of financial crises cannot facilitate community participation where there are different interests at stake. Furthermore, structural opposition to participation can pose real challenges to the promotion of equity and health improvements (Morgan, 2001). This is a theme that will be examined more in-depth in Chapter 4 within the decentralized health context of Mali.

The earlier sections examined the role participation has to play in enhancing people's lives, through decentralized governance and decision-making in services as well as problems and limitations of decentralization. Some research however, has revealed that not all efforts towards increasing participation have led to improvements in health service delivery (Golooba-Mutebi, 2005a). It suggests that participation assumes "people are keen to participate in public affairs, have the capacity to do so and that all they need is opportunities" (Golooba-Mutebi 2005a: 165). A case study from Uganda suggests that this was not the case (Golooba-Mutebi, 2005a). Even when the opportunities are presented, the opportunity costs of participation may outweigh the benefits of participation. The capacity alluded to in the above quote may include both individual capacity of voicing concerns as

well as the facilitation of partaking when all their personal responsibilities are taken care of. Often there are clear gaps in communication between different levels that do not clearly explain the purpose of participation and so in effect giving credence to the argument that participation is often nominal and passive, often considered the weakest form of participation.

Participation in malaria management

Community participation in the control of tropical diseases and in malaria control in particular has also gained in importance, both conceptually and in practice. According to Manderson *et al.* (1992: 11), "the largest body of literature concerned with community participation and the control of tropical diseases relates to the prevention, control and treatment of malaria". They argue that as the range of prevention, control and treatment strategies, including environmental control measures, distribution and treatment of bed-nets and case detection, lend themselves to local participation, there is considerable scope for community involvement in malaria control. While previous studies have focused on community aspects of malaria control, they lack the broader health policy framework of malaria control. This thesis, therefore, looks more specifically at malaria prevention and treatment within the decentralized policy context in rural Mali. In the empirical chapters that follow, we will see how the community participation aspect of the decentralized health system has played out in rural Mali.

While a number of international studies on community participation in malaria control have supported local involvement in health and malaria control programmes (Rajagopalan & Panicker, 1984; Pribadi *et al.,* 1986; Sharma, 1987; Silva *et al.,* 1988; Moser & Sollis, 1991; Tatar, 1996), they do not provide a policy context to how community involvement can 'come about'. In particular, the cultural understandings of participation as well as perceptions of health can lead to different levels of success in health projects. There is a paucity of practical proposals in relation to NGOs, grassroots communities and health policies in which the health programmes have been undertaken. In particular, while community involvement is called upon for technical solutions, for example the use of IRS, community participation in planning malaria management is not systematically carried out.

Knowledge

Linking to the previous section, community participation has a role to play in knowledge acquisition and behaviour change. In particular, this study is also concerned with how knowledge acquisition is affected by levels of poverty. As outlined in research question 1.1, the study will look at sources of information on malaria within the decentralized health context.

There is a wide body of research that examines the level of awareness of malaria across SSA (Ongore *et al.,* 1989; Snow *et al.,* 1992; Asenso-Okyere, 1994; Mwenesi *et al.,* 1995; Oranga & Nordberg, 1995; Ruebush *et al.,* 1995; Alilio & Bammek, 1998; Karanja *et al.*, 1999; Doi, 2001; Tsuyuoka *et al.,* 2001; Idowu *et al.,* 2008; Hlongwana *et al.*, 2009). These studies indicate a higher level of awareness of correct biomedical knowledge of malaria, its cause and ways to prevent and treat it, in East Africa and English-speaking West Africa (Ghana and Nigeria).

Similarly the signs and symptoms have been widely examined in SSA, which report fever as the most common symptom associated with malaria, followed by yellowing of eyes, headaches, chills and shivering (Yeneneh *et al.,* 1993; Aikins *et al.*, 1994; Asenso-Okyere, 1994; Seck *et al.*, 2001; N'dour *et al.,* 2006; Idowu *et al.*, 2008).

There is a wide body of research on malaria causation in SSA which report mosquitoes and other factors attributed to malaria to varying degrees (Ongore *et al.,* 1989; Rooth, 1992; Aikins *et al.*, 1994; Asenso-Okyere 1994; Van Geldermalsen & Munochiveyi, 1995; Alilio & Bammek, 1998; Doi, 2001; Traoré, 2003; Ndour *et al.,* 2006; Legesse *et al.*, 2007; Deressa *et al.,* 2008; Essé *et al.,* 2008; Idowu *et al.,* 2008; Seck *et al.,* 2008; Hlongwana *et al.,* 2009; Paulander *et al.,* 2009). While western health education may have influenced an individual's knowledge of illness causation, this often operates alongside traditional understandings of malaria causation (Gessler *et al.*, 1995). Traditional beliefs on the cause of malaria have been examined in a number of studies across SSA (Ongore *et al.*, 1989; Aikins *et al.*, 1994). These include environmental causes such as walking in cold or flood water or eating certain foodstuffs. These studies show that there are a number of other factors believed to cause

malaria other than mosquitoes, evidence of the fact that perhaps malaria awareness is not so widespread in these areas.

Furthermore, knowledge of bed-nets as preventive measures is not widespread in some areas that have been researched (Gessler *et al.,* 1995; Tsuyuoka *et al.,* 2001). The place of treatment for malaria has also been internationally researched, and this ranges from clinics, health centres, CHWs to traditional remedies (Yeneneh *et al.,* 1993; Kenyega-Kayondo *et al.,* 1994; Tsuyuoka *et al.,* 2001; Deressa *et al.,* 2008; Seck *et al.,* 2008).

The use of bed-nets as a preventive measure against malaria has been reported in other studies in West Africa which report a low rate of bed-net use (Asenso-Okyere, 1994; Gessler *et al.,* 1995; Tsuyuoka *et al.,* 2001; Ndour *et al.,* 2006; Idowu *et al.,* 2008). It has been found that, if used at all, bed-nets may be used for purposes other than preventing malaria. For example, bed-nets are used to prevent mosquito bites for the nuisance factor, rather than attributing malaria to the mosquito (Ongore *et al*., 1989; Aikins *et al*., 1994).

While level of awareness of malaria in other countries in SSA has been examined, few studies have examined the sources of information of malaria in those areas (Doi, 2001; Tsuyuoka *et al.,* 2001; Seck *et al.,* 2008). These have found that the sources of information about malaria included health workers, radio, television, teachers, village community workers, medical personnel, education in school. This current study therefore, adds to this little examined but growing body of knowledge on where rural communities acquire knowledge on malaria.

Given that the decentralized health system aims to be more responsive to the needs of rural communities, community health centres have a role to play in disseminating knowledge on health matters generally and malaria prevention and treatment specifically. Their role in this regard is examined in more detail in Chapters 5 and 6, which discuss the levels of knowledge of malaria and access to malaria knowledge, prevention and treatment respectively. Brieger claims that lack of community involvement is an "attitudinal failing of health staff" and asserts that any health messages being imparted to communities are reflective of a top-down approach where the community members are passive recipients of such health messages (Brieger, 1996: 97). This attitudinal failing of health staff may also pose a barrier to accessing health services. We will see to what extent this is the case in the three rural villages of my

study in Chapter 6. Furthermore, behaviour change agents often take the form of *animateurs,* often coming from outside the communities, either from local government or from associations and non-governmental organizations (NGOs). As Friedmann states,

> Their [animateurs] basic task is to 'animate' – that is to blow the breath of life into the soul of the community and move it to appropriate actions. They are meant to 'spark' endogenous change 'from within', not to carry out the change program; this is the responsibility of the organized community.
>
> Friedmann, 1992: 144

Such figures can also play a key role in disseminating health messages more widely in contextually appropriate media and culturally tailored to the recipient communities. The next section discusses the structural dimensions of health care which influence access to health care.

The concept of social networks is relevant to this thesis in that it determines the kinds of exchange mechanisms that exist in a particular locality that facilitate knowledge acquisition and information sharing on malaria. For this study, such an examination is carried out through analysis of the sources of information on malaria in the three rural villages, in Chapter 5. A social network might be defined as "the web of social relationships that surrounds an individual" (Berkman & Glass, 2000: 145). Such a network can lend itself to social support including care, provision of goods and exchange of information. It is acknowledged that not all ties are supportive and that there is variation in type, frequency, intensity and extent of support provided (*ibid.*). However, a more extensive discussion on this is beyond the scope of the present investigation.

Structural determinants of health care

As discussed earlier, decentralization is not rolled out on uniform societies. Access to health care is influenced by an array of structural dimensions within a given context. Some of the determinants being addressed in this current study are location, gender and poverty. While these are discussed in their theoretical form here, these are examined in detail in the empirical chapters that follow.

Gender dimensions in decentralized health care

This section considers the gender dimensions of health, in decentralized health services and how gender impacts on decision-making, given socially-constructed roles of men and women. This helps in understanding how different constructions of knowledge of health and social norms affect everyday health-seeking behaviours.

Gender is used to describe characteristics of men and women that are socially constructed, in contrast to those that are biologically determined (Tanner & Vlassoff, 1998; Hammer, 2001, Vlassoff & García-Moreno, 2002). It not only refers to biological differences between men and women, but also to the contextual behaviours, within the diverse social and cultural expectations and constraints which are subject to constant change (Vlassoff, 1994; Hammer, 2001). Gender as a key factor in hindering access to health care has been widely studied (Khattab, 1993; Rathgeber & Vlassoff, 1993; Vlassoff & Manderson, 1998; Vlassoff & Garcia-Moreno, 2002).

Gender and health are closely inter-related and there is a vast body of literature that has examined different factors that influence health status (Kabeer, 1997; Standing, 1997; Tanner & Vlassoff, 1998; Theobald *et al.,* 2004; Theobald & Taegtmeyer, 2005; Theobald *et al.,* 2006). The lack of incorporation of gender in health planning can perpetuate structural inequalities which continue to exacerbate conditions inhibiting women's access to health care (Vlassoff, 1994; Heggenhougen *et al*., 2003). In particular, the importance of including gender awareness training among health workers has been stressed as a valuable tool to enhance gender sensitivity in health interventions and not only in health planning (Vlassoff & García-Moreno, 2002). For example, the patronizing views and paternalistic attitudes of male staff towards women, but also towards men of lower socio-economic status, make it harder for these groups to access health services (Vlassoff & Garcia-Moreno, 2002).

An extensive typology presented by Rathgeber & Vlassoff (1993) in Tanner & Vlassoff (1998) suggests that women have generally less access to knowledge about malaria. They alert us also that there is relatively little literature on malaria that takes into account the possible influence of gender factors and gender relations (Tanner & Vlassoff, 1998), despite

the importance of malaria as a public health problem (Chapter 1). They argue that the success of malaria control programmes depends upon a gender-sensitive approach and one that takes into account the level of endemicity of a particular setting.

While the importance of a gender-sensitive approach to health planning has been stressed, access to health care is often subject to varying social and cultural norms. In particular, decision-making processes within households are important determinants of health care seeking behaviours. Often fluid, but also operating within long established cultural norms, decision-making can entail complex and time-consuming processes. In many rural societies decision-making remains firmly the domain of the male members of the household or community. Within the context of my research in the rural areas of Mali, these issues are examined in detail in the empirical chapter on access to prevention and treatment of malaria (Chapter 6).

There have been several studies on decision-making for health-care-seeking behaviour in SSA (Castle, 1992; Yeneneh *et al.,* 1993; Berché, 1998, Tolhurst *et al*., 2008). These suggest that there are similar patterns of household decision-making for treatment-seeking. Tolhurst *et al.* (2008) explain that power differentials in decision-making largely reveal themselves when there is a disagreement about the type of care to be sought and different understandings of the origin of the illness, in the context of their research in Ghana.

Community held traditions, customs and norms may serve to broaden our understanding of the social processes that accompany the health transition, but at the household level they are frequently side-stepped, exacerbated or modified according to a woman's status within the household (Castle, 1992). Castle (1992), in her research on the determinants of child health within the context of her study among the Fulani and Dogon of Central Mali reiterates that illness treatment strategies and daily care of children depend upon the household context and support structure within which they take place. A woman's household position affects each level of her illness management behaviour in different ways depending on the degree of her personal autonomy and accountability (Castle, 1992). Thus ignoring power relations within the household is equivalent to saying it does not matter who seeks the information and who makes the decisions and that all that matters is that all household members will

look after the best interest of everyone else (Miles & Bisharat, 1990 in Castle 1992). It is in this vein, possibly, that women and mothers seek the counsel of the extended family of their husband before seeking treatment for malaria. As Castle explains, once a woman marries, her husband is supposed to pay for all her expenses and not her natal family; "when you are married, you are finished with your *suudu baba*[32], you're expected to get everything from your husband" (Castle, 1992: 134).

Decision-making within households has been analyzed within the context of the Dogon (Berché, 1998). A complex web of decision-makers plays heavily on the decision-making process of accessing health care, referred to as a "therapy organizing group" (Janzen, 1978, 1987). This group of decision-makers often comprises the wider extended family with a well-defined procedure of consultation among different family members. This entails not only consulting on whether to seek treatment but also where the financial burden falls. Such rigidly defined norms may pose significant problems of seeking timely health assistance, particularly for women and children. Their lack of independence, and dependence on male relations in general and not only the husband can mean significant delays in accessing treatment for themselves and their children.

Mobility is an additional constraint affecting a person's capacity to access health care (O'Donnell, 2007; Peters *et al*., 2008). Clearly, this is linked with affordability, but also to enabling circumstances that allow one to do so. For example, cultural constraints impinge heavily on women's movements within and outside of their home setting (Diakité *et al.,* 1993; Berché, 1998). Unless there is a social support network (Berkman & Glass, 2000), that can support or take on some of the individual's role in the household, there is little likelihood of time being available to seeking treatment for malaria.

Access to health care is therefore dependent on multiple factors. Some of the ones highlighted in this section include decision-making power within households, access to financial resources, mobility and other responsibilities. The next section discusses the implication of poverty on access to health care.

[32] *Suudu baba* is the natal kin. The location of the natal kin is important in understanding support structures within and outside the household, whether in the same village, a nearby village or far away (Castle, 1992).

Poverty

"Poverty is recognized as extending beyond the concept of deprivation of income or material assets. It can also be understood as the lack of freedom to lead the life people have reason to value, with people and communities empowered to lead healthy lives seen as both a means to overcoming poverty and an end in itself" (Peters *et al.,* 2008: 161). Poverty is directly linked to the ability to access health care (Worrall *et al.*, 2003). Poverty is said to be both a cause of malaria and a result of malaria (Chapter 1). "The relationship between poverty and access to health care can be seen as part of a larger cycle, where poverty leads to ill health and ill health maintains poverty" (Peters *et al.,* 2008: 161). Some of the factors that exacerbate barriers to accessing health care include user fees for health service utilization, transport costs, treatment costs, access to information and media.

The complex relationship between poverty and malaria has been analyzed in an extensive review by Worrall *et al.* (2003). They reiterate that poverty still appears to be the most important barrier to bed-net use. While in Mali, the national malaria policy is to provide insecticide-treated bed-nets to expectant women and children under five (Chapter 1), this still leaves out a significant segment of the population. Social marketing as a technique to promote health through provision of bed-nets has been successfully implemented in many countries in SSA (Abdulla *et al.*, 2001; Jamu *et al.*, 2002), where it is suggested that social marketing by the private sector enables a higher rate of bed-net ownership in the poorest households. However, the success of such programmes may also depend on the scale and diversity of the communities, and whether there are bed-net treatment sessions within those communities.

Through the examination of the empirical data in Chapters 5 and 6, the extent to which poverty affects levels of awareness and access to knowledge, prevention and treatment of malaria will be discussed.

Summary

This chapter presented the conceptual framework that guides this study. In particular, the chapter has highlighted the importance of decentralized health systems, decentralization's meaning for participation of communities in rural environments and how decentralization has been a key element of health sector reform in developing countries. The challenges of the applicability of decentralization in different arenas, such as health service provision, tropical disease control and malaria management, were also discussed.

We have seen, thus, the complex nature of the participation-decentralization-governance nexus and its application to health care in developing areas. The linkages between health service delivery, decentralization and participation will become apparent in the course of this thesis, as will structural dimensions, for example gender and how these pose a constraint on accessing health services, within the context of local cultural norms and societal attitudes to women's mobility and decision-making within the household. The next chapter provides a methodological framework to the research. It also introduces the study locations and discusses the ethical implications of my research.

Chapter 3

Methodology

"On est ensemble"[33]

Introduction

This chapter charts the evolution of the study, the rationale for the selection of methodology for the research, sampling strategy, a description of the research sites and what research activities were carried out in each. Ethical considerations, including positionality, managing expectations and reciprocity are discussed. The challenges and limitations in carrying out research with the assistance of translators given local language constraints and their commensurate loss of meaning in the interpretation of qualitative data are also analysed. This study is a case study of three villages in rural Mali. The three villages, considered one case, were selected as the basis for this research, whose main aim was outlined in Chapter 1, and are described in detail later in this chapter. A more in-depth discussion on the suitability of this approach to the study appears later in this chapter.

Evolution of research

This research for this study evolved from a first visit to Mali in August 2006. My initial research proposal aimed to address community participation in health service provision in rural Mali. This seven week preliminary visit to the three regions of Kidal, Gao and Mopti as well as the capital city of Bamako, to the south-west of Mali enabled an initial exploration of the health dimensions in those areas. The three regions were chosen for their high poverty indices, given later in this chapter, and general lack of health services available at the rural level, particularly in the northern arid regions of Kidal, which borders Algeria to its north, and Gao, which borders with Niger to its east.

During this visit my contact with villages close to the regional capitals was facilitated by the *Direction Régionale de la Planification, de la Statistique et de l'Information, de l'Amenagement du*

[33] "On est ensemble" was a frequent comment I received in that "we are in it together" in the fight against malaria (see also "on compte sur vous" later in this chapter). All translations from the French, unless otherwise specified, are my own.

Territoire et de la Population (DRPSIAP)[34] and the national DHS teams that were surveying in the regions of Kidal and Gao. Subsequent snowballing led to contacts with other regional government departments with which I have remained in contact throughout the research process. The DRPSIAP in Mopti facilitated access and introductions with local villages[35] through the village leadership, comprising of village chiefs and elders. I also contacted the *Direction Régional de la Santé* (DRS)[36] and the *Direction Régional de Développement Sociale, de la Solidarité et des Personnes Agées* (DRDSSPA)[37] in Sevaré, 13 km from Mopti. In consultation and advice from officers at the latter government department, I selected and made contact with the villages of Doucombo and Promani in the districts of Bandiagara and Djenné respectively. A more detailed discussion on the research sites follows later in this chapter.

Through introductions by the team leaders of the respective DHS teams, informal discussions took place both within villages and with health centres. These discussions threw some light on the priority health issues within these villages, the key issue being malaria as the most prevalent disease. This was corroborated by recorded data available at the health centres, known as the *Centre de Santé Communautaire* (CSCOM), introduced in Chapter 1 and that will be discussed in more detail in Chapter 4, as well as government statistics. The preliminary visit was also helpful in considering the feasibility of future work, including logistics and accommodation arrangements.

This trip enabled entry into villages via *la bonne porte*[38], which greatly facilitated subsequent contact with the community and progression of work. Accompanied by officers from DRPSIAP, we would explain who I was, the purpose of my visit, my role and where I was coming from (country, academic institution)[39]. Thus, this process also facilitated the identification of gatekeepers of information in the community. To frame the research, I would introduce the objectives of my research in meetings with community members

[34] Regional Planning Directorate.
[35] I also visited the villages of Dundu and Barbé, in the district of Mopti, but since they had both had had previous researchers from European NGOs conducting participatory research, I decided to select one which had not received such attention.
[36] Regional Health Directorate.
[37] Regional Social Development Directorate.
[38] *La bonne porte,* literally the good door, through someone who is widely respected and considered in the community, not necessarily through official and formal channels.
[39] This was usually Italy, but based at a British university. A more extensive discussion on my positionality appears later in this chapter.

where I would present them the required permits from local government, which facilitated access to both villages and organizations.

Phases of the fieldwork

My fieldwork was carried out over eleven months in three separate visits to Mali, from 2006 to 2009. The second trip in 2007 was the more extensive data gathering phase. I spent eight months in three villages in the Mopti region and Bamako. While the first visit had allowed a reconnaissance of the area, the second trip enabled a more in-depth research journey. A period spent in Bamako towards the end of the fieldwork in 2007 also allowed some focus and analysis as well as the opportunity to interview NGOs and national authorities. I was able to go back for a subsequent visit to the three villages for about a week's feedback and salutations before returning to the UK.

Having observed how local people are able to transport their motorbikes atop of buses and on *pirogues*[40], the decision to use a motorbike for the purpose of research proved invaluable, and one which I had considered since the first visit in 2006. As well as facilitating access to the villages, this mode of transport was an ideal way of breaking the ice with many people, where it aroused curiosity both within the villages, especially among young men and children, and more widely in daily interactions in the rural towns (Plate 3.1). The motorbike played a pivotal role and was a positive influence in the way I was received and perceived in the community, as well as enabling me to access the villages independently. This factor played in my favour since, by not arriving in a big 4 x 4 vehicle with an NGO sticker on the side, it did not raise expectations, or possibly not as many, of what I was going to bring to the community. Avoiding looking like a VIP[41] that some communities may have become accustomed to seeing from previous visitors in the region[42] was also less alienating. I was also able to assist others with lifts to the towns and markets. I would travel from the nearest town, the district capitals, on my motorbike, crossing the River Niger in Mopti and Djenné, by *pirogue* and on occasion a *bac*[43], on a daily basis, and return by sundown, due to security issues. Without this mode,

[40] A *pirogue* is a boat similar to a Venetian gondola, without a motor.
[41] See Robson (1997) on the multiple and changing role of researchers in field settings.
[42] This was also reinforced earlier in 2006 by a delegate at the DARG/DSA-sponsored workshop on 'Rigour and Originality in Advanced Development Studies Research', held at the University of Liverpool, 31st May-1st June 2006, about being in tune with the local environment and not raising false and unrealistic expectations.
[43] A *bac* is a ferry that transports heavy vehicles across the rivers.

it would have been more challenging and expensive to travel, particularly where there was no direct public transport to the rural communities.

Plate 3.1: On the road from Djenné

My initial thoughts on carrying out this research included the use of participatory research methods, as espoused by Robert Chambers. However, during the course of the initial trip to Mali, it became apparent that this method was less likely to work, given that the rural populations had little time to give to such activities. In fact, it had become quickly apparent, as I discuss in the next section that any formalized group settings led to non-spontaneous responses and constrained natural discussion among the various members.

Methods applied

In order to answer the research questions outlined in Chapter 1, the study design adopted a mixed-method approach including both quantitative and qualitative methods. The quantitative method of data collection was a household survey of 300 households in the three communities. This was accompanied by in-depth interviews with a range of stakeholders, focus groups and participant observation in the communities. I triangulated the data which allowed many different perspectives or sources to be drawn on in the course of the research in order to try and maximize understanding of a research question and ensure rigour in the research process and trustworthiness of the data collected (Valentine 1997).

Secondary data was also collected, to obtain a wider picture of decentralization in the country. These included policy documents of the NMCP, including the national policy of the fight against malaria and the strategic plan of the fight against malaria 2007-2011. There were also national 5 and 10 year development plans for both the national and regional levels (the PRODESS and PDSC documents), newspaper articles, NGO promotional and unpublished material. The DHS 2006 was also consulted. Preliminary data from the Census of 2008 has also been consulted on the internet. I visited the World Bank's documentation centre in Bamako for demographic data and reports on health development in Mali and Africa and the National Archives for historical texts on decentralization in Mali. The aim of secondary data is to give a contextual picture, particularly of where a country is aiming in terms of targets (Clark 1997, Cloke *et al.* 2004, Findlay 2006).

The Survey

The key data collection method I used was a household survey to collect data to establish a socio-economic profile, general trends within the three villages vis-à-vis malaria prevention and treatment. In two villages, Promani and Doucombo, the sampling frame for the survey was a list of households kept by the *relais communautaire*. From this list, every other household was selected, with a total of one hundred households in each village. In the third village, Nantaka, where no list was available as a basis for the sample, every other dwelling was selected starting with the residence of the village chief.

The one hundred households in each village represented nearly half of the households in each village. Due to the fact that the household survey in two out of the three villages took place during the rainy season (period of *hivernage*[44]), it took several visits to the sites in order to complete the questionnaires as the household occupants were often in their agricultural fields, sowing seeds for the next harvest. This may influence the responses to the number of episodes of malaria in the previous month. The population data follows in the description of the villages.

[44] *Hivernage* is the rainy season, which runs normally from June to early November, the main malaria transmission season (Chapter 1), in most of Mali, with the exception of the northern region of Kidal where rainfall is minimal throughout the year.

The head of household was the first person selected in the household for the survey. If the head of household was absent, the next available person over the age of 16 was selected, with their consent, irrespective of being male or female. Another person in the household was selected to gain a picture of that particular household, rather than wait for the head of household to return. As there was no systematic way of selecting the person to interview in the absence of the head of household, other than age and consent, this presents a limitation of this method. The final questionnaire sample with the characteristics of the individuals interviewed is presented in Table 3.1

Table 3.1 Questionnaire sample

Variable	Nantaka	Promani	Doucombo
Gender			
Male	40%	49%	23%
Female	60%	51%	77%
Age range			
17 - 35	35%	28%	28%
36 - 55	25%	34%	27%
56 - 75	17%	23%	13%
76 +	2%	4%	2%
Age unknown	21%	11%	30%
Poverty			
Poor	35%	10%	20%
Poorer	54%	48%	49%
Poorest	11%	42%	31%

Given the lack of uniformity of the sampling frame, this does pose a limitation to the representativeness of the sample. However, given that almost 50% of the households were included in the survey, drawn from all parts of the villages, it is likely that the survey presents a solid overview of the communities studied.

The questionnaire informs the research questions by providing baseline data on the levels of awareness of malaria, its prevention and treatment, both knowledge and practice. By providing a baseline of the socio-economic dimensions, the data gathered through the questionnaire enables an analysis based on location, gender and poverty status, as discussed in Chapter 1. In total the questionnaire included seventy-seven questions, including both quantitative and qualitative data in a semi-structured format. The French and English questionnaires are in Appendix I and II respectively.

The question on source of information of malaria (that is *paludisme*) and the local terms for malaria was introduced into the survey later on in the fieldwork, in Promani and

Doucombo. This was to see how decentralization has affected knowledge acquisition vis-à-vis malaria within the context of a decentralized health system. Therefore, the figures pertaining to sources of information in the first question reflect answers from these two villages. While it would have been useful to have this information right from the start of the survey in Nantaka, it was then included in Promani and Doucombo. The findings are discussed extensively in Chapter 5.

A section on community participation was included to gain a picture of social networks prevalent in the communities (Grootaert *et al.,* 2004). The participation section of the questionnaire, while useful in itself, was perhaps not the best way of gathering information on participation within the villages. While it gave useful information on the kinds of participation existing in the villages, largely through membership of an association, a more participatory approach may have led to more meaningful results. It also provided data on the levels of participation in the study areas which are useful as a backdrop to participation in health. A picture of membership of associations follows later in this chapter.

Conducting a survey facilitated focus group discussions carried out separately with men and women. These allowed for more spontaneous voicing of people's individual perspectives as well as proving beneficial in enabling people to think about the topic(s) within a survey and generate further points of discussion for more in-depth research. Having visited several households for the survey also enabled familiarity with the researcher and helped establish a rapport of mutual trust and respect.

In designing the questionnaire, I drew on existing examples of questionnaire surveys in malaria and tropical diseases (Agyepong *et al.* 1995, Najera & Hempel, 1996, Malaria Consortium, n.d.). The original questionnaire was written in English and subsequently translated by myself into French in Mali, with the assistance of the Director of Planning Directorate in Mopti. It was then pre-tested in Nantaka and modified as a result. It was also shown to community leaders (the village chief and his counsellors) and translators prior to being carried out. This sought to minimize any (in)sensitive aspects of the questionnaire, and familiarize the translators with the questions. In a meeting held with one village chief, I explained the aim of the research and the questionnaire in detail. The

village chief himself read[45] the questionnaire thoroughly and remarked that it would be a valuable survey to have in his village, as this was an area that had not been previously researched there. While this reaction and feedback were very encouraging, as the research progressed in his village it became apparent that there was a significant element of 'survey fatigue' (Cloke *et al.*, 2004: 130; Sultana, 2007) among the respondents, and the village chief's comments had taken a u-turn, which I will come to later in this chapter.

Questionnaire completion took between 8 minutes to one hour and a half. The shortest times occurred when the translator himself carried out the interview and the longest when I asked the questions which were then translated into the local languages. However, different ways of probing by myself and the translator and triangulating meant that mistranslations were minimized as far as possible. The issue with translations and mistranslations has been considered (Chacko, 2004; Bujra, 2006) and later in this chapter I explain how some of this affected my research.

Qualitative methods

The qualitative methods were adopted to help in answering broader questions on decentralization, provision of health services and the health system. To complement quantitative data gathered through the survey, interviews and focus groups were used to help answer the more contextual themes of the research. These helped answer research questions 1 and 2.

There were two main groups of key informants: firstly, government and health service officials in Bamako and Mopti; secondly, village residents. I sought and identified key informants who represented different perspectives of the community in order to get as broad a picture of the villages as possible. In all three communities they included seven community health workers, teachers, and village leaders, including the chiefs and their counselors. Ideally, the same types of participants across the three villages would have yielded more robust data. However, the study was not attempting to reach saturation, particularly given the challenges involved in finding suitable participants for FGDs (see below). I acknowledge that while data gathered from these respondents gives us some indication of how knowledge and practice of malaria vary between different groups,

[45] The village chief was not only literate in at least two languages (Fulani and French), he held a good general knowledge of current affairs, and listened daily to *Radio France Internationale* (RFI).

more long-term ethnographic work would help illuminate these issues and tighten the trustworthiness of the data. The data from the qualitative approaches also led to an understanding of the emerging patterns emerging from the survey data, which are examined in the empirical chapters 5 and 6.

While the sampling of focus group discussions and interviews was not systematic, the research process helped in gaining insights into some of the processes that are experienced at the grassroots level in one region of Mali and present general trends, which are not necessarily representative of rural Mali more widely.

Despite the lack of systematic qualitative data collection, I adopted a number of strategies to maximize the rigour of my data. Firstly, I carried out careful sampling of interviewees and focus group participants. Secondly, I used consistency in questioning across interviews and focus groups where appropriate. Finally, I triangulated the information I collected through my mixed method approach. Such an approach ensured that the trustworthiness of the data gathered with these qualitative methods was met as far as possible. The concept of trustworthiness of qualitative data has been amply examined by social scientists (Harrison *et al.*, 2001; Golafshani, 2003; Shenton, 2004; Rolfe, 2006). In particular, the rigour of qualitative data has been defined according to Guba's four criteria for trustworthiness of data: credibility, transferability, dependability and confirmability (Guba, 1981). A discussion on the philosophical aspects of conducting qualitative research and, in particular, the epistemological significance is beyond the scope of this thesis. There are similar debates about rigour and trustworthiness of quantitative data (Golafshani, 2003; Rolfe, 2006).

Interviews

Interviews were selected as a research method for the range of information and issues that can be raised to answer research questions and provide lead to other themes for later discussion (Willis, 2006). For my research this meant that I was able to find out about the issues related to decentralization, its effects on participation in the community and its significance in health service provision. In particular, interviews were useful in answering the broader issues of decentralization in research question 2 (Chapter 1). Interviews enabled in-depth discussions of the broader themes in decentralized health system, and were an appropriate method to use vis-à-vis different stakeholders.

Considering it to be an appropriate way of building a relationship or 'research alliance' (Batterbury, 1997), I used this technique when interviewing officials in local government, NGOs and international organizations. The interviews were conducted through an open-ended structured interview schedule, included in Appendix III. The interview allowed the respondent to talk more widely about the subject at hand, with a view to creating a dialogue rather than an interrogation (Valentine, 1997) and a 'conversation with a purpose' (Eyles, 1998 in Valentine, 1997) and allowing for a broader range of discussion than a questionnaire, with a consideration of different interviewees, contexts and cultures (Valentine, 1997). In this respect, it was also the more appropriate of methods, since there is a certain degree of formality in Malian society in both the professional and social spheres, related to age, experience and professional rank. Therefore, in these particular instances, an informal approach would have been inappropriate.

The interview is a long and well-established research method in qualitative research (Charmaz, 2006). As a directed conversation, it permits an in-depth exploration of a particular topic or experience (Lofland & Lofland, 1995), to fill a gap in knowledge that other methods cannot provide, investigate complex behaviours and motivations, collect a diversity of meaning, opinions and experiences (Dunn, 2005). However, consideration needs to be given to the location of the interview (taking into account appropriateness and personal security), neutrality, bias, place, space, time, privacy (not being overheard or disturbing others) or interruptions and distractions.

The officials were selected for the kinds of organizations they represented. For example, the NMCP was a critical organization to look at given that malaria control is their bread and butter. Development NGOs in the Mopti region, though this proved problematic in finding those which specifically address malaria. I conducted interviews with many different stakeholders in development: health authorities, including CMO of CSCOMs were selected to get the formal health service view of decentralized health and issues of access to health care, NGOs, local informants, village elders, members of women's associations, and donor agencies and academics from a number of institutions. In-depth interviews were also carried out with some NGOs (Care Mali, Bamako and Kineya Ciwara, Bandiagara), although those working specifically in malaria were hard to find

(except for the two just mentioned). A full list of interviews is attached in Appendix IV. As there appeared to be no coordinated action between NGOs or an up-to-date list of NGOs that was available, access to NGOs was difficult. A rather random approach was taken in locating NGOs often by physically going there without prior knowledge of their domains of intervention. I did go through an out-dated list of NGOs in Mopti and Sevaré, but again these did not lead to pertinent organizations.

In total I conducted 97 interviews in both urban and rural areas, among government authorities, NGO officials, donor agency representatives, independent consultants, village chiefs, counsellors and residents (Appendix IV). In these interviews, I made extensive notes supplemented with recording. However, using a digital voice recorder, while useful in interviews with authorities was not always beneficial in less formal settings where it was often intimidating and awkward, restricting spontaneity of the interviewee. Therefore I did not record any interviews with the residents in the villages.

After initial formalities around interviews, especially with government officers, I gained more confidence and started enjoying the interviews as a general mode of discussion rather than just a series of questions much like in an interrogation. However, interviews were problematic where the interviewees had other commitments and were constantly being interrupted by visitors to their home. One such instance was with a village chief, who also appeared least interested in the interview and neither his body language nor tone engendered further discussion. Indeed, he exclaimed,

> Your questions have not finished? If you want to know about decentralization, I don't know anything about it. You should go to the *mairie* to find out! They will tell you everything you want to know about decentralization!
>
> Village chief, 2007

Focus groups

Focus groups are a method designed to gather information, primarily about beliefs, values and understanding (Khan & Manderson, 1992: 56). They can help facilitate access to 'tacit, uncodified and experiential knowledge' as well as views of the participants (Hopkins, 2007: 528). It allows us generally to get a feel for community issues and, it is argued, is more able to capture specific opinions and perceptions of community-wide issues, which are often lost in household surveys. It is with this perspective, that I

embarked on the use of focus groups. Reflecting on practice and realizing with experience that a more flexible and informal approach would be more appropriate.

In particular, I wanted to know what the participants understood by the term participation and what their main concerns in the village were. Specifically, I wanted to know if they knew what caused malaria, what they did when they had malaria, when did they seek treatment and what preventive measures they knew about and used.

I conducted 14 focus groups in all three villages. The composition of focus groups is included in Appendix V. The focus groups were conducted among marabouts, traditional healers, women's association, shopkeepers, teachers and men. I selected the following focus groups: shopkeepers, for their knowledge of malaria, stocking of bed-nets and anti-malarials, bed-net treatment packs and their understanding of participation and treatment of malaria. Teachers, for their role in health education, through the primary school curriculum, understanding of participation and how community can engage better for malaria control. Traditional healers for their understanding of malaria, its prevention and treatment and when do patients come to them for malaria treatment. Women's group, for their perspective and experience of accessing health care and malaria prevention and treatment, understanding of participation, youth group for their understanding of participation and development, their views on malaria prevention and treatment. Marabouts were selected for their understanding of participation and their role in health education more widely, as well as understanding of malaria. Men for their understanding of malaria and issues regarding access to health care.

Normally, snowballing is a technique used in the recruitment of participants for focus groups. For some focus groups such as of shopkeepers in a village, I compiled a list with the assistance of the translator and any cooperating shopkeeper, and then called on and invited individuals personally to a focus group discussion. A focus group needs appropriate moderating skills and a moderator's guide. The moderator should be able to guide the discussion and lead to different topics, showing sensitivity to the participants and enabling them to engage in a discussion which is also fruitful for them.

The school director in one village was also very helpful and facilitated the focus group discussions with the shopkeepers and the schoolteachers. The former focus group

discussion took place in one of the new classrooms built by the residents in Nantaka with external aid and the latter focus group took place in the school yard.

Ideally, the same types of participants across the three villages would have yielded more robust data. However, the study was not attempting to reach saturation, particularly given the challenges involved in finding suitable participants for FGDs. Within the FGDs themselves, however, I am confident that the participants were representative.

Participant observation

Proponents of participant observation argue that it is a useful method of gaining meaningful insights into the ways people go about their daily routines (Cook, 1997; Hoggart *et al*, 2002). Participant observation involves living and/or working within particular communities in order to understand "how they work from the inside" (Cook, 1997: 127). It is useful in gaining insights into the ways in which they approach and apply health education messages into their everyday lives. The third phase of the research, in 2009, enabled me to return and live in the three villages and facilitated a higher degree of participant observation than in the previous visits. It also allowed me to take something back, that I discuss in detail in the section on reciprocity.

The emphasis placed on health and environment-related practices, such as use of insecticide-treated bed-nets and elimination of breeding sites is valuable in understanding how malaria awareness can be improved in the rural communities. This method helped in answering research question 1. The practice of eliminating breeding sites, or at least reducing their proliferation, was observed in the primary school in one village, where it was a routine practice carried out by the pupils. This reflected the fact that they were aware of the importance of maintaining cleanliness of the environment.

Living in the district capitals allowed space to reflect on the day's proceedings in the village. A notebook was kept for each of the villages which recorded basic demographic data, and general field notes, including discussions with key informants and interviews with respondents, general observations and key data such as number of wells, traditional healers, shops and Qur'ānic[46] schools. In each village surveyed, there were a number of

[46] A Qur'ānic school, or *école coranique,* is an informal group of students, including both boys and girls, led by a *marabout,* or Qur'ānic teacher, whose aim is the study and learning of the verses of the Qur'ān, the

these types of school, whose classes were held on a daily basis, sometimes several times a day to cater for the different age groups.

Positionality

Positionality refers to the characteristics of the researcher that situate her in and the knowledge she produces in a particular position in relation to that of her research subjects (Jenkins, 2005). The best intentions of the researcher and the carefully designed research framework are often far from the reality of conducting research 'in the field'.

In interactions with the wider society, being an independent researcher with no official or professional affiliation reinforced "the transient nature of research conducted by outsiders" (Jenkins, 2005: 103). It was more challenging to present myself as a researcher on malaria control from a non-biomedical perspective. While the feeling of independence was combined with feelings of isolation, I was able to maintain independence as a researcher by lack of such affiliations. Introducing myself a research student at a university in the UK was still met with "who do you work with/for?" and "where is your team?" My response was that I had a local team, which included my translators and key informant gatekeepers in the respective communities. This ensured that I was in fact a "non-expert" who relied heavily on local knowledge. This may have been a refreshing change to their contact with people with more resources, for example NGO staff and local government teams. However, such lack of expertise and access to resources also played to my disadvantage when some village leadership did not consider my research significant enough to warrant a public announcement via the 'village' crier. This lack of prior notice to the residents did in fact hinder access to some households who were uncertain as to my reason for being there, despite full explanations.

Muslims' holy scripture. Children for the *écoles coranique* come from far and wide, their parents usually having handed them over for care to the *marabouts*, out of economic necessity, in the hope of a better grounding in religious education and the benefit of community welfare. Castle (1992) refers to this as educational fostering. An *école coranique* has no official endorsement by the government. An *école coranique* differs significantly in this respect from a *madrassa*, which is an Islamic school, teaching not only Islamic studies and the study of the Qur'ān, but also the regular state curriculum. A *madrassa* benefits from considerable state funding, is officially recognized and the teachers are remunerated. Brenner (2001) offers a detailed historical account of the establishment of *madrassas* in Mali, where "the first schools to be designated as 'médersas (a French language form of the Arabic word *madrassa*) were established by the French in Jenné, Timbuktu, St. Louis [Senegal] and several other communities. Although instruction in Arabic language and Islamic religious studies was offered, these schools were meant to serve the objectives of French colonial policy; they were a French invention which had been developed first in Algeria and were entirely dependent on the French administration" (Brenner, 2001: 39).

There was no single identity or definite nationality or origin attributed to me. There were a number of combinations and permutations that my positionality took on at different stages of the research in different scenarios and was thus "not a static construct but … fluid, with particular aspects being accentuated in a given context" (McDowell, 1997: 382). Reactions to my own research in the health arena, especially in malaria control, were mostly positive, both within and outside of the research context. Furthermore, I believe that taking the time to talk to people on even the most mundane of matters instilled some level of connectivity just at the human level.

A major component of establishing human relations in Mali was to introduce yourself with first and last name[47], in tune with the culturally-embedded social structure known as *senen kunya*, where a surname denotes and defines a person's place in the social hierarchy, and to say 'bonjour', 'bonsoir' and ask about their health and that of their families at every available occasion. The Malian name of *Maryam Traoré*[48], that I had been given by team member of the DHS team in Kidal was invaluable in entering the villages via *la bonne porte*. I believe this enhanced my relationship-building with different members of the communities, both in rural and urban settings and I was (almost) immediately accepted as one of their own. This name consequently drew both pleasure and pain since my new surname denoted membership of the *Bambara* group, which engendered rivalry with some ethnic groups and *cousinage*[49] with others. It also went a small way toward bridging the 'cultural distance' that researchers from overseas may face which can be often greater than the 'physical distance'[50] (Famagan, interview, February 2009, Bamako).

My positionality was further influenced by the people I was working with as people's perceptions of me were influenced through my association with the individual translators. For example, valuable feedback from one of my translators, a teacher in the

[47] Mentioning last name was important as this facilitated placing oneself in the social hierarchy of Malian society which is heavily based on clanship and ethnic group, known as '*senen kunya*'.
[48] The giving of a Malian name is auspicious, as it symbolizes entry and acceptance into Malian society. The last name of Traoré was the same as the DHS team leader's in Kidal, by which I was officially under his 'family'.
[49] Kinship: allowing for friendly banter and teasing, but also responsibility of looking after 'one's own'. These joking relationships, or *senen kunya*, allow for communal harmony by ensuring that dialogue between the different ethnic groups is maintained.
[50] Prof. Famagan explained that a European technician, unaware of cultural norms in Mali, had planned to build a maternity unit next to a cemetery. This clearly was not going to work, due to the negative connotations of death in close proximity to birth. In this sense he regarded anthropology to be of value in increasing cross-cultural understandings (Famagan, interview, 25th February 2009, Bamako).

local school, indicated that some respondents had felt obliged to take part in survey, being too embarrassed to refuse, in case it adversely affected their children in his classes. In another episode in Nantaka, the village chief expressed the view that community reactions may not be positive if I worked with a certain woman of the village with a dubious reputation, since "you can work with her, but you will not find too many people willing to engage in dialogue with you or answer your questions".

A further dimension that had a bearing on my positionality as a researcher was the location of my overnight stay in the villages. While staying in the district capitals enabled me to maintain independence and detachment from the research area in 2007, I was able to 'remedy'[51] this when I returned to Mali in the third phase of the research in early 2009. Staying overnight in the villages fostered better communication and relationship-building with different sections of the communities, and added to the 'research alliances' (Pile, 1991) which I discuss in more detail later in this chapter. This changed my positionality by making me more human in their eyes and subject to awkwardness and often an object of ridicule as well! Although not an ethnographic or anthropological study, such an experience allowed for closer and more sustained contact with the communities. However, this also depends on the extent to which local residents let you in into their lives, as knowing that my stay was limited to maximum a week, they may not have wanted to invest a lot of time in getting to know me or deepening the interaction. One of my neighbours in Doucombo explained, with great sadness, that a US Peace Corps volunteer, whose photographs she showed me, had lived there for 2 years about 10 years ago but had not been in touch since she left, let alone return.

Residing in the household of one village chief, I learned of the intense local politics, involving reputations, formality, hierarchy and social standing in the community. While residing there out of protocol[52], this proved detrimental since my place of residence greatly limited local participation as residents were reluctant to visit me at the village chief's home and were generally unwilling to communicate. However, having a 'room-

[51] A number of people in all three villages remarked that I had not stayed and lived in the villages even one night, in 2007. In 2009, I was able to go back and stay during which I carried out more qualitative research with people.

[52] The village chief in question had made it clear that I was to stay at his residence and not anywhere else in the village. This is the main reason I thought I should comply with the 'instruction'.

mate'[53] in each of the villages greatly added to personal security and was another buffer against unwanted attention.

At the end of the questionnaire interview, some respondents would remark *'on est ensemble'*, that we are together (in the fight against malaria) or '*on compte sur vous'*, we count on you. By adding a sense of increased responsibility in the researcher, this accentuates the ethical dimension of not only reciprocity but also of somehow being instrumental in bringing about relief to hardship and disease. The responsibility that is foisted upon you as an outsider who has access to more material and other advantages and because of that (potentially) able to do more can be felt quite strongly. It is also reflective of the expectations that have been engendered in rural communities by a history of "patronizing hand-out style development interventions" (Michener, 1998: 2114). These interventions "have bred generations of people who think all progress comes from the outside" (*ibid.*).

Being reflexive

In recognition of the need for a more reflexive approach to fieldwork in development geography, the importance of reflecting on the position of the researcher and her role in the research process has been stressed by several researchers (Schoenberger, 1993; England, 1994; Rose, 1997; Valentine, 1997). Reflexivity can be defined as 'self-critical sympathetic introspection and the self-conscious analytical scrutiny of the self as a researcher' (England, 1994: 82 in Valentine, 1997). Reflecting on one's positionality is crucial throughout the fieldwork stage, when "questions of gender, class, race, nationality, politics, history and experience shape our research and interpretations of the world" (Schoenberger, 1993: 218 in Valentine, 1997: 113). It is important that this occurs from the beginning to the end of the research process; just adding it on at the end is mere introspection which can leave positivist methodologies intact. Reflexive considerations must be equally made when conducting interviews with elites, government officials and other persons of power of responsibility, who by "controlling access to knowledge" are in the dominant position (Valentine, 1997).

[53] The room-mates were village chief's daughter, household help, daughter of translator, and daughter of another woman in the neighbourhood.

Crucial to reflexivity also is being aware of representing the voices of others as honestly as possible since by explaining others you are disempowering them. A word of caution was given to me by a hotel manager who also ran his own development project in another part of the region. He advised that an open and honest dialogue would be more likely if I was sincere and respectful with the questions I asked. Researchers are also warned to be careful in assuming that 'they' have 'false beliefs' (not knowledge), which need to be changed, whereas 'we' have knowledge, which needs to be imparted (Good, 1994; Last, *pers. comm.*, March 2010, London), a distinction that is not always made in public health research (Pelto & Pelto, 1997). Further, Farmer cautions us not to exaggerate people's agency, or power, to effect beneficial changes for their own health and welfare (Farmer, 1999 in Heggenhougen *et al.* 2003). I hope that my research was carried out in a way so as to engage with respondents so it might have a positive effect on their lives (Cernea, 1991; Chambers 1983, 1994a, 1994b, 1994c).

Ethics and confidentiality

Ethics has become an increasingly important element in the conduct of research in diverse communities (Cloke *et al.*, 2004). The confidentiality and privacy aspects of respondents need to be maintained and these reiterated at the start of any interview conducted at household and community level, such as in surveys and in-depth interviews. This is particularly important, as Finch (1993) notes about conducting research amongst powerless groups, where she raises the issue of power relations between the researcher and the researched (Finch in Cloke *et al.*, 2004: 164) and hence leading to an *unequal* collaboration (emphasis added).

However, Pile (1991: 467) suggests the possibility of the formation of 'research alliances' between researcher and the researched (Pile, 1991 in Cloke *et al.*, 2004: 165), acknowledging that 'the structures of power between the interviewer and the interviewed are complex and unstable'. Such an environment fosters a safe place for respondents or interviewees to air their views and vision of reality more freely. Every effort, therefore, was made to follow the ethical guidelines of the Developing Areas Research Group[54], the RHUL research ethics guidelines and those suggested by Hammersley & Atkinson (1995) of informed consent, privacy, harm and exploitation and sensitivity to gender and cultural differences (Cloke *et al.*, 2004).

[54] See www.gg.rhul.ac.uk/darg/ethical.htm

Permission was sought before commencing the interviews in the households, reassuring them that there was neither any obligation to take part nor to answer any questions that they did not want to. However, most households accepted and were willing to take part in the survey, though later feedback in one village suggested otherwise. No incentives were offered, whether monetary or other kinds, as I wanted respondents to take part with no expectation of reward or return[55]. For this, I am hugely indebted to the three communities and the respondents, since they mostly, willingly took part and gave their valuable time to talk to me. During the course of the household[56] survey that was subsequently conducted, many respondents enquired what I hoped to achieve with the research. I hope that I have been ethical in presenting a true picture of the research and not raise unrealistic expectations.

I also considered whether it was ethical to tell the communities that the prevention of malaria is very important, even if they do not consider it to be a serious issue. I came to the conclusion that my role was also within the ambit of malaria awareness-raising, and that it was a way of reciprocating for their time, so much so that a few respondents did state that this knowledge-sharing was helping them gain an understanding of malaria. Rather, I considered it would have been unethical and a wasted opportunity to not share this knowledge with the respondents.

During the survey, a young woman in Doucombo inquired whether it was "as easy for us to go there as it is for you to come here?" (Aissa, survey, August 2007, Doucombo). This was a clear example of the unequal power relations inherent in embarking on research in the Global South. This leads to issues of ethics in not flaunting any apparent ease of movement around the village, but rather it was preferred that there was some reserve on my part as well and certainly not 'waltzing' around the village unescorted by a village resident, in my case, normally the translator, who also acted as a key informant.

Informed consent was sought before taking photographs in each village and the occasional refusal to be photographed was respected. Similarly, pseudonyms are used for

[55] The issue of reciprocity was extensively considered. This is an issue I return to later in the chapter, discussing how I overcame this and was able to 'take something back' to the communities during the third phase of the fieldwork in early 2009.
[56] For this thesis, the household is defined as a group of people sharing the same roof as a unit and eating from the same kitchen. For issues regarding definitions of households see Coast, Randall & Leone (2008).

the respondents from the villages, including translators and individuals, to protect their anonymity (see Appendix IV). However, for the official interviews with authorities and government departments, informed consent of the interviewees was obtained for the use of their real names.

Language and translation considerations

The research carried out in Mali necessitated working with translators who were proficient in the local languages as well as French. Smith (1996) highlights the issues associated with conducting research in a language other than that of the researcher and its subsequent translation into his or her own language. She stresses that language has "multiple meanings and associations (…) in one cultural and linguistic context" (Smith 1996: 161), many of which are inevitably lost in even the most careful translation. Some of the challenges encountered in selecting and working with translators are described below in the descriptions of each village.

The complexity of research is amplified when operating in another language, where there is inevitable powerlessness in understanding with significant control in the hands of a translator. I often felt powerless when translators would get involved in a discussion all of their own with the respondents. This was the case during one particular focus group held with shopkeepers. My translator appeared to be rather enjoying having an exchange with a certain participant. Consequently, his role as translator was doubled-up as a moderator.

Smith stresses the issues and limitations of conducting research in a foreign language which is then written up in the researcher's own language (Smith, 1996). Therefore such research, places the research subject one step further away from the final text as "the very act of research places the researcher in a position of power in representing others through language and in the interpretation of the meanings other people give to their lives" (Smith, 1996: 163). This then clearly has implications for the trustworthiness of data that I was able then to triangulate with other respondents.

To facilitate fieldwork, I took a language course in *Bamanan-kan*[57], one of Mali's national languages, in London for six months prior to going to Mali with a Franco-Malian living and working in the UK, with whom I made contact through the Friends of Mali Association[58]. While French is widely spoken in the urban centres, it is not so widely spoken in the rural areas and my limited skills in *Bamanan-kan* necessitated working with local translators, even though spoken widely in Mali as well as other parts of West Africa, *Bamanan-kan* was not necessarily spoken by many people in the villages researched. My ability to speak French enabled interviews with donor organizations, NGOs, federal, regional and district authorities and local residents.

Despite fluency in French, with a limited command of local languages, other cross-cultural factors needed to be taken into account. These included norms, values and culturally-specific understandings of health and disease. Chacko (2004: 54) asserts that "linguistic capability does not translate into cultural fluency" therefore my outsider status would lead to only a partial and incomplete understanding of the social dimensions in the communities researched. A Malian would interpret the findings differently and possibly more closely to the reality, though not necessarily exact, since there are a multitude of local contexts and understandings, each according to the many diverse ethnic groups in the country and each carrying their own positionality in any given context. Outsider status does not have to mean disadvantage however, since it is possible that it is precisely this that may have encouraged people to talk a bit more about differences and challenges they faced on a day-to-day basis.

Selection of translators

Given the local language limitations mentioned above, in order to facilitate research in the communities, I sought the assistance of people who lived in the villages themselves. This, I thought, would lend legitimacy to the argument of participatory approach, by seeking the assistance of local knowledge-holders (Bujra, 2006; Simon, 2006).

Hiring local translators meant significant cost savings, as I did not have to cover their lodging and maintenance. Having agreed daily remuneration, I would pay this at the end of the working day. Working with translators was a valuable learning relationship,

[57] This is the local language term for *Bambara*, which is a French adaptation. *Bamanan-kan* literally means the language (*kan*) of the *Bambara.*
[58] See www.friendsofmali.org.

turning them into key informants giving social and cultural insights into local realities. It was also reassuring that there was an intermediary who could act as a guide and I was grateful for the buffering effect of the translators, who would deflect uncomfortable questions such as "why did I not get a bed-net?" to avoid embarrassment. This was not so much avoidance on my part, rather an effort to limit any conflict that may have arisen. In addition, translators can also mould and become commensurate diplomats in softening hard language, thus adding their own interpretation, and in using their personal powers of persuasion in seeking responses. Their role becomes multi-faceted and indeed on occasion they may take on the role of the researcher himself/herself.

Feedback from one of the translators suggested that the research in itself was instilling a sense of importance of malaria and making people think about what it actually meant[59]. It was in this vein that I provided photocopies of the French version of a malaria awareness-raising manual[60] to one of my translators who had expressed an interest in continuing awareness-raising in his village and elsewhere after I left. I found this very encouraging on a personal level, hoping that the research may have future direct benefits in the community. In any case, the younger translators had stated that they had also gained from the experience in working in this project, gaining more knowledge not only on malaria, but also about the communities they lived in. From time to time I received feedback from two of the three translators, by email, on how they were benefitting from using the bed-nets I distributed in 2009.

The selection of translators proved the most challenging in the village of Nantaka out of all three areas researched. I had originally planned to work primarily with women from the communities as I believed that this would facilitate access to households, particularly in those where women were respondents. Secondly, I was aware that in this context a woman working with a man would raise eyebrows and draw unwanted attention. This would also facilitate access to households where the men were away (Simon, 2006). However, my three attempts to work with women translators, two from within the village, one of whom was a *relais communautaire* and one from outside the village, were unsuccessful. After a trial period of a few hours it became evident that their household duties and prior work commitments did not allow them to spend the entire day working

[59] "Ça soulleve un sense d'importance du moustiquaire et du paludisme" (Isa, July 2007, Promani)
[60] Malaria Consortium (n.d.) Partnerships for Change & Communication: Guidelines for malaria control, LSHTM/WHO, London.

with me, walking from house to house in the village. Furthermore, they said they did not understand French well enough to translate into the local languages.

This lack of success led to a change of strategy. With further consultation with the village chief and his counsellors, I decided to work with a male translator they suggested, proficient in French and with no current impediments[61] to assist in my research. There appeared to be no negative biases in this selection as at this stage the sole criteria was someone with French proficiency, time availability and willingness to assist me in the survey.

The survey in Nantaka took the longest out of the three villages. After the initial time invested on identifying a suitable translator, his absences of a couple of days at a time due to job applications, were noted by several people when I was in the village on my own and on one occasion, a woman, who I had become friends with, reprimanded him that he left me to walk on my own around the village. As he was a doing a good job of the survey itself, I did not want to look for another translator to fill his shoes, although he was sometimes more interested in *'causerie'* [62] than continuing with the survey. He also could not do without his tea after lunch and any suggestion on my part to skip the tea since this ritual alone could take up to forty-five minutes[63], would lead to a sulking expression and as I did not want to cause further offence, I would go along with his request.

In Doucombo, the selection of a translator was made easier when I met Juma. He was on vacation having just finished his secondary schooling and was awaiting *baccalaureat* exam results[64]. The first two or three days working with Juma proved somewhat challenging and building a rapport seemed difficult. He was doing the best he could, though I felt I was losing a lot of data through lack of translation, such that "the rich flow of words was reduced to a desert" (Bujra, 2006: 173) and perhaps a significant lack of interest in the subject matter and work itself. After I had a feedback session with

[61] He had finished his degree in accounting and was making job applications. This meant that sometimes he had to be away dealing with paperwork, leaving me to my own devices in the village.
[62] A *causerie* is a general chit chat, from the French verb *cause*.
[63] The *thé* consists of boiling Chinese green tea leaves together with sugar and water in a small teapot on a coal fire. There are three stages to *thé*: the *première* (first), the *deuxième* (second) and the *troisième* (third), which are progressively weaker teas, since it is the same batch of leaves that are used in the subsequent cooking.
[64] Juma successfully completed his secondary education in 2007 and is now in his third year reading Law at the University of Bamako.

Juma at the end of the third day of the survey he agreed to make more effort and show a bit of interest in the work. After this, the working relationship improved and we managed to complete the survey of 100 households in Doucombo in the shortest time taken during the entire survey among the three villages.

Some limitations included lack of fluency in the local languages which meant that I could not conduct interviews unassisted. The translators held considerable power in terms of availability and loss of translation in data collection. As such, I identify closely with Bujra (2006) of losing most of the control which a researcher would normally have to guide the agenda of the researcher. I often also felt unable to develop a rapport with the respondents and have empathy with them as "situating oneself as an intermediary between local groups and the wider community is simply a good way to get research done in its own right" (Batterbury, 1997: 105) and acting as a broker (Chambers, 1994; Kumar, 2007).

Managing expectations and reciprocity

Managing expectations and reciprocity are key aspects of managing any research project. Introducing myself to the households by explaining why I had come to their particular village was the entry point to the household. Not raising expectations in terms of what I was able or unable to do or provide for the community was also a key dimension in conducting this study since there was also a healthy scepticism about my presence in the village, particularly in terms of what I could materially deliver. Expectations centred on the provision of medicines, and provision of a health facility. My translators informed me that these expectations had been instilled over many years of receiving such gifts from a variety of donors, be they individuals, local or national NGOs or international bodies, echoing Michener (1998) as discussed above. There was also a recent history of such a group from Europe having visited one of the villages which promised the construction of a health centre. Such contact and interactions with researchers raise the issue of external reliance, sustainability and dependence.

The ethics of research include reciprocity as a way of establishing rapport and research alliances. I had considered this extensively over the previous two phases of the fieldwork. The award of college travel grant provided an opportunity to return to Mali in 2009 and take something back to the research areas. This enabled me to address the

opportunity cost of participation during the survey in 2007, where an incentive would have been welcome. Hopefully, the lack of initial incentives was made up by providing bed-nets in the last phase of the fieldwork to which I now turn.

Reciprocating through distribution of bed-nets

The idea of distributing insecticide-treated bed-nets (ITNs) as a gesture of thanks came during the planning of phase 3 of the fieldwork. A fundraising effort for the purchase of ITNs in Mali was carried out in January 2009 within my department at Royal Holloway. The funds collected allowed the purchase of 120 bed-nets in Mopti[65]. These, added to the 300 bed-nets donated by UNICEF, Sevaré, meant that in addition to the 300 households who took part in the survey, I was able to give an additional 40 bed-nets per village to further vulnerable sections of the population. These included elderly men and women and young men who were not living in their parental home. There was considerable surprise at my return in 2009, but more positive due to the fact I returned with something rather than empty-handed. The distribution of bed-nets to reciprocate for their time with a tangible measure of malaria prevention and directly connected with the research[66] allowed the respondents to make the connection between me as the researcher, the subject of the survey and themselves as participants in the research. This proved successful in that some people remarked that "now we understand your work". In Plates 3.2 and 3.3 bed-net distribution to village residents is shown.

Subsequent to the distribution of insecticide-treated bed-nets to the households, my positionality changed further, from someone who sought information to someone who added something to the community. People were more open towards me and more willing to engage in conversation and exchange pleasantries. This, however, was not uniform across the three communities, and indeed the act of giving a bed-net was on one occasion met with scorn as in "only one, what about my second wife?" (Village counsellor, February 2009, Nantaka). Some people volunteered information about how they had been discussing my work among themselves:

> You've done good work in the village – everyone is talking about you.
>
> Mariam, Promani, 2009

and

[65] These were bought from a local grocery store which had a large stock.
[66] As opposed to providing short-life consumables such as sugar, flour, tea.

They are motivated by the bed-nets they received and are very happy to meet you. They are saying *akain kosobe,* she did good work.

Isa, Promani, 2009

Plate 3.2: Bed-net distribution to a household

As long as I was providing bed-nets to certain people it was fine, but those who did not receive one due to non-participation in the household survey, were abusive to me. For example, the phrases "go home!" and "I have a right to a bed-net" were shouted from across the desert village landscape.

Plate 3.3: Bed-net distribution to a survey respondent

During the ITNs distribution, I approached the households by asking them if they remembered me from 2007, when I came and asked them a lot of questions. The majority did remember, prompting some to say "here again?!" I asked them if they remembered what I asked them, the subject of the research. A very interesting pattern emerged. In Nantaka, most people recalled the questions related to the socio-economic aspects, such as education, literacy, number of children and occupation. Very few said "and some questions on health". In Promani, more people recalled the malaria aspects of the survey, although there was stronger recall on the socio-economic aspects. Here, one woman in particular, recalled the KAP questions on malaria very precisely, in the space of a couple of minutes and also had the correct responses. This episode on its own was very heart-warming, and I was ready to proclaim her malaria eradication champion for the Mopti region! At the very least, I suggested that she should consider becoming a health worker of some kind or an *animateur* in which she could raise awareness of malaria in the community. It may be possible that she imparted this information during the course of her day-to-day activities anyway, but she said that her household responsibilities did not permit her to do anything more committing, an element of the social construction of gender that has been highlighted in Chapter 2. In Doucombo, a much higher proportion of the survey population recalled health and malaria specifically. Given the above reactions to my return to the villages, I would like to see myself and be seen by others as an interlocutor (Nast, 1994), to act as a conduit, broker, transmitting ideas and resources, in both directions (Bebbington, 1993). This approach recognizes the essential 'difference' of the researcher from his/her hosts, the partiality of his/her perspective, and acknowledges that one is neither an insider nor outsider in any absolute sense, but rather an interlocutor (Nast, 1994).

Data analysis

As the survey progressed in each of the villages, data entry on Excel spreadsheets was carried out in Mopti, Djenné and Bandiagara. It took about 5 days of data entry per village, which was carried out during evenings and weekends. At the same time, data cleaning was performed manually and where possible, missing information was gathered during subsequent visits to the individual households in the villages. I also carried out manual coding of open-ended questions on paper for the three hundred questionnaires. Open-ended questions were coded manually, entered into Excel and turned into graphs.

Back in Bamako in September 2007 Excel data was transferred to SPSS v.14 (Statistical Package for Social Scientists) at the offices of CAREF, where I resided for three months.

Cross tabulations in SPSS were used in deriving tables and graphs. Statistical analysis included carrying out chi-squared tests to see whether there were associations between variables or any significant differences between knowledge of malaria, its prevention and treatment with village, gender and poverty as the basis of analysis (Chapter 1). The significance value is the probability of accepting or rejecting null hypothesis between two cross-tabulated variables. A conventional approach is that if the p-value, which denotes the significance, is greater than 0.05, there is no difference between the variables, the null hypothesis (Ho) is accepted. If p-value is less than 0.05, the null hypothesis is rejected and there is a significant difference between the two variables (Gardner & Altman, 1989; Puri, 2002). In most cases, where there were small categories of data categories were merged to make the chi-squared tests more robust for significance.

The variables village, gender and poverty were chosen as the basis of analysis of the survey, discussed in Chapters 1 and 2. As the survey was carried out in three villages, such an analysis provided a useful comparison to see whether there were any significant differences in the levels of awareness of malaria and the villages, given their proximity to the respective district capitals and health centres. Similarly, the analysis provided useful comparisons between gender and malaria knowledge and poverty and malaria knowledge. Adopting this as a basis of analysis helped in answering research questions 1 and 2 (Chapter 1).

However, I acknowledge that the sample selection does not allow for robust statistical significance tests. This is because the selection of men and women was not systematic, that is there were not an equal number of men and women selected for the household survey. As discussed earlier, where the head of household was not present, the next available person over the age of 16 was interviewed, with their consent, irrespective of their gender.

Qualitative data was analysed by drawing out the main themes from the interview and focus group notes (Miles & Huberman, 1984; Ryan & Bernard, 2000). These themes related to knowledge of malaria, malaria prevention and treatment practices, as well as

general discussions about the health facilities in the area. The thematic analysis was done by hand, rather than through the use of qualitative analysis software (Cloke *et al.*, 2004), from interview notes and focus group discussions and some of these have been used as quotes in the empirical analysis (Chapters 4,5 and 6). The interview notes and focus group discussion notes were marked (highlighted) with colour codes for ease of references on paper (Ryan & Barnard, 2000).

While qualitative data was gathered through interviews, focus groups and participant observation, I have weaved these insights throughout the empirical chapters 4, 5 and 6 in the relevant sections. As such, while there is a lack of systematic presentation of data in a thematic manner, the sources of the qualitative quotations have been acknowledged in brackets.

Poverty ranking

As poverty was one of the variables of analysis of data from the survey (Chapter 1), a poverty ranking of the households was carried out to gain an insight into socio-economic differences and examine how this bore on prevention and treatment of malaria. The differences and comparisons in these variables will become apparent in the empirical chapters that follow.

The sample was stratified by poverty according to the socio-economic variables collected in a composite poverty indicator (CPI). A composite poverty indicator was designed to rank households according to a number of socio-economic data in the questionnaire. These included the following socio-economic variables and assets: education, housing[67], drinking water source, type of sanitation available to the household, ownership of radio, ownership of television, ownership of vehicle and occupation of the head of household. The inclusion of household ownership of material and other assets to construct SES is a common practice in measuring household well-being (Worrall *et al.*, 2003; Barat *et al.*, 2004). Table 3.2 shows the distribution of the sample according to the categories just described.

[67] Housing material included 'bois et banco': 'bois' is wood, and 'banco' is mud which is a widely used material due to its cooling properties in the hot and dry season as it does not heat up and serves as a buffer against high temperatures, and wet clay prevents the infiltration of water through the roofs. However, the rainy season remains a high risk for houses constructed in 'banco' (translated by the author from Kiré, 2003: 154).

The CPI distinguished between poor, poorer and poorest households, following Mercer (1999). The criteria used for defining the households was as follows: if the household met up to 2 factors out of the eight they were ranked in the poorest households (rank 3), if they had 3-4 factors, they were classified in the poorer households (rank 2), and 5 and above were ranked the poor households (or least poor, rank 1).

It is widely acknowledged that measuring SES is challenging (Worrall *et al.*, 2002; Oakes & Rossi, 2003; Barat *et al.*, 2004; Morse, 2004). Clearly, there are issues with devising composite poverty indicators. There could be over-simplification of each individual component of the index, which may be only a proxy indicator of poverty that can hide the richness of data in a single indicator (Morse, 2004). Furthermore, the validity of an even distribution of poverty among households is difficult to assess, as the underlying index value of an even distribution is rarely reported (Worrall *et al.*, 2003). Worrall *et al.* (2003: 8) elucidate that "the distribution may be extremely uneven, with a large proportion of the population having very few assets and a very small proportion having a large number", which would then not justify the division of households into equal sized groups, quartiles or quintiles. Therefore an uneven distribution of poverty, as was the case in my study (Table 3.2), is considered valid (Worrall et al 2003). One major limitation of such indices is that the types of variables and weights given to them vary from study to study, limiting comparisions across studies and countries (Barat *et al.* 2004).

As I did not ask questions related to income or expenditure, which are considered unreliable measures of SES, and also more difficult to collect data on (Victora, 2007), the use of material assets to devise a composite indicator was deemed more appropriate, for their relative ease in collection and as a proxy measure for poverty. I acknowledge that a more qualitative approach to measuring poverty may have yielded more insights into the communities' own perspectives on relative poverty. Moreover, poverty may be interpreted differently between members of the same village. For example, my attempt to conduct a poverty ranking exercise within one village among a few members resulted in "we are all poor here". Indeed, a conversation with a village chief prompted him to say "the village chief is the poorest!" (Village chief, interview, February 2009, Doucombo). Ideally, a poverty ranking exercise would have been carried out with participation of the village residents, where local perceptions of poverty could have provided the basis for classification of households (Hargreaves *et al.*, 2007). However,

given the constraints of conducting focus groups discussed earlier, this exercise was carried out back in the UK based on the socio-economic data in the survey.

Table 3.2 Poverty ranking of the sample population in the study

Wealth rank	% of households	Description
1	21.7 (n=65)	Relatively better off: owns radio + TV, has multiple materials in housing, has private latrine, obtains water from pump, owns a vehicle (motorbike/car), employee; has secondary education
2	50.3 (n=151)	Owns a radio, communal latrine, basic housing, water from communal, neighbourhood wells, no vehicle, agriculture/petty trading, primary education
3	28 (n=84)	Radio, nature, basic housing, water from well/river, no vehicle, no primary education, religious education (Qur'ān/madrassa)

Limitation of research methods adopted

Limitations of survey

The survey proved invaluable in providing the basis of analysis for the study. It would have been ideal to have a more participatory survey, if that had been possible. Clearly, the value of the quantitative data lies in its basic information. It gives a wide picture of malaria awareness in the three villages. I am aware of the limitations of using questionnaires, in that of misunderstanding the questions by respondents, lying (as corroborated by Sangaré, interview, September 2007, Bamako) and stating what the respondent thinks the surveyor wants to hear thus raising the issue of trustworthiness of the data, which is discussed in more detail below. In addition, the 'survey fatigue' mentioned above, may have produced little interest in responding to the questions, thus raising the issue of trustworthiness of the data. This may have been compounded with the translation that was necessary to conduct the survey.

Limitations of interviews

Interviews did not mean that everyone was very collaborative when I used this method. In an interview with a school teacher, he did not seem particularly interested in answering my questions or talking to me and I got the feeling of mistrust about my intent. It turned out he was a good friend of the counsellor who had some strong views about my presence in his village. He was disgruntled because I had not given him a bed-net as part of my distribution (discussed earlier) and hence his attitude was not only of

mistrust but of non-collaboration. It may be due to a culture of not volunteering information or of mistrust, where often I would get 'n'est connais pas'[68] as a frequent response, particularly as regards knowledge of malaria (Chapter 5).

Limitations of focus groups

In evaluating the methods I adopted in this research, I found that the use of focus groups proved the most problematic. Episodes of mistrust and scepticism meant the 'recruiting' of participants was challenging, despite snowballing. Some individuals made it very clear that they had "no time to waste to answer useless questions" (shopkeeper, April 2007, Nantaka), or at any rate, questions that would bring them nothing in return. This was the case with a focus group participant who left the discussion while it was in progress. Indeed, one householder explicitly asked me at whose behest I was waltzing in the village and with what purpose?[69]

Secondly, it was unrealistic to expect the translator to double up as a moderator as well, which was my job as implementor of this method in the current environment. Hence, the group discussion where "the conversation flows because of the nurturing of the moderator" (Krueger, 1994: 100) was not flowing as much as starting and stopping with translation to and from the participants.

Hence, my inexperience in moderating focus groups compounded with the nuisance of the recorder, intended to accompany my note-taking of the French translation, inhibited open-ness and spontaneity by the participants, and made the whole exercise contrived, stiff, formal and time-consuming and ensured the lack of success of such a method. A lack of reward for time spent in this discussion meant motivation and interest in the discussion was low. Furthermore, there was a point at which one of my translators seem to take on not only the role of translating but combined it with researcher and moderator in one, so as to getting personally involved in the discussion and expressing his own views! This was an aspect of focus group moderating that Krueger (1994) has alerted us to. As this method proved not only time-consuming but also problematic in its conduct

[68] 'don't know'; this issue was mentioned by a government official during an interview in 2007, as a standard response to be expected in the Mopti region, due to mistrust of the outsider.
[69] I stated that the village chief, with whom I had lodged copies of the research permit and local government authorization, was aware of the research and my presence in the village. He duly checked this with him and on reassurances from the village chief that I was a *bona fide* visitor to his village he said I could proceed with the survey.

and maintaining the interest of the participants I decided to abandon this method of data gathering.

Limitations of participant observation

While a useful method in itself this method was perhaps not the most suitable to inform the research questions. It would have been also useful to observe the practice of putting up bed-nets at night, but this did not seem a very practical idea, of going household to household at night time.

Research settings

This section describes the rationale behind the research study approach, the study locations and the context of the area, including the burden of malaria in those survey sites.

The research adopted a case study approach which was considered the most appropriate way to answer the research questions, outlined in Chapter 1. The research sought to understand the operation of a decentralized health system 'on the ground'. Given the diversity of rural communities in Mali, the aim was not to make generalizations about rural Mali, but to gain some insights into possible limitations and successes of Mali's decentralization policies. Case studies can be done with both qualitative and quantitative data (Yin, 1981), with evidence coming from a number of different research methods rather than the use of just one particular data collection method. The context within which the research is conducted is part of the study in that the data generated pertains to the specificities surrounding the research locations. As such, the data that is then generated through this approach is not generalizable to contexts outside of it (Yin, 1981).

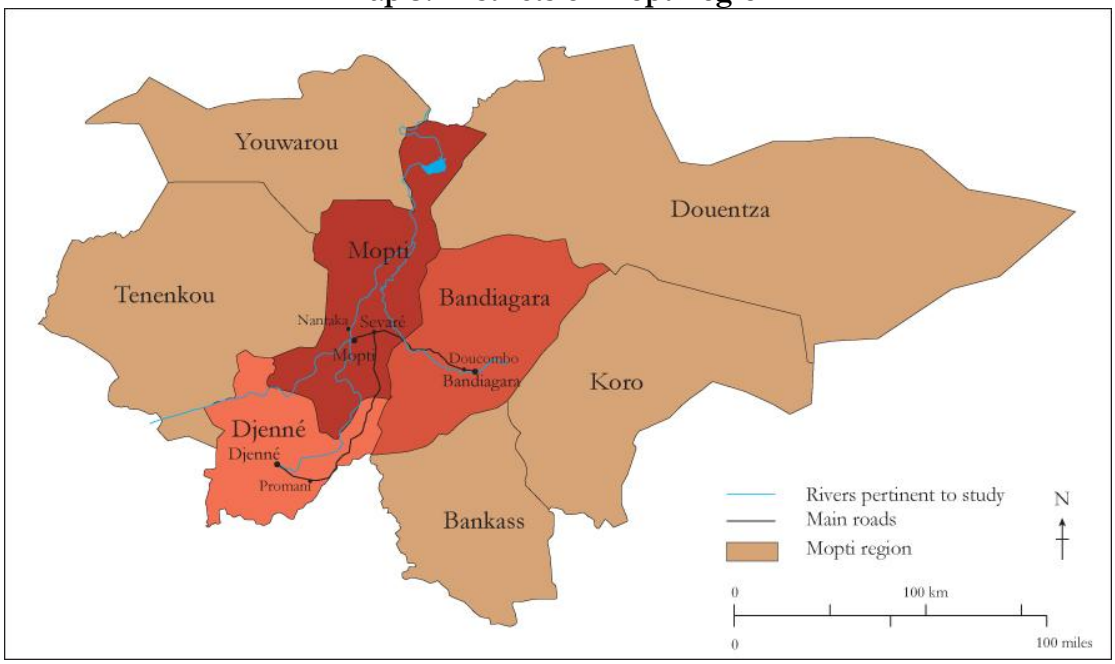
A case study approach was adopted to show trends in three rural locations. The study is a case study because the data generated pertains to patterns within those specific rural locations. As such it aims to understand patterns of knowledge and practice of prevention and treatment of malaria in the context of three rural villages. It does this through the household survey, giving a quantitative base to the analysis. This is complemented by qualitative research in the form of interviews, focus groups and participant observation.

The case study nature of this research means that the data generated is not generalizable to other villages within the region, either within the same districts or in other districts within the same region or to other regions in Mali. In particular, where other regions have benefited more from health education campaigns and interventions for the prevention and treatment of malaria, the data from studies in those areas may reflect this in those regions, and thus knowledge and practice of malaria prevention and treatment may reflect such interventions or campaigns. While the sample was not statistically representative of Mali as a whole, this case study is a valuable contribution to knowledge on the prevention and control of malaria and their processes in these localities within the context of decentralization.

Region of Mopti

The region of Mopti lies in central Mali. There are eight *cercles* (districts) in the region of Mopti: four are located in the dry plain (*zone exondée*): Bandiagara, Bankass, Koro and Douentza and four are located in the flood plain (*zone inondée*): Djenné, Mopti, Tenenkou and Youwarou (Map 3).

Map 3: Districts of Mopti region



Indicators of poverty suggest that Mopti is one of the poorest of all regions in Mali (Table 3.3). The region also has one of the highest malaria prevalence of the country,

with over 130,000 cases of malaria and 128 deaths from malaria in 2007 (Région de Mopti, 2008). In particular, there was a high rate of episodes of malaria in the households across village, gender and poverty (described later in this chapter).

Table 3.3: Incidence of poverty by region (%)

Region	Incidence of poverty
Kayes	67.9
Koulikoro	83.5
Sikasso	81.8
Ségou	65.3
Mopti	**78.5**
Tombouctou	54.5
Gao	48.2
Kidal	33.8
Bamako	27.5
Total	68.3

Source: ODHD/LCPM, 2006.

In the Census of 2008, the regional population stood at 2,037,330 or just over 14% of the total population of Mali (RGPH, 2009). With a regional growth rate of 0.4%, the district (*cercle*) population for Mopti was 368,512, for Djenné it was 207,260 and for Bandiagara district the population was 317,965 inhabitants. The surface area of the region is 79,017 km². Decentralization led to 117 *collectivités*: 108 communes, in which there are five urban communes (Mopti, Bandiagara, Djenné, Douentza and Tenenkou), 8 *Conseils de Cercle* and one regional assembly, based in Sevaré, 13 km away from Mopti. There are 2,064 villages in the region (SIS, 2008).

The *cercle* of Mopti had 254 villages and 15 *communes* of which 14 are rural and 1 is urban. Males comprise 49% of the population and females 51%, and the majority of people are under 15 years of age, which reflects the national picture (*ibid.*). The region has a mixed ethnic population including *Bambara*, *Peulh*, *Bozo*, *Somono*, *Sonrai*, *Mossi*, *Marka* and *Dogon*. The main economic activities include agriculture, cattle-breeding, fishing and handicrafts. The mobility of the population is one reason for constraints to wider coverage of health service in basic minimum needs[70] (Chapter 4).

[70] Paquet minimum d'activités (PMA): consisting of preventive, curative and health promotion elements (FENASCOM, 2006).

There were 130 CSCOMs in the whole region, 10 private health centres, 20 pharmaceutical factories, 2 health training schools, 8 CSREFs[71] and one regional hospital in Mopti town. It also has 3 Catholic centres, and para-statals include the army, the INPS and a dispensary (SLIS, 2008, DRS, Région de Mopti). There are 21 CSCOMs in the district of Bandiagara, 15 in the district of Djenné and 21 in the district of Bandiagara (Barry, *email comm*., July 2010).

Three *cercles* were selected in the region of Mopti: *cercles* of Mopti, Djenné and Bandiagara. The *cercles* of Mopti and the *cercle* of Djenné, comprising 12 *communes*, are in what are known as the *zone inondée*, an area vulnerable to flooding, due to its proximity to the Rivers Niger and Yamé, respectively. The *cercle* of Bandiagara, which comprises 21 *communes* is in a *zone exondée*, which is considered an arid zone, with minimal rainfall[72]. These were selected for their malaria endemicity (Map 1.3), lack of health centre and ease of access. The characteristics of each village are described under the section pertaining to the villages, later in this chapter.

Furthermore, the dearth of human resources in health services in rural Mali is acutely felt. In 2006, the health personnel ratios in the Mopti region were as follows: 1 doctor per 25,664 inhabitants, 1 midwife per 63,172 inhabitants and 1 nurse per 7,300 inhabitants (République du Mali, 2007c: 23). These ratios are far lower than the WHO standards of 1/10,000, 1/5,000 and 1/5,000 respectively, clearly indicating a paucity of qualified health personnel in the region. For the same year, in the Mopti region, there were 61 doctors (9% of Mali's total number of doctors), 27 midwives (5% of total number of midwives) and 140 nurses (9% of the total number of nurses in Mali) (ODHD/LCPM, 2006b: 52). The lack of incentives and motivation prevents trained staff from taking up posts in rural areas, preferring Bamako postings for the higher likelihood of progression in the health services (Koita, interview, November 2007, Bamako).

[71] Centre de santé de référence (CSREF) is the second level of health care, based in the district capitals.

[72] However, in the rainy season of 2007 the banks of the River Yamé burst and the subsequent flooding destroyed the 'banco' homes of a significant proportion of inhabitants along the river bank as well as causing the collapse of three out of the four bridges into the rural town of Bandiagara. The local authorities placed the affected homeless population in a local school, while assessing the damage and making provision for rehabilitation and rebuilding of homes, on a different site. This posed significant problems, since for cultural and historical reasons, the affected families wanted to rebuild their homes in exactly the same place.

My survey found a literacy rate of 26% in the three villages. More men than women were literate (50% and 11% respectively). As might be expected, the poor category was more literate than either the poorer or poorer categories (45%, 24% and 14% respectively). Overall, 14% of the sample population had completed primary schooling, while 59% had no schooling and 23% went to a madrassa or Qur'ānic school. There were 71% women who had no schooling and of those with no schooling, 74% were from the poorest category.

Participation in associations

Membership of an association still constitutes a significant if not the main existing form of participation in the rural areas of Mali. Associations, or *tònw*[73], serve as meeting grounds for socialization, social cohesion, cooperation and a place to learn about the world ('*on connait le monde*'). Modelled on traditional forms of village mutual aid groups, they constitute the key mechanism of local level participation and collective action for developing rebuilding rural Mali (Bingen, 2000). The questionnaire included a section on participation to ascertain the types of participation that respondents in the survey were involved in.

A few such 'tons' were mentioned during the course of the research, including survey and group discussions. These included savings groups[74] (38%), women's associations (30%), village development (7%), youth association (6%), cattle-breeding (6%), agricultural cooperative (5%). Other groups with much smaller membership included ethnic associations, parent-teacher associations and worker's associations. Overall, 45% in the total sample were members of an association. There were 53% men and 40% women who were members of an association.

Village of Nantaka, Cercle of Mopti

Nantaka[75] lies in the flood plain (*zone inondée*) of the River Niger, across from the rural town of Mopti, which is the regional capital (Map 3). Access to Nantaka was 5 km from Mopti, which I covered on motorbike by four km to the river bank and 5 minutes on the *pirogue* for a crossing of about 700 metres, in which my motorbike would be carefully

[73] Plural of *tòn*, association
[74] These were branches of nationwide credit associations, such as *Jigiseme* and were based in the rural towns.
[75] Nantaka originates from the *Bozo* word *nan*, meaning sauce and *taga* meaning cooking pot (Guru, *pers comm.,* May 2007). The *Bozo* community is native to the village of Nantaka, and its main livelihood comes from fishing.

installed by the *piroguière*, and then one kilometre to the village. The terrain was sandy, dirt tracks to the village and in part tarmaced in Mopti.

The population of Nantaka was 1,652 in 2007, of which 820 males and 832 females (Bâ, *pers. comm.*, 2007 and census data, 1998). Nantaka has one primary school, no health centre, two *relais communautaire*[76], seven shops, over one hundred *marabouts*[77], one mosque, one imam and several community associations. There were at least three women whom I saw who ran a business from home, usually selling grains and cereals or vegetables and condiments. There were about five water sources, including two water pumps, of which one was in the school compound, and the rest were traditional wells in private courtyards. There were four traditional healers who emerged during the survey. Other persons identified by community members as traditional healers were harder to locate, hence were not interviewed. Radio ownership in Nantaka was 74% and TV ownership was 23% of the surveyed households. There was a low level of literacy of 29%, with only 5% having completed primary schooling. Membership of an association was 36% in Nantaka. There were no NGOs operating there at the time of the survey, though there was a resident who was an advocacy worker with an NGO in Mopti, raising awareness on HIV/AIDS. During the survey period, only the primary school in Nantaka was in session.

The approach in Nantaka was the most formal and I often felt uncomfortable when meeting with the village chief in his household. This was primarily because of what I perceived were their expectations of me. The senior counsellor of the village chief had asked me on a number of occasions, including during the baseline survey, what I aimed to achieve with the research and whether I was going to help their village afterwards. I reiterated that it was my hope that in the long-term my research could help his village in some way.

[76] A *relais communautaire* (RC) is a community health worker (Chapter 1 and Chapter 4).
[77] A *marabout* is a religious figure, usually well-versed in religious teachings of the holy Muslim scripture, the Qur'ān. He (all the *marabouts* are men), is also called upon from time to time for guidance and special prayers on personal issues and conflicts between households and within households. He is compensated with whatever the person requesting his 'services' can afford. *Marabouts* generally have mixed reputations, partly due to the perceived wealth they are sometimes able to accumulate. *Marabouts* are not necessarily imams and not all imams are *marabouts*. *Marabout* is a word from the French colonial lexicon (Soares, 2005a).

On subsequent conversations with key informants, such as the translator and a *marabout,* it emerged that on the few occasions external NGOs have tried to assist the village, financial assistance usually passed through the hands of the village chief and that it was not often clear how these funds were utilized and where. However, it also emerged that a group of individuals[78] from France had started a Friends of Nantaka society in Paris and that their fundraising efforts had led to the construction of three new classrooms in their school, a perimeter wall around the school and new sanitation facilities for the school children and teachers. In addition they had also repaired the water pump, which had originally been installed by UNICEF many years before. It was within this context, I think, that the village leadership perhaps had high expectations from my presence in the community.

Village of Promani, Cercle of Djenné

Promani lies 25 km from Djenné on the tarmac road that leads to the *carrefour*[79], or junction which leads to Mopti (Map 3). Like Nantaka, it falls within the flood plain (*zone inondée).* It is also 5 km from Madiama, the capital of the *commune,* where the nearest health centre for Promani, is based. Djenné, an historical town, is home to one of the world's most ancient mosques, the largest mud construction in the world and is designated a world heritage site by UNESCO. Its reputation as a tranquil town was marred by disturbances related to un-notified visits to the mosque, in 2006, by tourists who were seen as behaving inappropriately in a place of worship. A visit to the same mosque by the Aga Khan in 2006 also added to the general disquiet, as it was reported that he did not take his shoes off when entering the mosque, nor did he offer prayers inside (Samake, *pers. comm*., 2007). The disturbances stemmed from a lack of coordination and communication by the town authorities and imam to the population (Samake, *pers. comm*., 2007, Djenné and Chitalia, *pers. comm*., 2007, Bamako). As a result entry to the mosque is now usually denied to non-Malians, whether Muslim or not[80]. There is no health centre in Promani itself, though from time to time there are visits by the health staff from the CSCOM in Madiama as part of the *stratégie avancée*, the

[78] A French couple had also bought land on the edge of the village on the River Niger and built a house, which they would visit in the Easter and Christmas holidays (Aliou, caretaker, *pers. comm*., April 2007).
[79] *Carrefour* is a crossroads, and this is a major stop on the Bamako-Mopti route.
[80] My first attempt to visit the mosque was similarly refused, despite being accompanied by the caretaker of my lodgings at the CCC, next to Djenné Hospital. However, I did manage to get in without hindrance when I went for Friday prayers, although I was reprimanded by some young boys for taking photographs of the mosque.

community outreach programme run by the CSCOM, where periodic visits are made to outlying villages for health sessions, such as vaccination programmes.

Accompanied by a young man from Djenné who knew the route and the local language, I made my first visit to Promani. Here I met Safia, a trainer and resident of Promani, during a health session in a compound, where vitamin A drops were being administered to children of the village by a nurse of the CSCOM of Madiama. There were perhaps 100 women and children at this session. At an end of year reunion at the village school, I met Isa[81], one of three teachers at the school, and the village elders. Following the introductions with an explanation of my research, I requested a translator who could assist me in the survey. This was Isa. On agreement of the village chief, I returned to Promani the next day, where Isa introduced me to one of the *relais communautaire*. The *relais communautaire* had a list of residents who had taken part in a nutritional survey carried out in the village a few years earlier. This list formed the basis of random selection of households for the survey.

Promani has several village associations, a mosque and a *platforme moltifonctonnelle*[82]. It has a primary school, one imam, one *muezzin*[83] and many *marabouts*. There were only a couple of men who were traders, and one of them was an *étalagiste*[84]. There were no shops as such and no market. There were about ten traditional healers in the village, twelve traditional water wells, two forage pumps and three modern water pumps. Previous NGO activity had been carried out in Promani, particularly by OMAES, a Malian NGO and UNICEF, which ran an education programme at the school. The total population of Promani was 1,573, according to the 1998 Census (Coulibaly, *pers. comm.* 2007). Population by gender was not available. Radio ownership was 62% and TV ownership was 5% in the survey. Literacy rate was 28%, with 4% having completed primary schooling. Membership of an association was 58% of respondents in Promani.

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[81] Isa had experience in working with overseas researchers and had taught Bamanan-kan to US Peace Corps volunteers in Djenné. He was also the most senior out of the three translators I worked with.

[82] A *plateforme moltifonctionelle* is a designated work space for the management of crops, and any other use deemed appropriate by the community. An alternative energy facility, it operates on diesel and is designed to serve cereal mills, and to reduce the time taken to grind millet and other cereals. It is meant to improve productivity and the quality of life of women (UNDP, 2003). It is not clear how this comes about when the facilities installed were under lock and key and were not operational. They are often installed by local NGOs to facilitate village activities. *Plateformes moltifonctionelles,* like wells, are normally run by a management committee, whose members are drawn from the village.

[83] A person who calls for prayer at the mosque.

[84] An *étalagiste* is someone who is an itinerant trader, usually setting up a table and displaying his wares. In absence of a table, he displays his goods on the ground on a piece of cloth.

Village of Doucombo, Cercle of Bandiagara

Doucombo lies on the dry plain (*zone exondée)* of the region of Mopti, five kilometres from the district capital of Bandiagara (Map 3), in the the *cercle* of Bandiagara, is the *chef lieu de commune*[85] with a *mairie*[86]. Access is easy by tarmac road. It is a tranquil village, on the bank of the River Yamé. Its town hall is of recent construction, built under the leadership of the current mayor. There had been some NGO activity in the past, though none was present during the time I carried out the survey. As Doucombo falls in the non-flood plain it is designated as a *zone exondée.* The population of Doucombo is primarily from the Dogon group, since it lies in the *Pays Dogon*, close to the edge of the *falaise*[87]. Like the other villages surveyed, it also has a mosque, a school and a *plateforme moltifonctionnelle* with several village associations, but without a health centre and market. It also has a *madrassa.* I selected the village of Doucombo on advice by the Department of Social Development, based in Sevaré, primarily on grounds of ease of access from Bandiagara. It also had its own *mairie*, and therefore was the designated *chef lieu de commune*, to which all the surrounding villages called on for assistance in village development.

Doucombo has a population of 2,386 inhabitants of which 1,216 are women and 1,170 are men (RGPH, 2009). It comprises 249 households, which have between 3-11 occupants per household. Doucombo has a village chief, imam, two *relais communautaires* and about 15 traditional healers. There are six wells, one dam, one cereal bank, 5 shops, one mill, two parks and one savings bank (CCC, Bandiagara, 2004). There are two NGOs, working primarily in rural development, water and sanitation and women's income generating activities and revolving credit schemes (primarily women's associations). These NGOs had an irregular presence, that carry out occasional visits and activities. Radio ownership was 54% and TV ownership was 12% in the household survey. The literacy rate in Doucombo was 20%, significantly lower than in Nantaka and Promani. Primary schooling was completed by 4% in Doucombo. Membership of an association was 40% in Doucombo.

[85] Communal head village.
[86] Mayor and town hall.
[87] The *falaise* is the escarpment of the region. It is also a UNESCO-declared world heritage site. It attracts many tourists annually and has spectacular scenery during the rainy season. This is where communities have built their homes in the rocks of the escarpment. They also bury their dead in the escarpment.

On advice from the CCC, I paid a courtesy call to the *prefet*[88] in Bandiagara. This facilitated subsequent obstacles encountered in the village as well as reassuring both authorities and village residents of my *bona fide* intentions. Having made a courtesy call at the Doucombo *mairie* in order to seek permission to carry out research in the village, I proceeded to the village across the road from the *mairie*. At the entrance to the village the first person I met was a young man, Juma, who led us to the village chief. I explained the purpose of my visit to the village chief who seemed open to the idea of research being conducted in his village. He also stated that many visitors had been before to do research in the field of education and water and sanitation. A visitor's book he kept revealed a list of visitors from NGOs in Mali and abroad.

Plate 3.4: Focus group among traditional healers in Doucombo

Burden of malaria in the three villages

Given the high burden of malaria, both globally and in Mali (Chapter 1), the survey sought a picture of the disease burden within the study villages. This is standard practice in malaria studies. Given the aims of the research (Chapter 1), it was important to find out the level of malaria burden in the study locations.

[88] See Figure 1.1 in Chapter 1.

Episode of malaria in the previous month

In the 30 days before the survey, over one third of respondents had had malaria. There were however clear differences between the villages, with Nantaka having most cases with 49%, followed by Promani (45%) and Doucombo (24%) respectively (Figure 3.1). Statistical analysis reveal a χ^2 of 15.115, and a p value <0.05, which suggests that there is a statistical difference between village and whether there was an episode of malaria in the last 30 days before the survey. This is likely to be due to the close proximity of both Nantaka and Doucombo to the Rivers Niger and Yamé respectively which encourage mosquitoes in the area. Both these villages lie in the *zone inondée* of Mopti region. This is a little bit surprising in that the survey in Nantaka was carried out during the dry season before the rains, whereas by the time I had reached Promani, the rains had begun.

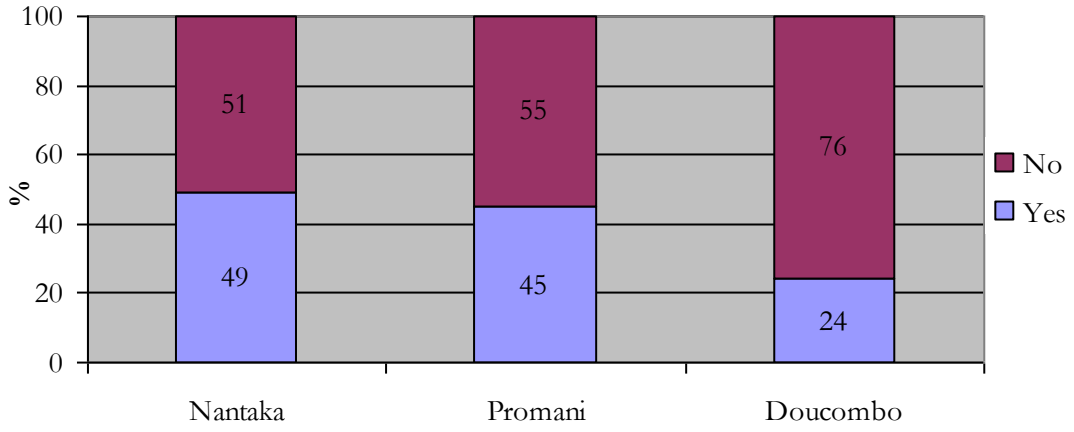

Figure 3.1: Episodes of malaria in the last 30 days by village

Gender differences reveal that there were more women (43%) than men (34%) who had had an episode of malaria in the previous month (Figure 3.2). There was no significant difference between gender and having an episode of malaria in the last 30 days, χ^2=2.188, p>0.05.

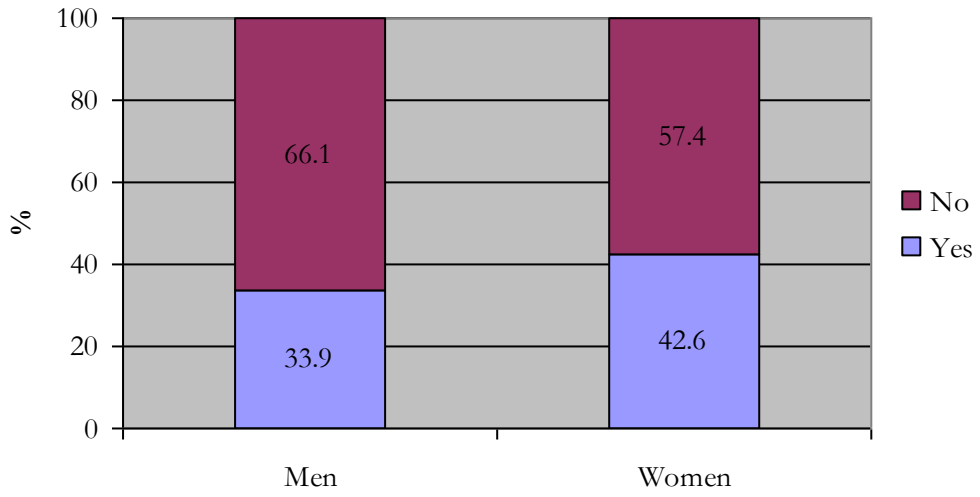

Figure 3.2: Episodes of malaria in the last 30 days by gender

Respondents in all three poverty categories reported similarly in terms of having had an episode of malaria in the last 30 days (Figure 3.3). There was no statistical significance between poverty and an episode of malaria in the last thirty day, with $\chi^2=0.542$, $p>0.05$.

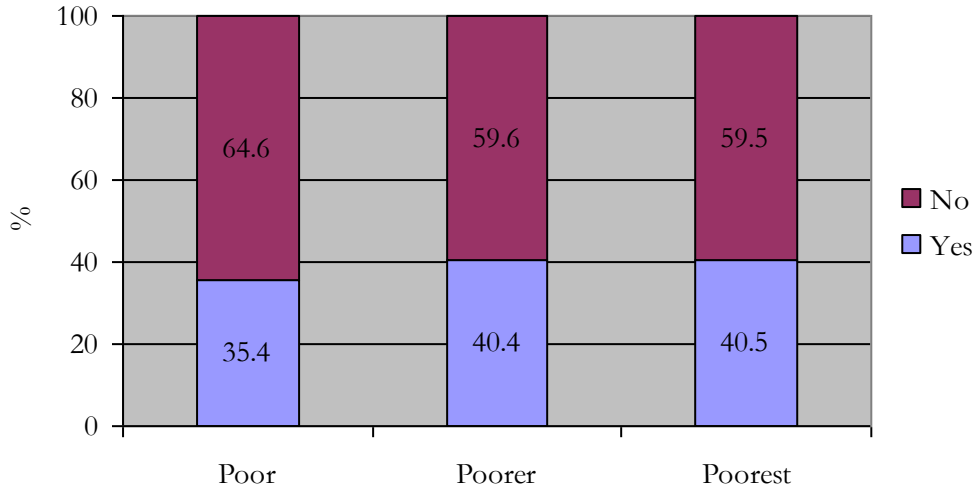

Figure 3.3: Episodes of malaria in the last 30 days by poverty

Worked during malaria

Of those who had malaria[89] (143), about one third said they worked during the illness, while two thirds said they did not work when ill with malaria. From Nantaka, 40% said they worked during malaria, while 20% from Promani and 56.5% from Doucombo said so (Figure 3.4). A statistical analysis reveals that $\chi^2=10.046$, $p<0.05$, and therefore there is a significant difference between village and whether or not they worked during an episode of malaria.

There were a small number who said they did not lose income even when not working, since they were not the primary earners in the household. The primary earners were either their husbands or other family members that took care of them. Some had family members abroad, either a husband or son, who would send money home.

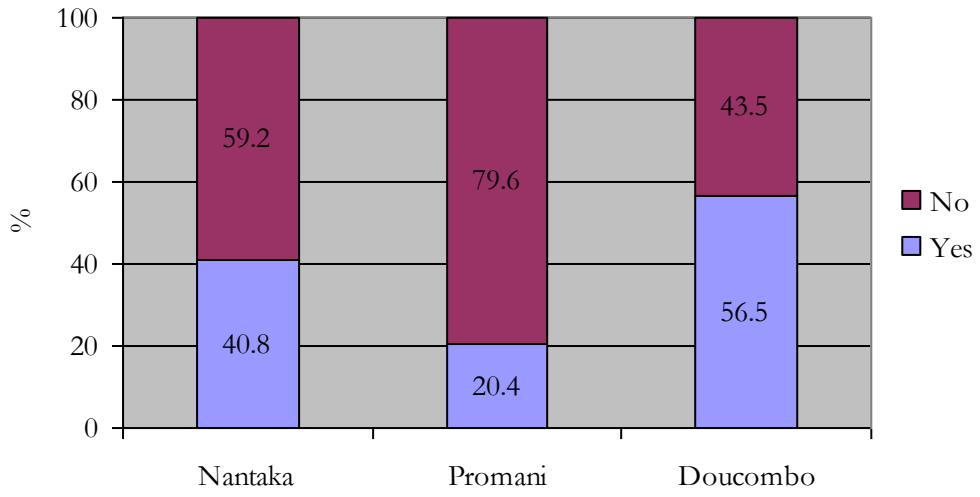

Figure 3.4: Worked during episode of malaria by village

There was no significant difference in gender and working during an episode of malaria, $\chi^2=0.315$, $p>0.05$. Over one third of men worked during an episode of malaria and nearly one third of women worked when they had malaria (Figure 3.5).

[89] Explanatory note: this question was asked in general and not only of those who had had an episode of malaria in the last 30 days (118), therefore the numbers here are higher.

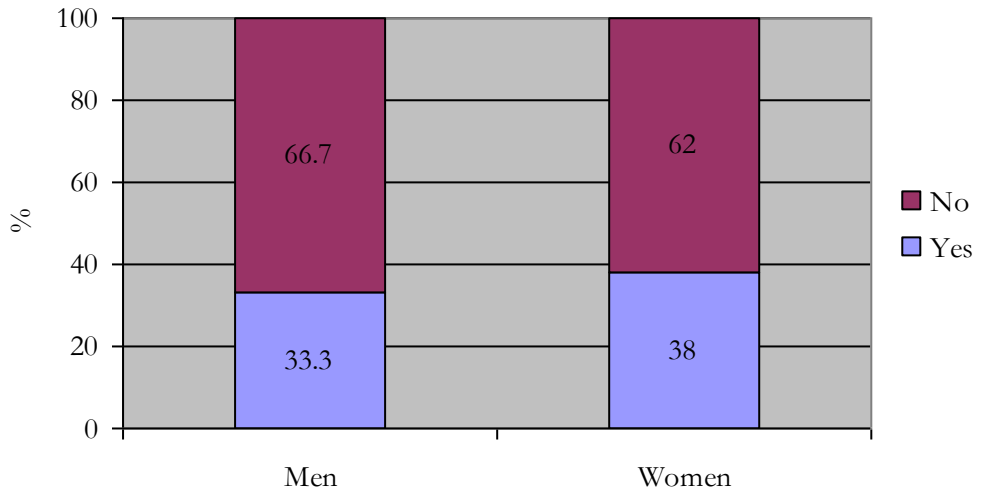

Figure 3.5: Worked during episode of malaria by gender

There were no significant differences between working and poverty categories, $\chi^2=3.952$, $p>0.05$ (Figure 3.6). This is not really surprising as more people from the least poor (48%) worked during malaria than either poorer (39%) or poorest (25%), suggesting that they may have had additional income sources or had assistance that enabled an income.

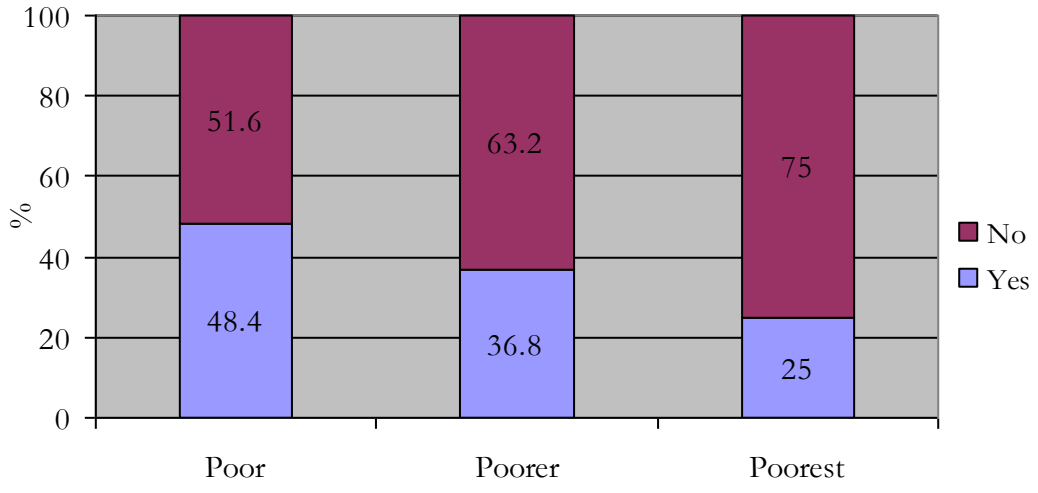

Figure 3.6: Worked during episode of malaria by poverty

Loss of income

Of those who did not work during their episode of malaria, over two thirds of the sample had suffered loss of income during malaria (Figure 3.3). Most loss of income from malaria was incurred in Promani (76.9%), followed by Doucombo (62.5%) and Nantaka (55.1%) (Figure 3.7). There was no statistically significant difference between village and loss of income due to malaria (χ^2=4.537, p>0.05).

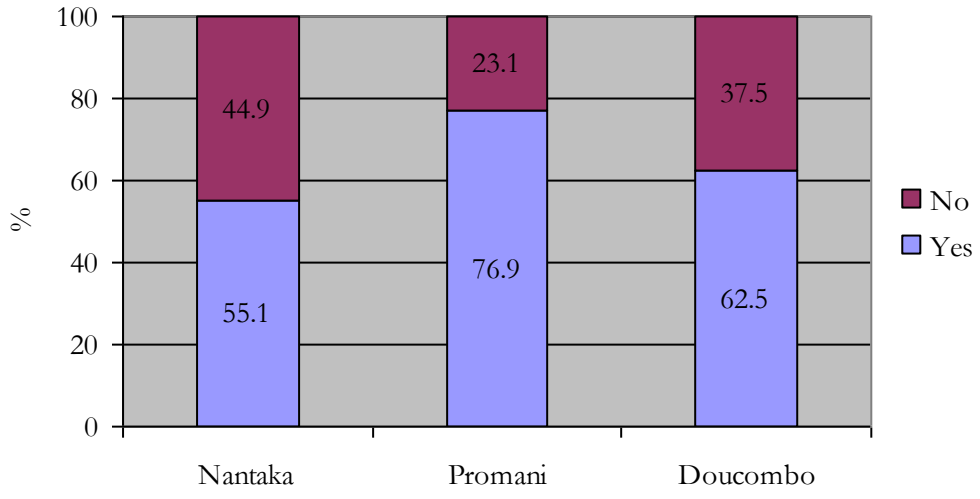

Figure 3.7: Loss of income during malaria by village

Of the men, 73% had suffered loss of income and of the women, 60% had suffered loss of income (Figure 3.8). This has considerable implications in terms of household income lost during episodes of malaria and has been briefly discussed above. Unsurprisingly, more males lost income when ill with malaria, than females, since they were the primary earners. A statistical analysis indicated that gender was not significant in loss of income due to malaria, with χ^2=1.853, p>0.05.

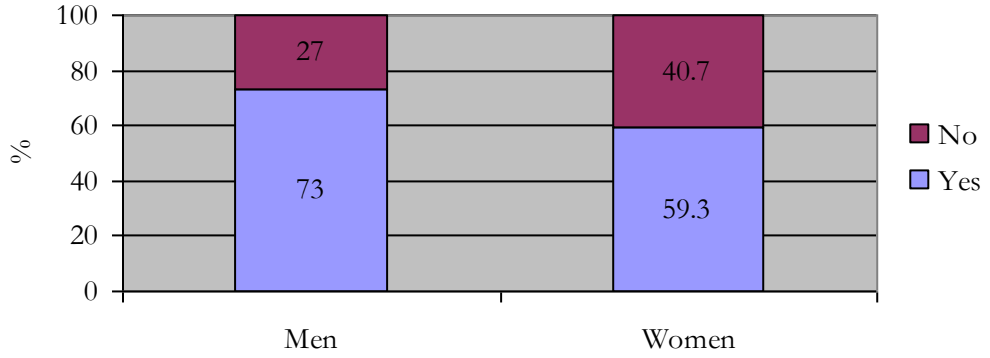

Figure 3.8: Loss of income during malaria by gender

There was no significant difference between loss of income during malaria and poverty category, $\chi^2=4.381$, $p>0.05$ (Figure 3.9). Fewer of the middle category (56%) loss income compared to both poor and poorest groups (82% and 70% respectively). This may suggest that family support structures in place buffering the loss of income due to malaria.

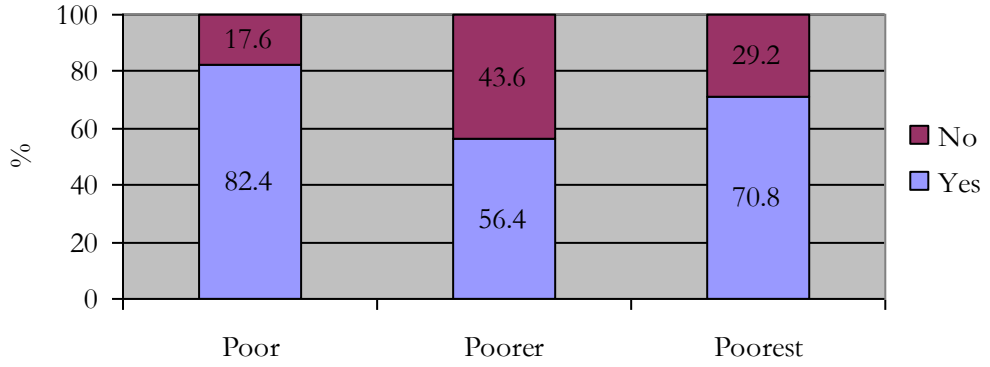

Figure 3.9: Loss of income during malaria by poverty

Summary

In this chapter, I have presented the methodology that guided my fieldwork and overall research strategy. I have provided a reflexive analysis on how the methods applied in

data collection affected my research process, taking into consideration my positionality and the inherent power relations underlying this research.

A mixed-method approach of quantitative and qualitative methods was considered an appropriate way of addressing the research questions presented in Chapter 1. In particular, these was considered useful in examining both the more specific areas of malaria prevention and treatment, and decentralization and participation in health. During the course of the research, the challenges of using some of the methods and not others became evident. Some of these challenges that I faced in my study have been extensively discussed in this chapter. The limitations of each method applied have been discussed, as have issues of using translators, and research ethics. The methods used were considered the more appropriate ones to help answer the research questions (Chapter 1).

The methodology outlined in this chapter forms the basis of the empirical material presented in the following three chapters on decentralization, community knowledge on malaria, and access to prevention and treatment of malaria (Chapters 4, 5 and 6 respectively).

Chapter 4
"*Mara segi so*"[90]
returning power home

Introduction

This thesis addresses the ways in which decentralization as a way of bringing 'government closer to the people' has shaped participation in health in rural Mali. It also addresses, more specifically, how the decentralized health system affects the prevention and treatment of malaria in rural Mali (research question 1).

In this chapter I present a picture of how decentralization is experienced in the Malian context. Specifically, I argue that decentralization is not being played out as intended in rural Mopti, despite an array of local government structures ('*les collectivités territoriales*') which are set up to allow local populations to participate in their own development. Some of the problems raised in Chapter 2 will be developed, including the maintenance of the status quo of power relations at the local level within the different social strata, considering that in the main, traditional social hierarchies are closely adhered to and respected in Mali.

The chapter draws on both secondary data in the first half of the chapter, with an in-depth analysis of the empirical data in the second part. The latter comes primarily from qualitative methods, from interviews with authorities and focus groups in the three villages, of which an explanation of the sample was presented in Chapter 3. The sources of the original quotes are referred to in brackets. The sources of data include key informants, village residents and these have been listed in Appendix III. The questions on decentralization were primarily addressed to officers and authorities listed in Appendix III, following an interview schedule,

[90] This is decentralization in *Bamanan-kan* and the motto of the government programme on decentralization. Other terms in *Bamanan-kan* include: *bè jè fanga* (popular power), *jèèmu fanga* (consensual power) and *bè ya* (negotiated power) (Kassibo, 1998). In Dogon it is *kumo gire* – guiding oneself, one's property or that of the state (Juma, *email comm.*, January 2010). In Fulani it is *sembe warti soudou*, power returned home and *mi banti hore ameen* ("on a pris charge nous même", we have taken charge of ourselves- author's translation); in Sonraï it is *gabi yee hou* (power returned home) and *yere djow bno gno* (*on a pris le pouvoir* – we have taken power) (Aba, *email comm.*, 27th March 2010 and *telephone comm.*, 12th April 2010).

in Appendix IV, and are attributed accordingly. The questions on decentralization were addressed only to officials and authorities and not to the households in the survey.

Historical processes of decentralization in Mali

Recent forms of decentralization in Mali began following a national conference that took place from 29th July to 12th August 1991 as part of the wider transition to democracy in West Africa (Ben Salah, interview, August 2006, Gao). Between 1990 and 1992, opposition groups in ten countries in Africa, including Mali, demanded some form of national conference to determine the political future of their countries (Clark, 2000). "The national conference is essentially a Francophone phenomenon and a uniquely African contribution[91] to the democratization process in the post-cold War era" (Clark, 2000: 253). It called for "a true policy of decentralization and administration for development" (Rawson, 2000: 274). By including representatives of all major groups in the country, including political parties, military officials, union leaders, educators, territorial or regional figures, and others involved in national politics, the legitimacy of the national conference at the local level is thus established. The national conference of Mali recommended a redefinition of the mission and structures of territorial administration and the skills transfer to decentralized structures to promote development (Rawson, 2000).

The legal system is based on the new constitution of Mali, which was approved and adopted by a referendum on January 12th, 1992 (EIU, 2008). The different components of decentralization are defined in Law 93-8 of 11th February 1993[92]. To facilitate the process of

[91] The National Conference spread to Gabon, Congo, Togo, Niger and Zaire in their quest to attain democratic transition. In Burkina Faso, as in Côte d'Ivoire, the transition was carried out without a national conference (since the Burkinabé government claimed that multipartism was already recognized, a constitution adopted by referendum was in place and presidential elections with foreign observers had been held). However, a National Reconciliation Forum was convened later by the government to facilitate peace and to provide an opportunity for the people to pardon their former leaders, with the conference serving as a "people's tribunal" (Nzouankeu, 1993: 47). However, "this does not seem to have accomplished its goal" (Nzouankeu, 1993: 47). Nzouankeu further distinguishes between national conference with full and with limited autonomy; the former is when a conference is able to fix its own programme, while the latter is one where the programme is set by another institution (generally the existing government) (Nzouankeu, 1993).

[92] This law defines the principles of administrative and territorial decentralization, consisting of three parts: institutions, finance and the different dispositions. For a fuller explanation of the law, see Sy (1993). See also the Ministry of Health, Mali website: www.sante.gov.ml for all the legislative decrees (texts) on health decentralization, of which there are 300.

decentralization in Mali, a *Mission de Decentralisation* was created by decree in 1993 (Lippman & Lewis, 1998), as the key implementing agency of decentralization under the Ministry of Territorial and Local Collectivities' Administration (MATCL). Its objectives included drafting necessary legislation, widespread information dissemination, working with local governments and villages on reorganizing them into communes, preparing for the transfer of authority from the national to local level, and training citizens, local leaders and government officials in decentralization. This process has raised hopes and expectations in Mali of increased liberty, democratic participation and development in both urban and rural areas and the emergence of a new type of citizenship (Sy, 1998).

A critique by Kassibo (2006), a Malian anthropologist, however, suggests that decentralization was anything but participatory in its conception, formulation and implementation. He argues that the method adopted in the territorial division was essentially technocratic, sectoral and non-participative with little or no representation of rural communities in the conception or implementation of transfer of skills or due regard to the social and cultural contexts (Kassibo, 2006). This perspective is in stark contrast with the policy perspective that the process was both iterative and participative, with a symbiotic harmony of participation between grassroots and technical approaches (Sanogho & Bâ, 2005). The symbiotic relationship that is claimed of participation and decentralization (Chapter 2) is not widely discernible in rural Mopti. While there is a lot of talk of local service delivery, it is not always made explicit what specific services are under consideration. Largely however, the services referred to are health service provision and education, water and sanitation.

The administrative structure in Mali, introduced in Chapter 1 (Figure 1.1), consists of four levels of administration. At the *commune* level, the lowest unit of administration, where representatives of rural communities are present, they are only figuratively taken on board to validate decisions already taken, without their consultation, by the institutional decision-makers (Dante *et al.,* 2003). Indeed, in the Malian political context, participation is often a vehicle to obtain people's endorsement of government policies which are presented at seminars and workshops where participants are paid to attend (Dante *et al.*, 2003). This reinforces the theoretical notions of passive participation.

Kassibo (2006) argues that a redistribution of power is necessary to achieve wider participation. This redistribution of power is likely to threaten the existing privileges deeply steeped in tradition, as has been claimed by Griffin (Chapter 2). Furthermore, Kassibo (2006) suggests that it is the local governance structures that are the key obstacle to full decentralization and participation and it is at this level that the success or failure of decentralization will be determined.

This, therefore, reinforces the theoretical critique of decentralization (Chapter 2), "masking a social reality where decentralization encourages the extension of power of the health structures"[93] (Berché, 1998: 81). Since there are different cadres and tiers of participation in public and private spheres, a very hierarchical order and system is in place which is widely adhered to.

Decentralization in Mali has not been systematically measured for impact and therefore this thesis aims to highlight some of the effects of decentralization in the area of study. A senior World Bank official claimed that "top-down is still better than decentralizing bad governance" (Marek, interview, October 2007, Bamako). She acknowledged that going further down the decentralization chain was harder as "the money stops at the regional level". Another donor representative suggested that while not perfect, "participation is now lower down and better than before" (Lutterback, interview, October 2007, Bamako).

Decentralization and participation in health in the Mali

Mali's *Mission de Decentralisation,* introduced in the last section, set out awareness-raising on decentralization in the rural areas. This suggests that there is a widespread awareness of decentralization and its purported benefits. Within my study locations, however, awareness of decentralization seemed to be low or non-existent, as corroborated by different voices, discussed later in the chapter. One reason for this is that different levels of support[94] in

[93] Author's translation from the French.
[94] For example, the regions of Sikasso and Ségou have had the support of the *Compagnie Malienne de Développement Textile* (CMDT) and *Office du Niger* respectively.

different regions have resulted in different levels of institutional, organizational and technical capacities and preparation of the local structures (Cissé, *email comm.*, April 2010).

In a study examining the impact of decentralization on health services in Uganda, the perception was that decentralization policy was good as it "empowered the community in terms of creating a sense of responsibility in the stakeholders, and a sense of ownership that facilitated sustainability" of public institutions (Anokbonggo *et al.,* 2004: 4; see also Yankson). There appears to be no sense of this in the Mopti region, but those in public office are likely to say that it works. For example, a local government officer stated that decentralization had a positive effect as all the communes were involved in public management and addressing the needs of the rural populations right down to the village level (Tapily, interview, October 2007, Bandiagara).

The health policy of Mali adopted in 1991 is based on decentralization of health services and community participation. The general aim is to extend the coverage of health services at rural level to facilitate access to drugs for all the population. Decentralized health service provision takes place according to the *carte sanitaire* or district health map. This ensures that there is at least one health centre covering villages within a 15km radius and a population of at least 5,000. In the early 1980's, the GOM launched a large reform of the health system under the framework of the primary health care strategy (Diarra, 2001). This involved the restructuring of the Ministry of Health and implementing the functions of planning, management, research, training and health promotion. Furthermore, it seemed that the health coverage radius of 15km, as recommended by the Ministry of Health, was being considered for revision to enable more health centres to become established in the remotest of areas.

Organizational structure of health

The decentralized health system, set up in 1990 (République du Mali, 2004) is presented in Chapter 1 (Figure 1.2). The central level where conceptualization, strategic support, evaluation, resource mobilization and policy decisions are made; the intermediate regional level which provides technical support to the periphery and the operational level which has the role of planning and programming, implementation and monitoring operations at the

peripheral level through the district health and development plans known as the *Plans de development socio-sanitaire de cercle* (PDSSC).

The central level comprises four national hospitals plus a mother and child hospital which is the third referral level. The intermediate level comprises 6 regional hospitals making the second referral level. The second echelon is the *centre de santé de reference* (CSREF) based in the district capital. The first level of care is the *centre de santé communautaire* (CSCOM), or community health centre, at the *commune* level which is managed by an *association de santé communautaire* (ASACO), a health management committee.

In addition to the functions in Figure 1.2, the district level *(cercle)*, is responsible for the fight against illegal sale of drugs; ensuring public health; elaboration and revision of the 'carte sanitaire du cercle' (district health map). In addition, the district level is responsible for monitoring data transmission (both morbidity data and financial performance data) of the health centres to the regional director of health. Additionally, the municipal level (*la commune)* level is responsible for the provision of an initial supply of essential drugs, salaries of some health staff of the CSCOM; fight against the illicit sale of drugs[95] and monitoring data transmission to the chief medical officers of the districts at the CSREF.

Community Health Management Structure

In Mali, community participation in health care has been articulated through the establishment of community health centres or CSCOMs (Chapter 1). The first CSCOM was established 1989 in Banconi, a low-income neighbourhood in Bamako (Audibert & de Roodenbeke, 2005; FENASCOM, 2006; Maiga, interview, 2007). Created as a private community initiative without state support and having exceeded all expectations in health service delivery and increased community utilization, the centre quickly became a model of good practice.

[95] A surveillance committee that brings together local authorities and civil society undertakes to monitor and report such activities, particularly itinerant traders. In reality it is rare that they are reported, seeing that they operate openly with their knowledge (Guindo, interview, February 2009, Bandiagara).

One of the basic criteria for the setting up of a health centre is the population of the village, of 5,000 inhabitants. Clearly, given the smaller populations of my study villages (Chapter 3), it was going to be difficult for such a health centre to be set up. In addition, there is the issue with utilization rate of the health centre. A minimum of 40% utilization rate of the health centre would ensure its viability, although this is not guaranteed (Konaté *et al.,* 2003). A CSCOM is composed of a dispensary, a maternity unit and a pharmacy. Where financial resources and technical expertise are available, it is sometimes equipped with a laboratory. Such a health centre is managed by health management committee (ASACO) which in turn comprises a council of administration or executive board, a surveillance committee and a management committee (FENASCOM, 2006).

Community health centres are still situated in rural towns rather than villages, and this in itself contributes to politicization of where community health centres should be set up. The establishment of a new community health centre is subject to a formal feasibility study[96], involving different levels of consultation among the stakeholders in the villages, to assess which centres are viable, economically and in terms of provision of health staff (Sangaré, interview, September 2006, Sevaré). This latter issue is one that causes great concern to the health planners, since there are not enough qualified health personnel to work in rural areas, contributing to the dearth of health personnel in rural areas (Chapter 1). This is in direct contrast with Esnault (2005) who argues that the desire to leave manual work, the attraction of such financial benefits as a salary and a pension, as well the social networks, entice young people to enter the health sector.

There were 826 CSCOMs in Mali in 2009. However, the increase in number did not result in a commensurate increase in health service utilization (Coulibaly, 2009). The role of the CSCOM is to provide primary health care services to rural and urban communities, in the form of a basic minimum needs package, ensuring basic preventive and treatment services, known as the *pacquet minimum d'activités* (PMA). The CSCOM aims to ensure the availability of essential drugs, provide health education in maternal and child health, vaccinations and sanitation. In addition they aim to provide promotional services for example community

[96] Article 3 of ministerial *arête* No 94/MSSPA-MATS-MP of 21st August 1994.

development, information, education and communication (IEC). Their remit is also to provide community participation in the management of the health centre.

Following a feasibility study, highlighted earlier, CSCOMs are set up by the community. With infrastructure start-up costs subsidized by the government, the CSCOMs are meant to provide the PMA, an initial supply of essential drugs and recruit qualified staff. The community in turn, through the ASACO, is responsible for the operationalization of the health centre and staff salaries. Staff salaries come from different sources, such as the local *mairie* or municipality. The funds released through the HIPC initiative are also directed at the payment of certain cadres of the health personnel (Chapter 1), even though the sustainability of these funds has been questioned (Diallo, consultant, interview, October 2007, Bamako).

Community health is organized around three levels of administration: the FENASCOM[97] at the national level is the umbrella organization that oversees the workings of the regional FERASCOM[98], which in turn brings under its jurisdiction the local level, FELASCOM[99] which overseas the ASACOs in all the *cercles*.

Governance and accountability

The two structures of CSCOMS and ASACOs introduced in Chapter 1 have sought to increase participation in health and bring health services closer to rural communities. Parallels can be drawn between these and similar organizations in Latin America, for

[97] FENASCOM: Féderation Nationale des Associations de Santé Communautaire du Mali aims to provide information and mobilize for an effective health system, interface between populations and the local authorities; be a catalyst that enables information sharing and exchange; ensure political representation for decision-making, defend the rights of men and women to access quality services, regardless of their socio-economic background, create the conditions to enable an efficient management of the ASACO, support actions that aim to improve quality of services, especially in the area of reproductive health, HIV/AIDS and malaria, to facilitate alternative financing mechanisms that improve households' access to health services, work to optimize women's participation in decision-making for community health and in the management of ASACOs, to create and support skills and resource transfer to the decentralized governance structures – author's translation from FENASCOM, 2006).

[98] FERASCOM: Féderation Régionale des Associations de Santé Communautaire du Mali ; elaboration and coordination of health system implementation , close monitoring of ASACOs, facilitation of partnerships in the health services and social development, social mobilization to promote health, guiding households in adopting PFEs, organization of services at the CSCOM level, developing alternative health financing mechanisms.

[99] FELASCOM: Féderation Locale des Associations de Santé Communautaire du Mali ; aims as for FERASCOM.

example the *Comités Locales de Salud* (CLAS) in Peru (Winch *et al.,* 2001). These and broader issues of performance and accountability in the health sector have a wider international resonance (Lewis & Pettersson, 2009). The decentralized administration and the respective decentralized health system invariably give rise to issues of governance and accountability. In particular, despite the initial success of CSCOMS, several challenges have remained in the creation of health centres. These include both administrative and operational difficulties in obtaining the regulatory authorizations and registration documents at the federal and regional levels and the supply of the dispensary and pharmacies of the health centre with generic drugs.

The ASACO aims to ensure smooth running of the CSCOMs through overseeing human resources, financial and operational management of the CSCOM. A quarterly meeting is intended to provide timely reporting on the management of the CSCOM. It is also their function to account to the communities they serve. However, this does not always happen as operationally there are wide discrepancies across the region leading to incomplete or erratic management of CSCOMs (FENASCOM, 2006).

Theoretically, the CSCOM seems to be an ideal mechanism in which to involve the community in its own planning and implementation of health care and foster a spirit of self-reliance and self-determination as espoused in the Alma Ata declaration (Chapter 1). As it is implemented in Mali, local communities are represented via individuals from among them, with different skills and attributes. From an operational point of view, however, its accountability to the community through the mandated quarterly reporting back mechanism does not always take place, thus limiting the effectiveness of the management committee itself.

Representativeness of health structures

Decentralized health service provision can lead to tensions within both the health service and in the wider structures of governance. These include conflicts of interest within those structures set up to provide accountability to the communities and decision-making within the social and cultural norms. Some of these conflicts are examined in this section.

While CSCOMS and ASACOs have been established as the main mechanisms of participation of community health, there is clearly a lack of full participation (Chapter 2) of local village communities. This raises the question of how these structures are represented, how members are selected and what criteria are in place for effective representation of communities.

The politicized nature of ASACOs was elaborated upon by an officer of an international NGO in an interview. Members of the ASACOs are locally elected individuals drawn from the communities which the CSCOMs serve. While democratically elected, local level participation in the health arena was driven by the few individual power holders. The *maires*, under whose jurisdiction ASACOs fall, do not carry out their monitoring of the management committees for fear of losing an election. There were clear conflicts of interest, and membership of several opposing committees by some individuals ensured that implementing activities met with obstacles and lack of efficiency and effectiveness, particularly concerning management of the CSCOMS (Koné, health officer, interview, September 2007, Bamako). The conflict of interest is particularly apparent if some are members on both the management committee as well as the committee of control ("comité de contrôle") which is supposed to regulate the ASACO. Moreover, this allowed the accumulation of power, while gaining recognition (Koné, health officer, interview, September 2007, Bamako). This accumulation of power enabled collusion of some members which, the same officer suggested, led to funds going missing. This inhibited not only the effective running of the health centre but also was the cause of non-payment of salaries to the health staff. This prompted one health centre staff member to comment that "if the ASACO functioned well, I would not be having these problems, of non-payment of salary, after 30 years of service" (Moussa, health worker, interview, February 2009, Doucombo).

To highlight some of the operational issues of the community health centre, the president of a district FELASCOM underlined that as the income could not cover all the operational costs of the health centre, they could not fund everyone's attendance at the quarterly meetings (Guindo, president of district FELASCOM, interview, February 2010, Bandiagara). Indeed, one CHW revealed that he was not usually invited to the quarterly or monthly meetings and therefore was unaware of how reporting back or accountability to the

community took place (Adama, *relais communautaire,* male, *pers. comm.*, February 2009, Promani). This is indicative of a non-functioning ASACO, which is measured primarily in terms of the number of meetings held during the year as an accountability measure to the community. Interestingly, all the ASACOs in the three districts under study were reported to be functioning at the official level (Barry, statistical officer, regional health directorate, *email comm.*, July 2010).

Furthermore, in the words of an NGO official, "how can you ask someone to participate when they do not even have 25CFA to contribute to the meeting?" (Traoré, interview, July 2007, Bandiagara). This sentiment encapsulates the major impediment to participation, as was also highlighted by some respondents in the survey. Their willingness and desire to participate in an association was hindered by lack of financial resources to contribute to membership of associations.

Transfer of resources

While decentralization's advantages are meant to increase efficiency and give rise to local solutions to local problems by local people (Chapter 2), such grassroots participation is often hindered by a lack of transfer of financial and material resources and capacity-building. A senior regional health officer aired the view that it was better not to transfer financial resources further down the administrative chain for the risk of losing sight of where the budget would be spent (Sangaré, regional health director, interviews, September 2006, November 2007, Sevaré). This contradicted another government officer in Bandiagara who claimed that there had indeed been a transfer of financial resources, enabling the health services to work effectively (Tapily, local government officer at district level, interview, October 2007, Bandiagara).

The regional health director also stated that although Mali was more advanced than other countries in terms of community participation, decentralization was having a negative impact on health service utilization due to the user fees that patients had to incur for health care, thus proving a barrier to accessing health care (Sangaré, regional health director, interviews, September 2006, November 2007, Sevaré), issues which have been highlighted in Chapter 2 and will come up again in Chapter 6. Furthermore, the gaps between transfer of resources,

both human and financial had considerable implications on the implementation of community health. Some of these gaps are encouraged indirectly when transfer of financial resources is held back at district level, clearly affecting health service delivery.

It appears that decentralization is a way of the government delegating responsibility to the local level. In this manner, the government can be seen as absolving itself of responsibility to rural communities. This disengagement with rural health service provision was eloquently voiced by a senior health officer at the national level, who stated that it was not the responsibility of the government to look after community health and *relais communautaires* in particular, as this was decentralized (Dramé, interview, February 2009, Bamako). In particular, the effects of decentralization appear to be negatively felt by rural populations, in the sense of being socially excluded from decision-making processes. In effect the government, through the vehicle of decentralization, is shifting responsibility from the centre to the periphery, without the commensurate transfer of the instruments that can aid this decentralization and improve local level participation, including human, financial and technical resources. These can assist in a better level of health service delivery at the rural level, where access to prevention and treatment can be facilitated. A chief medical officer of a health centre in Bamako claimed that decentralization existed only on paper, but not in technical and material terms, as the *mairie* "did not have anything" (Maiga, interview, October 2007, Bamako). This is further corroborated by the 2006/07 report of the Auditor General that documented health sector expenditure (Chapter 1), which illustrated the real issues faced by community health centres, including mismanagement and appropriation of health centre resources.

Decentralized health service provision has led to a certain divergence in the provision of primary health care. This is due to the provision of free services on the one hand and cost recovery through user fees for health service utilization on the other. Furthermore, the decision to provide some free services occurred without community consultation. This suggests that key decisions in the planning and implementation of health services take place without broader community consultation. Rather, it suggests that decisions are communicated to the 'user groups' after being taken, much in the vein that Kassibo (2006) suggested, as discussed earlier in this chapter.

This is a tension between participation on one hand and non-communication of policy on the other. Earlier in this chapter I introduced the two main mechanisms of participation in health via the CSCOMs and ASACOs. The provision of free bed-nets to certain vulnerable groups (expectant women and children under five) as part of the health policy (Chapter 1) was a political decision (Diadié, interview, February 2009, Bamako). The decision-making process to provide ITNs free at point of delivery to vulnerable groups took place without a feasibility study to assess whether CSCOMS could bear the economic impact (Diadié, interview, February 2009, Bamako). This reinforces the argument that "there is a poor approach by the government in communicating policy to communities" (Diadié, interview, February 2009, Bamako). This point was reinforced by a senior officer of the DRS in Sevaré who stated that "*tous les programmes les laissent de côté*[100]" with particular reference to the distribution of ITNs at health centres (Traoré, *pers. comm.*, February 2009, Sevaré).

This may cause some resentment at the favoured status given to women (Manderson *et al.* 1996: 14) but also among health staff, "unfortunately the treatment is free, we earn nothing" (Abreu quoting a hospital doctor, interview, July 2007, Djenné). This resonates with research carried out in Uganda on the impact of decentralization on health workers, who had a wide-range of challenges posed as a result, in the professional and social sphere (Kyaddondo & Whyte, 2003). By presidential decree Uganda in fact abolished user fees in 2001 (Kyaddondo & Whyte, 2003; Rutebemberwa *et al.*, 2009).

The question of sustainability of such initiatives is well illustrated above. A senior international officer suggested that the government should pay the CSCOMS for loss of income and rethink policy to make it sustainable. With the availability of free services the CSCOMs experienced a drop of 35% in revenue. With the HIPC funds shrinking[101], there is no human resource policy really defined, approved or accepted by the Ministry of Finance, thereby raising the issue of sustainability of programmes which are dependent on such

[100] "All the programmes leave men aside".

[101] There have been concerns among Malian civil servants that the amounts of debt relief have been very low compared to the needs of meeting poverty alleviation targets for 2015 (Dante *et al.*, 2003) and that the relief over thirty years "is not enough to alleviate poverty in Mali" (Konaré in Dante *et al.*, 2003: 229).

financing (Diadié, donor official, interview, February 2009, Bamako; Diallo, consultant, interview, February 2009, Bamako).

Power structures

Decentralization's aims to increase participation and have wider representation often does not take into account the existing social structures of diverse locations. In this sense, decentralization is considered as perpetuating existing power structures.

While there are locally decentralized governance structures in place, further down people's participation in decision-making is constrained by traditional social structures and traditional way of doing things. An analysis by Dante *et al.,* (2003) claims that traditional and customary chiefs have a significant influence over the authorities. This may pose a tension between decentralized governance and traditional modes of participation. Furthermore, there appear to be contradictory views on decentralization within Mali itself.

While historical trajectories suggest that decentralization originates in ancient Malian empires, some consider decentralization to be a foreign political import (Kiré, professor, interview, September 2007, Bamako). Prof. Kiré claimed that all decisions took place at the top anyway, and that decentralization was not well understood at the rural level and where the majority of the population has low levels of education and literacy (Kiré, interview, September 2007, Bamako). This was corroborated by a health officer in Djenné hospital that, as decentralization in Mali was still in its infancy it was too early in rural Mali to discern the full impact of decentralization, attributing this low level of awareness to illiteracy of the majority of the rural population (Keita, health officer, *pers. comm.,* October 2007, Djenné). In addition, a community press director in Bamako asserted that exercising the rights of citizens requires knowledge for power-sharing (Nianzé, community press director, interview, September 2007, Bamako). This is also borne out by the statement of a village chief, who claimed to have no knowledge on decentralization and referred me to the mayor of the commune to find out more (Diallo, interview, May 2007, Nantaka, see also Chapter 3).

Moreover, an academic in Bamako remarked, there exists a 'timid participation' at rural level as there is still deference to authority (Kiré, interview, September 2007, Bamako). Some,

such as village counselors would favour the 'authorities' planning and deciding development interventions on their behalf, since "the 'intellectuelles'[102] and salaried and professional classes should tell us what to do" (Village counsellor, interview, 2009, Nantaka) and provide leadership and direction for wider village development. This ensured that they retained their power within the village as counsellors, thus perpetuating the existing power hierarchies operating in the area and 'top-down' approach to development. It may also facilitate access to privileges that they would not want to share with the wider village community.

In rural areas, counselors of the village chief are happy to maintain and indeed prefer the pecking order in order to maintain some authority and power vis-à-vis the local population. Further, local government draws on their 'counsel' from time to time and maintains relations in order to be able to access those villages for government surveys[103]. According to Diallo, a village chief, it is often only the village chief and his counselors, with few other members of the community, perhaps the school director, and one or two other hand picked individuals who are closely or even distantly related to the village chief and his entourage who are consulted and selected (interview, May 2007, Nantaka).

Thus, decentralization appears to favour the well-placed at the rural level in Mali, rather than address the real issues facing the more marginalized individuals and communities. This reinforces the theoretical critique of decentralization's elite capture and maintenance of local status quo. This therefore, signifies that decentralization is a theoretical notion that purports efficiency and empowerment at the local level, but that in reality power remains or is redistributed within the 'establishment' or few power holders. Decentralization may actually just use power to shift responsibility to the community. What is required is a gradual dissemination of the notion of decentralization to the community, and its significance, politically, socially, financially, and practically. It is perhaps for this reason that decentralization is poorly understood at the village level, according to health officials, even by its leadership.

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[102] 'Intellectuelles' in this case, and when often used by local people, referred to 'educated' and literate people rather than 'intellectual'.

[103] I saw a survey team from local government in the village of Nantaka. This prompted the following remark from the village chief: "Ils sont venues emmerder les gens comme toi, sans rien ammener!" (they have come to annoy people, like you, without bringing anything!).

Such social power differentials also play themselves out at the level of use of health service. Social connections often led to beneficial treatment at health centres, including forfeiting of consultation fees for services (Berché, 1998; Esnault, sociologist, interview, August 2007, Bandiagara and Sarin, resident, *pers. comm*., October 2007, Djenné). For instance, the second wife of a mayor will see the doctor faster and incur a lower cost than someone with lower social standing (Esnault, interview, Bandiagara, August 2007 and Sarin, *pers. comm*., Djenné, July 2007). These networks are seen as social security and economic capital. Moreover, some health personnel were sometimes too embarrassed to ask for the consultation fees given the social position of the patient (Chapters 2 and 6). This echoes with Jenkins' research in Peru that "locally hierarchised construction of occupations and knowledge" bear on the networking ability of health workers and their standing in the local community (Jenkins, 2005: 224). This is a theme I return to in Chapter 6, which discusses access to prevention and treatment of malaria.

While social power differentials do not engender access to services for women, they also pose obstacles for men. A group discussion among men eloquently revealed that it was important to have connections "as without money you have a bad reception at the health centre and if you have money (or are well-connected) you have a good reception" (Men's focus group, public space, , Doucombo, 2007), clearly influencing their decision to access health services. The main reason that individuals gave for not visiting the health centre was the lack of respect towards the patients, due to their poverty and low levels of literacy and education (Doucombo, group discussion, July 2007). Even when health staff would be informing the patient that they had malaria, they would not state what causes malaria or how to prevent it. Health staff are perceived to be disrespectful of poorer members of the community who visit the health centres; due to their poverty they are also treated as ignorant, therefore not worthy of imparting knowledge to. This results in mistrust of the health service. This aspect echoes findings from other regions in Africa (Vlassoff, 1994; Berché, 1998). This is another reason for low health service utilization (Chapter 1), in addition to user fees which constitutes a barrier to visiting the health centre (Chapter 6).

Access to health care in rural Mopti was influenced by the social networks one had in the health service (Chapter 2). In particular, a position in the health service, whether a health centre or a hospital, be it nurse or doctor is valued and respected in society as one's place in society determines social networks (Esnault, interview, August 2007, Bandiagara). The availability of information in a hospital or health centre renders these as valuable networking sites with the opportunity of information exchange and advice on various appropriate treatments (Esnault, interview, August 2007, Bandiagara). However, my empirical data suggests that more people received their information on malaria from social networks rather than health facilities (Chapter 5). In her research on providers of health care in Mopti town, Esnault (2005) explains that volunteer health workers allow local notables to insert them in the local health 'scene', which allows them a free rein as far as avoiding user charges is concerned. At the same time, the volunteers are perceived as *dògòtòrò*[104] by the users. This facilitates the formation of a private clientele outside of the CSCOM and allows access to medical resources, such as materials and medicines, which are diverted from the health facility supplies to service their own out-of-hours services (Esnault, 2005). This resonates with findings in other parts of SSA, notably Ethiopia (Lindelow & Serneels, 2006) and Uganda (Lewis & Pettersson, 2009). Esnault further elaborates that, post-independence in Mali, many *aides-soignants*, trained by the colonial administration, were assigned to areas outside their own. This enabled them to create their own local fiefdoms, exaggerating their status as intermediaries in medical facilities (such as *dispensaires*) giving rise to mistrust from the local population. Furthermore, their scant training did not suffice to replace absent military medical personnel.

One of the issues highlighted by Isa, one of my translators was that *les gens sont habitué à la facilité,* the 'becoming accustomed to' and expecting interventions from external agents, be they governmental, non-governmental, or international agents, either individuals or organizations providing services, facilities and donations in kind (Isa, *pers. comm*., July 2007, Promani). Such benefits could include, for example, medicines, football gear for the youth, backpacks for school children. An overseas volunteer group in Nantaka[105] started an

[104] This is a term which is applied to practically anyone who works in the health sector, whether a qualified doctor or not.
[105] 'Friends of Nantaka', based in France, spent their Christmas and Easter vacations there and assist the village materially.

initiative to assist in village development, committing to the construction of a health centre and provision of medical staff (Diallo, interview, April 2007, Nantaka).

Even with the creation of policy documents defining roles and responsibilities of different actors in the fight against malaria, there is still a gap between intent and outcome. Lack of resources at grassroots level and existing forms of local social structures do not facilitate participation. The lack of participation mechanisms outside of the CSCOMS and ASACOs, as discursive spaces hinder a broader participation of rural communities. Considering this constraint, participation may continue to be a means to an end and people will consider the efficiency of participation, including access to material and tangible resources rather than the empowerment it purports to bring, before they consider it empowering in itself and for themselves. This leads us to a discussion of the role of community health workers as key players in community health.

Community health workers in the decentralized health system

Crucial in the fight against malaria and in the improvement in community health more widely, community health workers serve as the main gatekeepers to health services. This section elucidates their role in the grand scheme of things and also provides an examination of how CHWs in rural Mopti operate. This enables us to address research question 1 that is relevant to access to health services and as sources of information on malaria, which will be elaborated upon more in Chapter 5. This is important to the thesis as it provides evidence of the extent to which communities draw on CHWs for information on malaria as well as information on preventive measures and how to access them.

Community health workers (CHWs) have been the frontline of primary health care in many developing countries for decades (Chapter 1). The WHO defines CHWs as

> men and women chosen by the community and trained to deal with the health problems of individuals and the community and to work in close relationship with the health services.
>
> WHO, 2007: 6

CHWs in Mali, more commonly known as *relais communautaire*, are the linchpin of the primary health care system. Historically, such figures were prevalent before health sector reform was

rolled out, and decentralization came about, known by other terms such as *agent de distribution de base communautaire* (ADBC), agent de santé and so forth[106]. As Lehman & Sanders assert, CHWs can make a valuable contribution to community development by improving access and coverage of communities with basic health services (Lehman & Sanders, 2007: v). In Mali, the relationship with the health services appears fluid yet formal. They are called upon when there is a health campaign, to support the health staff from the health centres, indicating a top-down, externally driven health system (Plate 4.1).

Plate 4.1: *Relais communautaire* during a health session

Source: USAID

Being the main driver of community health at the rural level, r*elais communautaires* take part in health campaigns for government, NGOs and specific vertical health programmes such as eradication of guinea worm disease. Each *relais communautaire* can be called upon by various health campaigns to carry out health activities. Some health campaigns provide financial incentives for case identification, although this has led to problems such as false cases being reported just to earn the incentive (Traoré, senior health official, interview, January 2009, Bamako).

One of the problems of having an effective system of health care at community level was the different nomenclature of CHWs, depending on different disease-control programmes and

[106] A recent review by Lehman & Sanders (2007) used 19 different terms in its search in various databases and a study by Bhattacharya *et al.,* (2001) and Gilroy & Winch (2006) together list 36 different terms for CHWs.

interventions by international agencies leading to different understandings of the role of health agents (Traoré, interview, January 2009, Bamako; Dramé, interview, February 2009, Bamako). For example, the guinea worm eradication programme has its own *agent de vers de guinea*, and an international NGO[107] has its own malaria agents (*agents de paludisme*) that serve as case identifiers within communities. The programmes also differ in the incentives and rewards offered to health workers depending on case identification; this often led to the problem of false case detection to earn incentives (Dramé, interview, February 2009, Bamako). The health system may also institute an *agent de santé polyvalent* in those villages with a health 'house' (*case de santé*). Furthermore, while the health service distinguishes the different cadres of health staff (Table 4.1), these are not always clear to the communities, nor would it seem that these terms or roles are explained to them. For example, *relais, infirmier* and *aide soignant* can be used interchangeably without distinction.

The skills and attributes of a CHW have been identified broadly and have resonance around the world. A *relais communautaire* should have a set of attributes or specific 'skill set'[108] to enable him/her to carry out his/her role effectively, be respected and of good disposition.

One of the key responsibilities of the *relais communautaires* in rural Mali is to serve as behaviour change agents by monitoring the *pratiques familiales essentielles* (PFEs). These are a set of 13 health and sanitation practices that a have been instituted by the health system covering an array of preventive practices (Box 4.1). The *relais communautaires* are to promote these and ensure they are being practiced regularly at the household level. By filling out an individual household form which attests/certifies which practices are routinely carried out (eg did you use a bed-net last night?), the record is then presented to the CSCOM periodically. By their own admission, this does not appear to take place as regularly as required, for lack of motivation and supervision by the health services. It was a task carried out as and when they could, rather than at particular set times. Hence it would seem that

[107] Médecins sans Frontières Luxembourg (MSFL), with a specific training manual on the *agent de paludisme*.
[108] A notebook (*cahier de suivi*) of a *relais communautaire* had the following attributes listed: be a volunteer, credible, honest, respectful, sociable, discrete, tolerant, welcoming, competent, available, attentive, assure confidentiality, trustworthy, give information to households, collect data, monitor households for essential health practices and be open to others.

this activity is, in a sense, still top-down and externally-driven, given that instruction is awaited from above.

Box 4.1 The PFEs

The PFEs include:
1) Complete childhood vaccination schedule and administer vitamin A to every child every six months until child is 5 years of age;
2) Ensure children 0-5 and pregnant women sleep under ITNs every night;
3) Ensure pregnant women use the CPN and post natal services at the health centres;
4) Ensure household has a kit of essential drugs, and are able to administer first treatment of fever at home and then proceed to the health services;
5) That men and women practice at least one measure of prevention against HIV/AIDS;
6) Households practice child-spacing;
7) That mothers exclusively breastfeed and add additional foodstuffs to babies after 6 months;
8) The household has regular intake of iodized salt;
9) The household members use the installed latrines;
10) The household drinks drinking water (from an improved water source);
11) That household members use soap for handwashing after visiting the latrines and before eating and giving children to eat;
12) That household registers the birth of their child with the local authorities (commune level);
13) That the household enrols both boys and girls of school-age in primary school

Source: Based on UNICEF's Household and Community Integrated Management of Childhood Illness (IMCI), 2001.

In interviews with the *relais communautaires,* I found that there was no clear guideline on selecting households for monitoring the PFEs. Indeed, one of them said it was up to them which household they selected, based on those households that would 'easily understand' rather than those which would not (Bouba, interview, Doucombo, 2007). The reason being that those selected households would then serve as further disseminators of information and pass on the information to those households not selected for the PFE monitoring, resulting in a 'ripple effect' of imparting information to some additional households to enhance the impact of health education dissemination (Manderson *et al.,* 1996: 9). There was no way of telling whether this was actually the case and that the 'excluded' households were being served or not in this indirect, by proxy, manner with the intended 'ripple effect'. Another *relais communautaire's* response was that it was the village leadership that allocated the households and yet another said it was the health centre that allocated the households to them. Further, in Nantaka I met with Habi, a woman *relais communautaire* who did not appear to be engaged in community health activities such as the monitoring of the PFEs. In

addition, a few *relais communautaires* suggested that some village residents did not pay much attention to applying the PFEs.

This uncertainty creates significant issues for those households left out of the PFE loop. Are these those households the most marginalized in the community? A further exclusion only adds to the marginalization and increases the risk of worsening health. This is an area that would require further analysis at the household level to see how the system of monitoring can be extended to these households, other than relying on those households assumed to serve as 'multipliers' without offering them incentives as well. There were no clear selection criteria for households either at the policy level or at the CSCOM level, with an expectation that there would be a higher authority providing a framework for implementation of the activities of the *relais communautaires*, such as a job description and instructions, or that it would perhaps happen by itself. This suggests that there is still a reliance on externally-driven input through external agents for example the formal health services and the state, reflecting a distinct lack of community participation. The empirical evidence highlights the lack of communication, between the village leadership and the village population, on who the *relais communautaires* are, what their role is and which households they will be monitoring for the PFEs.

There is a lack of clear guidelines on how to prioritize and utilize scarce resources for service delivery. The issues of lack of clear definitions and uncertainty about the roles of CHWs have been coming to the fore for some time now and there seems to be a convergence of the need to redefine and establish incentive mechanisms for CHWs to maintain their motivation and to ensure that their functions are carried out regularly in the communities they are intended to serve.

A national forum[109] held in Bamako emerged as a result of the recognition that the development of CHWs does not receive much attention and support from national or local governments (WHO, 2007). The objective of this forum was to come to a national consensus on the definition of the minimum coverage of essential health care at the community level, to find ways of improving access to essential health care at the community

[109] *Forum nationale sur l'amelioration de l'access aux soins essentials de la communauté* (17-21 March, 2009, Bamako).

level (Coulibaly, 2009). Themes at the forum included community participation for resolving health issues, and increasing community capacity vis-à-vis selection of the CHWs, and introducing a mechanism of monitoring and coordination of community actions. It also discussed ways in which communities can work to achieve the MDGs and how to organize PHC for greater coverage, given that qualified and motivated health personnel are scarce.

The forum reported encouraging signs of increasing health care coverage in rural Mali in which the state endorsed the role of the *relais communautaires* as key agents in behaviour change (Coulibaly, 2009). The forum also aimed to define the role of the *relais communautaire* more narrowly, with a view to enhancing both their role as well as improving rural communities' health and acknowledged the need for broader consideration of participation within the decentralized health system to include more members of the community. Acknowledging the need for a clearer definition of the role and responsibilities of the *relais communautaires*, the creation of a new category of health worker for rural areas was being introduced, though the distinction of the new cadre from the existing one remains unclear. The new health agent would benefit from a wage, and incentives would include a performance bonus, free health care consultations for the *relais communautaires* and their families, a sign of recognition in the form of a badge or other identifier, income from health products sold, such as insecticide treatment tablets for bed-nets (Ministère de la Santé, 2009).

Recruitment and selection of CHWs

The recruitment and selection of CHWs have common traits in health programmes around the world. CHWs are often drawn, nominated and selected by the communities in which they live (Bender & Pitkin, 1987; Walt, 1988; Sauerborn *et al.,* 1989; Lehmann & Sanders, 2007). An internationally accepted criterion is for a community health worker to have a minimum level of reading, writing and numeracy skills (WHO, 2007). A number of other attributes are also preferred, including being nominated by the community and representative of the community, and being of a generally pleasant disposition towards others (Ruebush *et al.,* 1994; Rifkin, 1996).

The CHW is meant to act as a referral service between the village patient and the state health centre. While the figure of the *relais communautaire* is the key link between the health services

and the community, acting as a referral service between the village and the community health centre, not everyone in the survey (300 households) had an awareness of this (Table 4.1). The national health policy recommendation of at least three *relais communautaires* per village and each village neighbourhood having its own *relais communautaire* is not borne out in my research areas of the Mopti region. This is clearly a major challenge when there are more than just three neighbourhoods, as was the case in my research villages. Lack of individuals meeting the selection criteria adds to the challenges of finding the appropriate CHWs. There were 2, 3 and 3 *relais communautaires* respectively in Nantaka, Promani and Doucombo. However, whether a *relais communautaire* is widely known in his/her community is not always guaranteed, as this often depends on the communication mechanism within the environment on the announcement of a newly appointed *relais communautaire.* This was the case in one village where a newly appointed *relais communautaire* had not actually been publicly announced to the community, and therefore he had not commenced his activities.

There is the added dimension of insufficient household coverage within the villages themselves. Even when there is 'recruitment' of new health workers, ideally with one health worker allocated for every 35 households, as per national policy, there is insufficient coverage even when there are just two or three *relais communautaire.* A village whose population is of about 1,500 inhabitants, as was the case with the villages selected for my research (Chapter 3), has approximately 250 households, only 3 health workers would covering 105, less than half the households in the village, leaving a gap of over hundred households. Therefore some households received health education messages and some did not, leading to disparities in knowledge and attention at village level and affecting participation in health-seeking behaviours (see Chapter 6).

About half the respondents in Doucombo said there was a health worker in the community, unusual as it had three *relais communautaire*, though none were women (Table 4.1). However, it did have two traditional birth attendants (TBAs), albeit one of them was elderly and did not work as a TBA anymore but provided guidance and support to women in general regarding childbirth. Similarly, almost half (47%) in Nantaka said there was a health worker.

It appears, however, that more people referred to the *aide-soignant*[110] as the health worker, since he provided medicines, health advice, information and first aid to the community. Therefore, while not being officially a *relais communautaire*, people identified him as a health worker. This raises questions on the effectiveness of local level dissemination of information as well as to the non-performance of the existing *relais communautaire*. In this particular instance, this woman *relais communautaire* was also related to the village chief, which may in itself have been a factor in refusing to acknowledge her role as such, given that the village chief in this particular village was not seen favourably by some residents. This puts into question the selection criteria of being nominated and selected by the community, as discussed above, and who the nominators and selectors are, reflecting issues of power.

Table 4.1: Health workers in the village

Is there a health worker in your village?	**Nantaka**	**Promani**	**Doucombo**	**Total**
Yes	47	15	50	112
No	47	84	30	161
Don't know	6	1	20	27
Total	100	100	100	300

Source: household survey, 2007

Only 15% of the respondents in Promani stated there was a health worker in their village (Table 4.1). The high proportion (84%) stating that there was no community health worker in their village is at odds with the fact that it had three *relais communautaire*, two of whom were men and one was a woman. The woman *relais communautaire* had not performed the function of the *relais communuataire* since early 2007 and of the two male *relais communautaires*, I encountered only one early in the contact with this village. The other male *relais communautaire* was absent throughout the time I conducted research in this village, raising the question of not only his effectiveness but whether he actually carried out this function.

Furthermore, the predominant view was that while there was little choice about the number of health workers, the fact that they came from within the community, was important in terms of 'they understand our language' and are closer to them both culturally as well as

[110] Another cadre of health worker, this was a school-teacher who also worked as a health worker in the village, but in a private capacity. Due to his presence in the primary school, he was widely known in the village as the 'health' person, more than the officially appointed *relais communautaire*.

spatially. One such example was that of the same school-teacher above attending to a neighbour in his courtyard, by giving an injection for which he did not charge as 'we live together' (Salif, interview and participant observation, February 2009, Nantaka). This is also illustrative of the difficulty in applying different names to different kinds of health workers, and not knowing what the different roles entail.

It was evident in the three villages that there were not enough CHWs to monitor all the households or serve the entire village population and there appeared to be a distinct lack of 'organized community' vis-à-vis health education. The lack of literacy for the majority of the population (Chapter 3), especially among women was a key constraint in selection and recruitment of *relais communautaires.*

Performance of CHWs

The role of CHWs, their performance, motivation and incentives within primary health care has been widely studied internationally (Bender & Pitkin, 1987; Sauerborn *et al.*, 1989; Okanurak & Ruebush II, 1996; Alihonou *et al.,* 1998; Stilwell, 2001; Franco *et al.*, 2002; Jenkins, 2005; Dieleman *et al.*, 2006). Franco *et al.,* provide a conceptual framework for public sector health worker motivation in which they assert that health sector performance is critically dependent on worker motivation, defined as "an individual's degree of willingness to exert and maintain an effort towards organizational goals" (Franco *et al.,* 2002: 1255).

While there is an acknowledgement that health worker motivation is a complex and dynamic process, there is little evidence on the key determinants of health worker motivation in developing countries (Franco *et al.,* 2002). Included in the different factors that influence motivation are the notion of self-concept (or self-esteem) which refers to the individual's evaluation of his/her competencies in specific domains, such as health care delivery (Franco *et al.,* 2002). Such a positive self-concept and sense of job efficacy enhances worker motivation by providing workers with a personal incentive for completing tasks and sustaining efforts over time. However, the voluntary nature of the role of the community health worker, or the *relais communautaire*, carries with it an element of demotivation and therefore a lack of effectiveness. This is critical for community health if such programmes are to be sustained as there is a limit to how much time people are willing to volunteer.

The pivotal role of CHWs is not always recognized in providing essential services in the health care of rural populations. Working without remuneration in the majority of cases, their effectiveness in carrying out their role is often jeopardized by lack of motivation and evaluation within the wider health system (Franco *et al.* 2002, Dieleman *et al.,* 2006). Thus, it is argued that more effort be put in place to safeguard the role of the community health worker as well as open up spaces of wider community involvement in health.

A study conducted by Dieleman *et al.* (2006) of health personnel in Mali across different health professions and at different levels in the health system looked at the various levels of motivation and management influencing the performance of the health personnel. The issues of motivation, performance evaluation, and fulfilling functions are all inter-related and have a wider influence on the general health in the villages surveyed and have wider resonance in the communities studied, as I will discuss below.

One of the key factors affecting the performance of the *relais communautaires* is the lack of supervision and performance appraisal. Lack of regular supervision and evaluation of the health worker performance adds to the diminishing motivation to do well, since the likelihood of being checked for carrying out the duties remains low. Unless they had some certainty that there would be regular supervisory visits from the CSCOMS, they were less likely to work in the manner required (Bouba, interview, August 2007, Doucombo). Therefore, it remains rather discretionary whether they carry out their role, and their frequent absence from the communities (participant observation, 2006, 2007, Promani, Nantaka, Doucombo) does not engender community reliance on them. Moreover, it was not clear who the *relais communautaires* are meant to report to within the health system (Figure 1.1). Indeed, a senior official at the NMCP in Mali remarked that as the *relais communautaires* were not financially rewarded it was also not appropriate to hold them accountable for non-performance (Dramé, interview, February 2009, Bamako).

Almost universally, the *relais communautaires* I interviewed spoke about the lack of incentives having a significant bearing on their ability and motivation to carry out their function. Self-esteem, knowing that one has been chosen by the community for health, played a role in

motivation. While all of the *relais communautaires* expressed satisfaction receiving community recognition, it was not on its own sufficient to motivate CHWs. Where the role is not carried out effectively community health suffers. As one woman *relais communautaire* revealed,

> The *relais* is used a lot with more work given to them; responsibilities, cannot execute them all. We are not paid for role, just given bicycles, bike is broken, as incentives, not even a bed-net. Chosen by *chef du village* since I know a bit of French and had some schooling…like role of because known to be chosen and I have the confidence in my work, people think I earn a lot, but actually I do not; *c'est difficile*…
>
> Mariam, *relais communautaire*, Promani, 2007

Through community-based bed-net treatment sessions, the *relais communautaires* play a key role in the fight against malaria. As an incentive, the CSCOMs provide them with a commercially available insecticide treatment[111] that they can sell to the residents. Treating the bed-nets with the same product for residents can earn the *relais communautaires* 50 FCFA per bed-net. However, these were infrequent and the last bed-net one of the *relais communautaire* treated was in September 2008. The effectiveness of such treatments lasts approximately six months. Another *relais communautaire* also tried to sell the 'BLOC', but was not so successful, as he told me that people do not want to buy it as they stated that it should be given for free by the *relais communautaire*.

One male *relais communautaire* was fatalistic in that he stated that he carried out the role without remuneration only for the hereafter, and wanting to work for the health of the community. However, dissatisfaction in the role was also expressed by another,

> The role of the relais is to distribute medicines and mobilize the community. The medicines are brought to the *chef* first, then the school, then the community. There are no benefits in being a *relais*.
>
> Habi, *relais communautaire*, Nantaka, 2007

An example of socio-cultural norms is when one *relais communautaire* explicitly stated that he did not want to refuse the appointment in order not to contradict the elders (Aliou, interview, February 2009, Promani). Considering that there are few incentives available to

[111] For example, 'BLOC', a USAID-funded insecticide treatment tablet for bed-net impregnation. Its effectiveness lasts approximately 6 months, illustrated in Plates 5.1 and 5.2 (Chapter 5). Some community treatment sessions did take place in the past, but none had been held while I worked in the villages.

the CHW, who would want to be a CHW? Only those selected by leadership felt obliged to accept the position regardless of their 'skill set'.

Relais communautaires also expressed frustration over the expectations of them by the community (Bouba, interview, August 2007, Doucombo). These expectations included the free provision of materials and services such as bed-net treatment insecticide tablets, as highlighted earlier. Another grievance was that people do not always follow what the *relais communautaire* tells them; even their role as community mobilizers was fraught with tensions when not all the invited households would turn up for vaccination days held in the village, when health centre staff would come and serve the community (Marie, February 2009, Promani). Awareness-raising efforts by the *relais communautaires* are not always heeded. For example, a health worker complained that if his own daughter does not visit the health centre, due to lack of interest, for the ante-natal sessions[112], "how can I advise others?" (Moussa, February 2009, Doucombo). He added that part of the problem of effectiveness of the health workers was that *les elus ne comprend pas la valeur de la santé*[113] and that therefore there was little political commitment to promote participation in health.

In the context of rural Mopti, in Mali, it was evident that both external and personal incentives for completing such tasks were often lacking. Women health workers put their lack of effectiveness in carrying out the role of the community health worker down to other household responsibilities which take them away from the role of the health worker.

The professionalization of health, discussed in Chapter 2, reflected in a view by the *chef du poste medicale* (chief medical officer) of a CSCOM, who stated that he did not consider it the business of the *relais communautaire* to know about, let alone disseminate information on the new ACT treatment for malaria (Chapter 1), as this was the domain of the professionals or 'intellectuelles' (literate people), whereas the *relais communautaires* were considered illiterate (Diakité, interview, August 2007, Bandiagara). Consequently, the *relais communautaires* do not

[112] Attendance at ante-natal sessions (or *consultation pre-natal*) is advocated in the national health policy. The malaria control policy provides insecticide-treated mosquito bed-nets for pregnant women and children under five, provided they have completed the vaccination schedule. I observed distribution of these bed-nets during an ante-natal session in the CSCOM in Mopti. The bed-nets were provided by UNICEF and USAID, through the US President's Malaria Initiative (PMI).
[113] "The elected do not understand the value of health".

know what the malaria strategy is as they are not told about it during training, as was corroborated by several *relais communautaires* during the fieldwork (Bouba, Gausso, interview, August 2007, Bandiagara, Aliou, June 2007, Promani). There is after all, "a culture of professionalization and bureaucratization, and of power" (Woelk, 1992: 421).

In Mali, the primary material incentive for health workers was that of a bicycle, donated by UNICEF. While most CHWs I interviewed were relatively satisfied with having a bicycle, they were less so when having to bear the additional burden of meeting the repair costs should the need arise (Bouba, interview, July 2007, Doucombo) (Plate 4.2). During an interview with a woman *relais communautaire,* she stated that during one year, they actually went on strike as they had not received insecticide-treated bed-nets from the community health centre (Mariam, interview, July 2007, Promani). This proved an effective move which persuaded the health centre to provide one to them.

Plate 4.2: Repair time: a *relais communautaire* repairing his bicycle with his son

Training opportunities for the CHWs provide a key and valuable incentive as was suggested by the *relais communautaires* that I interviewed, as it provided an opportunity to spend a day in the town, share time with other health workers from villages in other *communes* and benefit

from the additional income in the form of *per diems*[114] (Habi, Nantaka, 2007; Mariam, Promani, 2007). The training provided varied in duration, from three days to fifteen days maximum per year. Training providers also varied, being primarily NGOs[115]. This often resulted in discrepancies in the standard and consistency of training, since "there is no standardized way of training the CHWs" (Diadié, *pers. comm.*, February 2009, Bamako).

Participant observation during the first preliminary visit and during the course of the extended fieldwork showed evidence that the *relais communautaire* were mostly left to their own devices, with the occasional training and refresher courses. Interviews with the *relais communautaires* suggested that the last training dated back at least six months and that sometimes a couple of years would pass without them receiving any refresher courses (Habi, interview, Nantaka, 2007; Aliou, Adama, Gourou, Mariam, interview, Promani, 2007). However, once these were attained, the CHWs went back to their environment with no other change having taken place subsequent to the training, for example an increase in supervision or provision of incentives. This suggests a lack of coordination between different elements of community health service. Furthermore activities are carried out as stand-alone modules rather than in an integrated manner. In addition, without commensurate changes in monitoring, supervision and provision of incentives, motivation, a theme discussed earlier in this chapter, is likely to remain low.

This further adds to the reliance from above for direction on the part of some *relais communautaires*. There was also the added dimension of attrition of *relais communautaires*, either through some passing away, or simply 'not turning up for the job'. Among the *relais communautaires* I interviewed in 2007 and 2009, all had undergone both the initial training and some form of subsequent training. Adama, a male *relais communautaire* whom I interviewed in 2009 stated that he was awaiting instructions from the health services before formally beginning his duties (Adama, interview, February 2009, Doucombo). The existing preference of some people for top-down direction does not engender self-reliance and local level participation or community participation, other than the existing associational participation (Chapter 3).

[114] These varied, but were between 2,000-3,000 FCFA per day, approximately £3-£5 daily.
[115] NGOs such as CARE Mali and Kineya Ciwara were cited as the main training providers.

This suggests that it would be beneficial to have a wider scope for the health agent, and the government to provide incentives rather than continue reliance on the NGO sector to provide and distribute preventive measures, such as ITNs. However, the whole ITN distribution effort is carried out by a few key players[116] in this ambit, increasing expectation and reliance on international donors, thereby reducing sustainability of such actions. Communities have come to expect external parties to come with something and do something for them rather than self-initiate projects. This view, sometimes encouraged by the external agents, through their goodwill actions of wanting to do something useful in rural areas of the Global South, is often not based on local needs assessments and therefore does away with participation for self-reliance (Koné, interview, 2007, Bamako). Even this kind of 'development' project may do little for long-term development and capacity-building, thereby rather than empowering communities, can serve to disempower them, by keeping costs of bed-nets high, maintaining expectation and reliance on external bodies, and making token gestures[117] of 'community development'. It may be that some would just like to be given a free bed-net or a tangible item to help in their day-to-day reality.

The fact that there is a lack of a clear job specification and that *relais communautaires* wait for direction before initiating health activities, is reflective of a 'top-down' approach to development and suggests a lack of confidence on the part of the CHWs. There may be a number of reasons for this: lack of regular training, no-one to report back to (in contrast to the reporting back mechanism instituted at ASACO level, with the constraints discussed earlier in this chapter), uneven power relations within the community itself, where self-initiated projects without external support are questioned and not trusted. In addition, the professionalization that Jenkins (2005) refers to inhibits transfer of powers from health centres to CHWs. Given that the role is a voluntary one and there are no measures in place to ensure regular supervision and evaluations of the health workers, there are limits to what a *relais communautaire* is prepared to do. An NGO official explained that as not all health staff were trained in supervisory and evaluation functions, they were unable to perform these

[116] The main distributors of ITNs that I encountered were UNICEF and USAID.
[117] It is possible that my distribution of bed-nets was also seen as a token gesture but such a discussion is beyond the scope of this thesis.

duties. This clearly indicates the need for capacity-building for health workers at the community level as well as the management level.

While decentralized governance aims to be more inclusive, there seems to be a preference for top-down approaches. In fact, malaria control cannot do without government intervention and input since theoretically they have the bigger picture and can adapt their control mechanisms according to the prevailing local cultures. This does not always happen, given the administrative and directional nature of vertical programmes. However, confidence in decentralization remains,

> Decentralization is our future, decentralized health is our future. We have not had results being decentralized. Need to confer trust to them [the *relais*] and responsibilize the communities. Have local governance accountable to local population, give them the resources, and train them. We have to give them the power – it is for them. Need to transfer the necessary resources and follow-up. They are not ignorant, they have the expertise, even if they are not literate. It is not true that they are going to eat the money. Do they not manage their families? Why do they not transfer the resources? I am not a politician, I am a technical person, this is a technical service. The Ministry is political. We can only suggest. *On est ensemble*.
>
> Dramé, interview, February 2009, Bamako.

Summary

This chapter has highlighted the state of decentralization in health in Mali. It has addressed the existing forms of political administration under which the decentralized health service operates in Mali. It has presented a picture of local governance structures in relation to the health sector which aim to be more responsive to community health needs. Decentralization as an impetus to increasing participation at the local level is to be questioned in light of the findings from this research and through observations. It is an area that needs further analysis and evaluation at the *commune* and *cercle* level.

This study, therefore, contributes to the gap in rhetoric and reality of decentralization, which was also highlighted by Tarimo & Webster (1994), discussed in Chapter 2. It shows that while administratively the decentralized government is 'closer to the people', the degree and its effectiveness are not necessarily commensurate with the expectation and hope of increased decision-making and participation at local level, as local hierarchical structures and

social and gender norms have not been taken into account. Rather, it has perpetuated some of the existing power relations and further excluded the already excluded. Furthermore, a political decentralization with its implied redistribution of power as explained earlier in this chapter, as well as financial decentralization, has not followed the administrative roll-out.

The chapter has examined the role of the CHW in relation to its recognition in the community. Clearly, there is a significant problem in the lack of widespread awareness of such a figure in the villages. This suggests a lack of clear mechanisms to institute *relais communautaires* in villages, often largely left, it appears, to the discretion of village leadership. The low levels of literacy, particularly among women, make it more challenging to find and appoint *relais communautaires.* In addition, women's household responsibilities add to the constraints of effective performance. Across the board, however, the lack of incentives makes it harder for the *relais communautaires* to be motivated to perform well.

There are still extremely marginalized groups, particularly women, who are socially excluded and not represented in public meetings. In this sense, decentralization is actually hindering participation of some sections of the community while benefiting some established individuals and families through the maintenance of existing *status quo* and power relations. Further, decentralization as a political force does not take into account existing social and cultural realities of protocol and procedure in matters of consultation and representation, which have been historically present in Mali.

The next chapter draws on the empirical findings in relation to malaria management in the three rural villages. It links the decentralized health system with the prevailing knowledge and attitude in relation to malaria, with the respective sources of this knowledge.

Chapter 5
"*Born in malaria*"
Community knowledge of malaria

Introduction

This chapter discusses the findings on the knowledge of malaria, regarding having heard about it, knowledge on signs and symptoms, knowledge of its cause, and knowledge on the ways of preventing it. Given that the nature of participation depends very much on the actors involved and the type and degree of participation engendered by existing social, political and administrative structures, and bearing in mind the local tapestry of social and cultural norms within a largely patriarchal society (Chapters 1 and 2), this chapter will highlight the key influences in knowledge-seeking about malaria in the decentralized health system of Mali. The chapter examines the data gathered from the survey and helps in answering research questions 1 and 2. Quotes from interviews among rural respondents are also included and appropriately attributed, in the relevant sections under analysis. Similarly, given that gender is a key variable in understanding differences in knowledge, an examination of the gender differences in knowledge of prevention and treatment, is provided from data gathered in the Mopti region. An analysis by poverty is also considered, given the importance in recent years accorded to SES and health in rural areas of SSA and how far individuals, communities and households are able to participate in supposedly participatory mechanisms, due to poverty.

The chapter also examines the sources of knowledge of malaria and how this knowledge varies between and within communities taking into account village, gender and poverty (Chapter 1). These factors have been chosen to reflect differences in location and distance to formal health facilities such as CSCOMS (Chapter 1). Given that there are few previous studies on malaria that give sources of information on malaria (Chapter 2) this chapter provides this analysis from two villages of the study. This helps in understanding how knowledge about malaria is being acquired in the decentralized health system aims to be more responsive to the needs of rural populations (Chapters 1 and 2).

The chapter concludes with a synthesis of the main findings and how some of these findings can contribute to formulating more appropriate strategies and in formulating

policies and programming implementations in the fight against malaria in the three rural communities in the region of Mopti. They may also contribute more widely nationally and within sub-Saharan Africa (SSA) and the global context of decentralized health systems and improvements in knowledge dissemination and health education.

Malaria knowledge

This section provides a picture of what knowledge exists at the local level, how it varies across villages, gender and poverty and what the sources of information are. Responses relate to whether the respondents have heard of malaria or not, both the French term *paludisme* and local terms for malaria, the signs and symptoms, cause of transmission, best way of preventing malaria and the sources of information of malaria (both the French and the local term). Local terms for malaria are listed in the glossary and are also listed in the section on local terms for malaria below.

Heard of malaria

The majority of the respondents (53%) said they had heard of malaria when the French word *paludisme* was used. Being aware of the term *paludisme* is important as many health education campaigns, in the wider national media and by local health services, use this term alongside local language terminology (see later in this chapter). In addition, while no voluntary or non-governmental organization (NGO) was present in the study locations during the course of the fieldwork, national policy documents[118] and NGO publications use the term *paludisme*. The use of a single term around which educational efforts can build a common understanding is important in efforts to promote behaviour change.

Village differences in knowledge of malaria

There is a statistically significant relationship between village and knowledge of malaria (χ^2= 36.692, $p<0.05$). Figure 5.1 shows that the highest level of awareness was found in Nantaka (77%) followed by Doucombo (46%) and Promani (36%). The high percentage of people who had not heard of malaria (in French) in Promani (64%) may be due to an absence of wider dissemination of awareness raising activities either by the *relais*

[118] See République du Mali (2006), *Plan Stratégique de Lutte contre le Paludisme 2007-2011*, Ministère de la Santé/OMS, Bamako, and République du Mali (2006), *Politique Nationale de Lutte contre le Paludisme au Mali*, Ministère de la Santé/OMS, Bamako.

communautaires or by external agents (Chapter 4). The higher level of awareness in Nantaka, with 77% of the respondents having heard of *paludisme*, is likely due to its proximity to Mopti, where there are a number of health facilities, including community health centres, pharmacies and a hospital where people go for health care. Furthermore, a higher percentage of radio ownership in Nantaka than in either Promani or Doucombo (Chapter 3) may be reflected in a higher level of awareness of malaria in Nantaka than in either of the other two villages.

Promani's distance from the town of Djenné, about 25km away (Chapter 3), may mean that fewer residents from Promani have contact with French-speaking people, either residents or visitors to the town. However, as I discuss in the next chapter on access to prevention and treatment of malaria, transport issues may pose a significant barrier to accessing a health facility for some members of the village. Promani is closer to Madiama[119], just 5 km away, where weekly market days mean that residents have more access to wider networks in that town, as well as the health centre, given "the importance of diffusion and social networks in the spread of health knowledge" (Andrzejewski *et al.,* 2009: 237) (see also Chapter 2). I was also informed by Isa, my translator, that often residents, especially women would take the opportunity to visit the health centre on market day and this may add to an additional occasion to acquire knowledge. I observed a substantial number of people from Nantaka, most of whom were women, make their weekly trips to the market, which may add to information sharing and knowledge acquisition as markets "become key sites for social learning and the diffusion of health knowledge" (Andrzejewski *et al.,* 2009: 237).

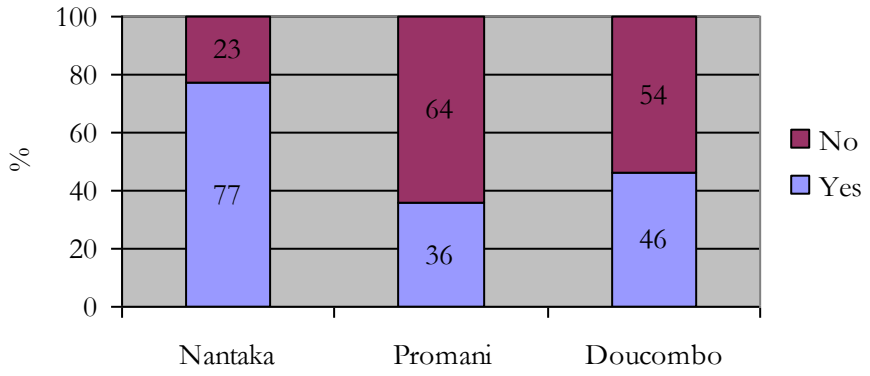

Figure 5.1 Heard of malaria in the three villages (%)

[119] Madiama is the chief commune town with a CSCOM (community health centre) under whose jurisdiction Promani lies (Chapter 3).

The fact that most of the respondents in Doucombo were unaware (54%) of *paludisme* is a bit surprising, for two main reasons. Firstly, considering the close proximity of Doucombo to Bandiagara, the focal point for tourism in the area[120] would facilitate interactions with the many French-speaking tourists and that this may provide additional opportunity to exchange information. This is possibly an assumption I am making, given also the fact that many tourists hire guides and vehicles from outside of the area, and therefore these guides may not have direct contact with local residents or with residents from Doucombo itself. Participant observation in Nantaka of a guide bringing some tourists from Mopti on a *pirogue*, with some of them just walking through the village without engaging in any conversation with the residents, and indeed one of them remaining in the *pirogue* reading a book, suggested that indeed there was a cultural distance (Chapter 3) between the tourist guides themselves and the local village residents, thus inhibiting any kind of information exchange[121]. Secondly, the fact that neither of the two research centres on malaria in Bandiagara[122] were mentioned as sources of information on malaria either during the survey or in group discussions, is very surprising and raises the questions of how these research centres disseminate their research and indeed recruit participants for their clinical research trial in the case of one research project.

A recently established advocacy group[123] on malaria in Djenné, that brings together different stakeholders, aimed to carry out awareness raising activities in the town and surrounding areas, including public sessions on bed-net treatment. A report by them found that there was a low level of awareness of malaria and that this was an area requiring attention (OMAES, 2007). The population under study did not treat their bed-nets after 4 months of use and non-disposal of garbage in the villages was widespread, leading to the proliferation of mosquito-breeding sites. The group aims to approach local government ("les elus") without external support for furthering their advocacy role.

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[120] Bandiagara lies on the *Pays Dogon* plateau, and provides the main access routes to the *Falaise*, the escarpment, where traditional villages are found on the cliff-sides.

[121] On the other hand, it is through such visits also that one-time holiday-makers to the villages, decide to contribute to the local communities by building schools and health facilities, such as the case in a village close to Doucombo on the way to Bandiagara and in Nantaka itself. However, this brings us back to the sustainability question of such initiatives, as some facilities then remain unused and fall into disrepair.

[122] *Centre de Recherche de Medicine Traditionelle* (CRMT) and the Bandiagara Malaria Project respectively.

[123] The *Projet de Plaidoyer pour la lutte contre le Paludisme au Mali* was established in July 2007, at a meeting in Djenné involving public officials from the municipality, health service representatives, civil society representative and local authorities.

Gender differences in knowledge of malaria

There is a statistically significant relationship between gender and knowledge of malaria (χ^2=7.750, p<0.05). A gender analysis shows that 63% of men and 47% of women had heard of malaria (Figure 5.2). The fact that more men had heard of *paludisme* may be due to their higher mobility within and outside their villages and therefore their wider interactions with people in other locations. Similarly, women's restrictions on mobility may constrain the social interactions, enabling them to network with others perhaps only during market days as discussed in the previous section. It is possible that men are more likely to listen to education messages in French from the media than are the women, having perhaps more time to sit and listen to the radio, as well as having more exposure to the French language through interactions with French-speakers, locally and through tourism. It also appeared that more men than women spoke French and had a higher level of education. However, the fact that some micro-credit associations serve in the communities, of which a significant proportion of women are either members or have access to, should enable their exposure to health education via the *animateurs*. I was told during a meeting of women belonging to a micro-credit association that an *animateur* had occasionally visited them for health education, particularly reproductive health. I observed an outreach worker, in February 2009, , from a faith-based NGO based in Sevaré, in Promani, who worked in the village school imparting nutrition education, which she also carried out in other villages around Djenné.

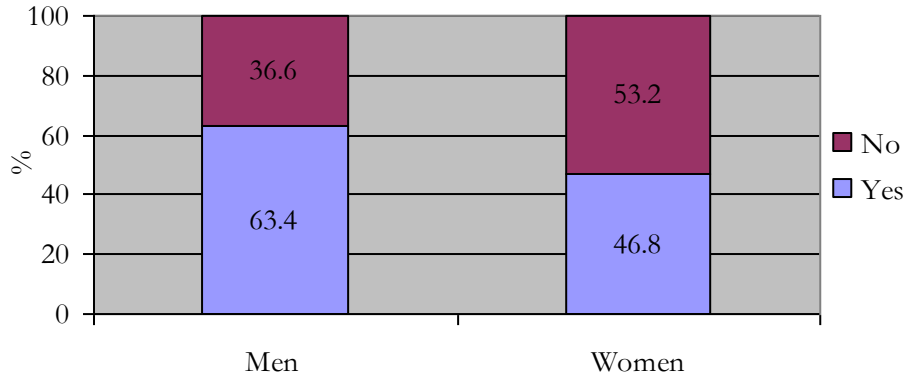


Figure 5.2 Heard of malaria by gender (%)

Poverty differences in knowledge of malaria

There is a statistically significant relationship between poverty and knowledge of malaria (χ^2=52.944, p<0.05). The survey revealed that a higher proportion of poor respondents (86%) had heard of malaria than either of the poorer (54%) or poorest (26%) respondents (Figure 5.3). This is commensurate with the fact that the levels of poverty influence access to information and knowledge, as well as knowledge-seeking opportunities. It also follows that the poorest category may also have not only fewer opportunities but are more financially constrained than either the poor or poorer categories. This finding corroborates findings by Worrall *et al.* (2003) that poverty still constitutes a key barrier to knowledge seeking. Furthermore, the findings suggest that participation in knowledge sharing and transmission is not carried out.

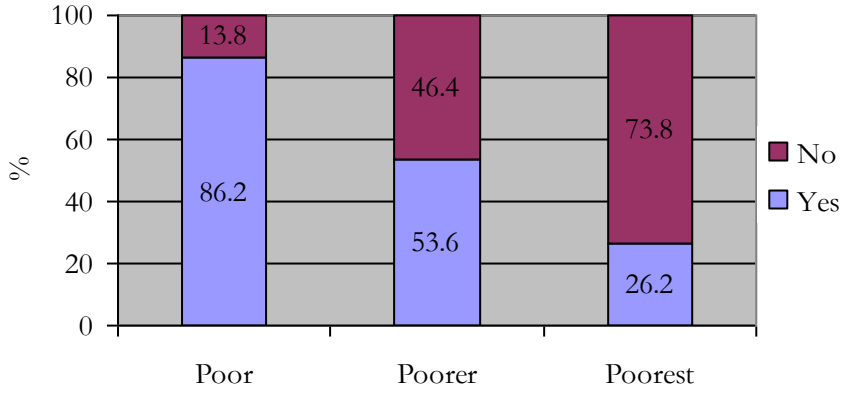


Figure 5.3 Heard of malaria in the three categories of poverty (%)

Source of information of *paludisme*[124]

For public health programmes more widely, and disease control efforts more specifically, the sources of information that are identified for particular diseases are important. They provide vehicles for information dissemination for a wider audience, with targeted messages tailored to specific groups. This section presents the sources of information

[124] Explanatory note:
The question on source of information of malaria (that is *paludisme*) and the local terms for malaria was introduced into the survey later on in the fieldwork that is from Promani and continued in Doucombo. Therefore, the figures pertaining to sources of information in the first question reflect answers from these two villages. Since Nantaka is excluded from this section, the source of information refers to 159 households minus 77 households in Nantaka who said they had heard of malaria, leaving a total of 82 households which are taken into account.

that the respondents identified during the research for the French term for malaria, *paludisme*.

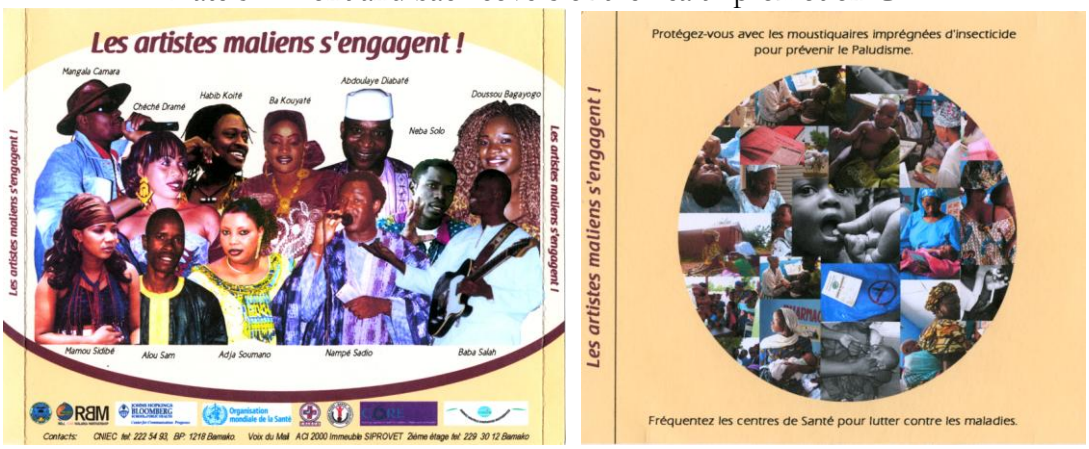
The three key sources of information on *paludisme*, were radio or televisions (48%), health centre (32%) and parents or older relatives (22%). A finding that emerges starkly in this analysis is that no-one actually mentioned the *relais communuataire* as a source of information regarding malaria. This is very important in that, within the decentralized system, the role of the *relais communuataire* is critical as they act as conduits between health services and the community (Chapter 4). It raises a number of crucial issues, which will be discussed in more detail in the next chapter, on the effectiveness of the *relais communuataire* as health agents in the community and the main interface between village and health service.

The radio is a key source of information and education on cause of transmission, prevention and treatment of malaria. In fact, the media plays a major role in health education generally in Mali. Due to the wider coverage and outreach, the media, radio in particular, may be considered more effective than health personnel. Indeed, the media seems to play a pivotal role in malaria awareness-raising in Mali. This takes on a number of different forms, from health messages delivered in local languages after the news bulletins on the national channel, local community print media, such as *Kibaaru* (Samaké, *pers. comm.,* Bamako, 2007, 2009), through local drama groups and through the government-supported CNIECS[125], whose remit is to provide health education by tailoring its messages according to the target audience, with a repertoire of messages and sub-themes (Konaté, interview, February 2009, Bamako). Announcements of various health campaigns, for example the use of insecticide-treated bed-nets, vaccinations, distribution of medicines, are made in the multiple local languages. In addition, local pop stars have come together in an initiative to produce a CD with key preventive messages in the national languages (Plate 5.1). This initiative was supported by major donors, such as RBM, Johns Hopkins Bloomberg School of Public Health (JHBSP), WHO and co-produced by CNIECS and *Voix du Mali*, a Bamako-based NGO, supported by JHBSPH. As this information was obtained during an interview at *Voix du Mali* after residing in the

[125] *Centre National d'Information et Education Sociale* – a division working under the Ministry of Health. It provides structure, elaboration of health messages, implementation in the field, periphery support, on messages and communications, for example national health programmes, policy, communicators from the regions.

villages, I was unable to ascertain whether anyone in the three villages had heard of these songs.

Plate 5.1 Front and back covers of the health promotion CD[126]



Source: *Voix du Mali*

It is also interesting to note that no-one mentioned any NGOs or *projets* as sources of information. This is commensurate with the fact that there were no NGOs working in malaria awareness-raising in the three villages. From time to time, however, an *animateur* or NGO worker would come from a credit association to impart information on HIV/AIDS and nutrition education in the local primary school.

The chapter now turns to examining the way that sources of information vary by village, gender and poverty. In each section, two graphs are presented; the first provides detailed information about the sources of information, while the second focuses on media and health centre. The second, simpler graphs bring together all the individuals who mentioned media or health centre staff as the only source, or in combination with other sources. Health centre staff and media can be seen as the key formal routes through which malaria information can be distributed, so focusing on them highlights the effectiveness of state knowledge promotion mechanisms.

Village differences and sources of information on paludisme

There were statistically significant differences in sources of information and village (χ^2=15.014, $p<0.05$). The different combinations of sources of knowledge of malaria in

[126] Front cover: "Malian artists are committed", back cover: "protect yourself with insecticide-treated bed-nets to prevent malaria, visit the health centres to fight against diseases" (author's translation).

the two villages are given in Figure 5.4. It shows that relatives and friends are more important sources of malaria knowledge in Promani (33%) than in Doucombo (13%). That friends and relatives are the main sources of information for over one third of the respondents in Promani may suggest a higher level of social network in place. This is interesting in itself, as Doucombo is made up of almost entirely of the Dogon group while there is a more ethnically diverse group in Promani (Chapter 3). While the relevance of social networks to this thesis was alluded to in Chapter 2, an in-depth analysis of social networks in the villages was not the focus of the present research and further investigation would be required to ascertain the reasons for these differences.

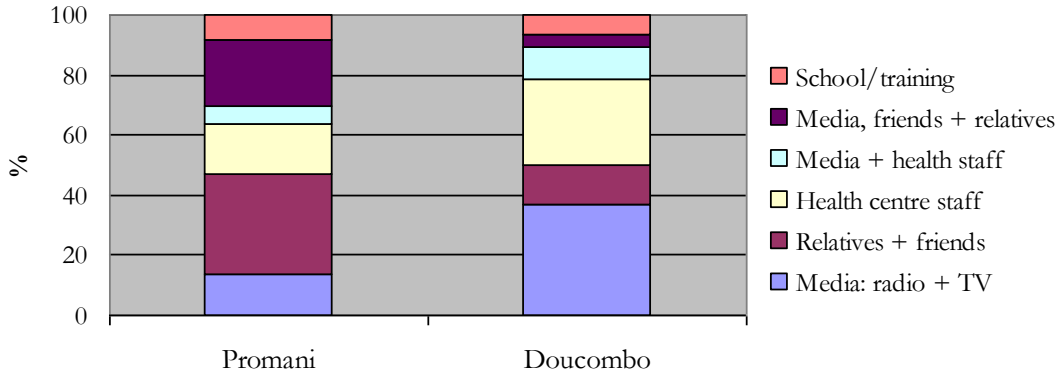


Figure 5.4 Source of information on malaria in two villages (%)

Health centre staff as a source of information on *paludisme* was more prominent in Doucombo with almost 39% of respondents saying they had heard about malaria through them than in Promani where 22% had said the same (Figure 5.5). However, in both villages, the media was a more prominent source of information on malaria than health centre, with about 41% in Promani and 52% in Doucombo getting their information on malaria from the media. This may be explained by the fact that a recently-retired Doucombo resident was a nurse at the CSCOM in Bandiagara, and therefore due to familiarity with the village population may have proven an invaluable source of information. The lower rate of reliance on health staff by respondents in Promani may be due to the relatively harder route to the CSCOM in Madiama, compared to Bandiagara, which is on a tarmac road, and may facilitate the acquiring of lifts from passing public transport (Chapter 3).

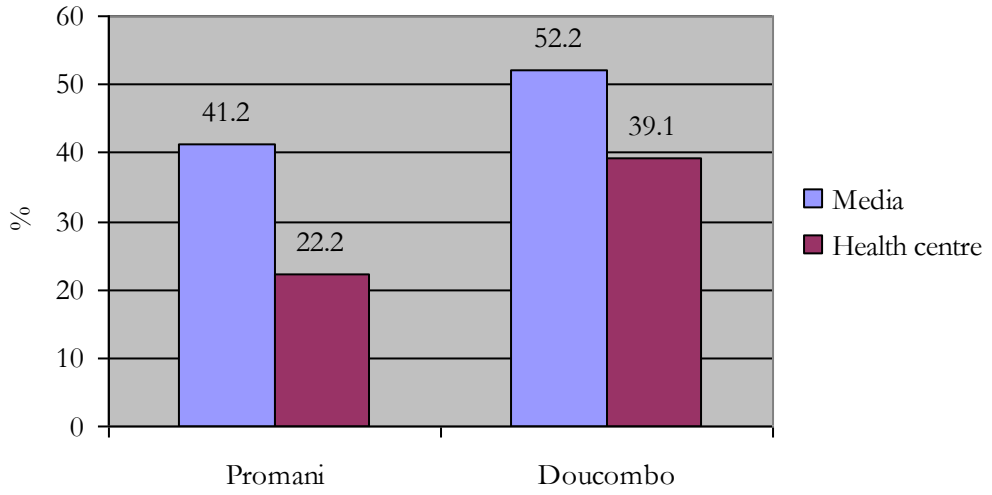


Figure 5.5 Media and health centre as malaria information sources in two villages (%)

Gender differences and sources of information on malaria

There was no statistically significant difference between gender and sources of information on malaria (χ^2=0.44, p>0.05). The different combinations of sources of knowledge of malaria for men and women are given in Figure 5.6. Relatives and friends are the sources of malaria knowledge for 22% men and 22% women.

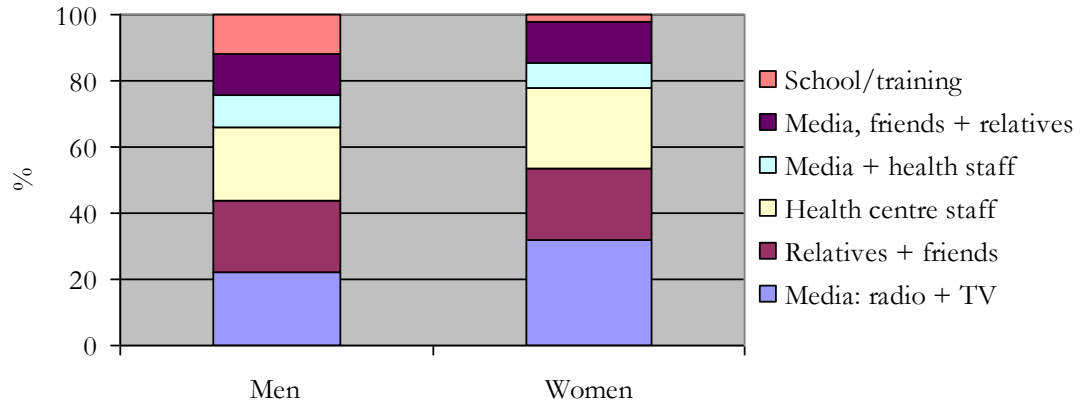


Figure 5.6 Sources of information on malaria for men and women (%)

Figure 5.7 shows that the media was the source of information on malaria for more women (51%) than men (44%). The health centre was a source of information for 32% of women and equally for men.

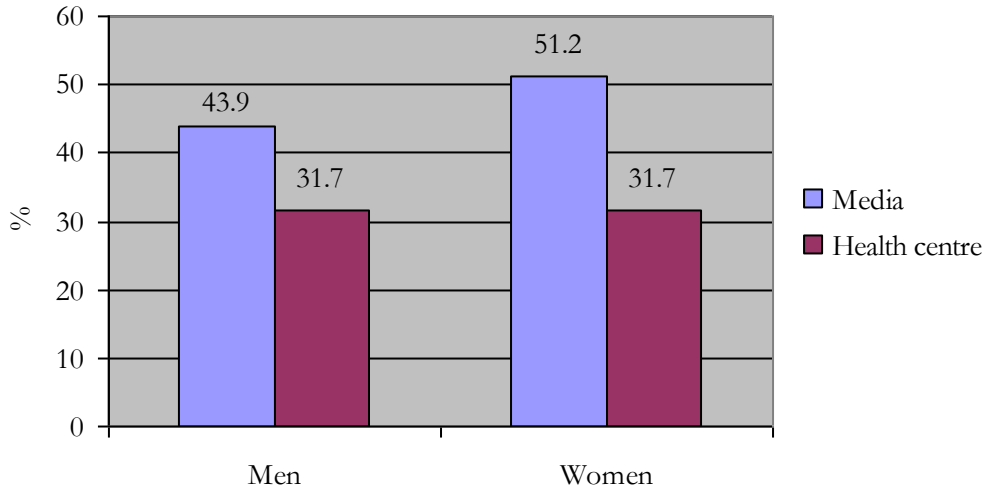


Figure 5.7 Media and health centre as malaria information sources for men and women

While knowledge transmission can occur through kinship networks as well, knowledge transmission between members of the same family is not guaranteed. There may also be some cases where men have knowledge about cause of transmission of malaria but do not share it with their wives. A case from Nantaka illustrates this. Searching for respondents of a particular household, an impromptu discussion emerged with a group of women sitting in the courtyard during an afternoon. When I asked one particular woman whether she knew what malaria was and what caused it, she replied she did not know. Soon after, her husband arrived, asking us why we were there. Having told him, he told us what malaria was, how it was caused and how to prevent it. On asking why he did not share this knowledge with his wife, he said he did not think about that and that he did not consider it important for her to know. This vividly illustrates the intra-household power dynamics of knowledge-sharing. This is in direct contrast with the point of view of one of the *relais communautaire* in another village, who based his selection of households to monitor family health practices (Chapter 4), on the assumption that the household itself would serve as another vehicle for dissemination of health messages through word-of-mouth (Chapter 4). In the case described above, this was evidently not the case. It may be linked with the fact that health education messages may focus more on HIV/AIDS rather than malaria, as I will discuss later in this chapter, but also be culturally specific in that information is not shared with women, as neither women nor the message may be considered important (Tanner & Vlassoff, 1998). A more extensive

analysis of household decision-making within the research context is presented in Chapter 6.

Poverty differences and source of information on malaria

There is a statistically significant difference between poverty and sources of information on malaria (χ^2=18.898, p<0.05). The different combinations of sources of knowledge of malaria in the three poverty categories are given in Figure 5.8. Relatives and friends are relied upon by nearly 30% of the poorer respondents and 13% each for the poor and poorest respondents (Figure 5.8).

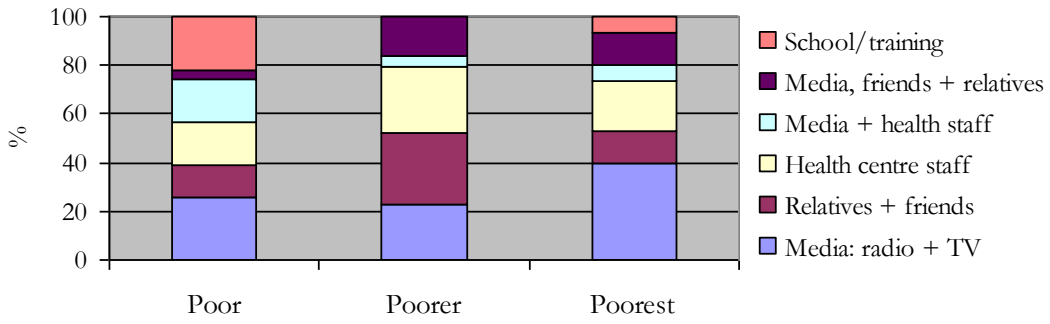


Figure 5.8 Sources of information on malaria in the poverty categories (%)

Media confirms its place as a source of information of malaria across the three poverty categories (Figure 5.9). It is the largest source of information for the poorest category (60%), followed by the poor (48%) and poorer (43%). This is a little bit surprising as media ownership is lowest in the poorest category (Chapter 3). Health centre staff remain a source of information for a higher proportion of poor respondents than either of the poorer or poorest (35%, 32%, 27%, respectively).

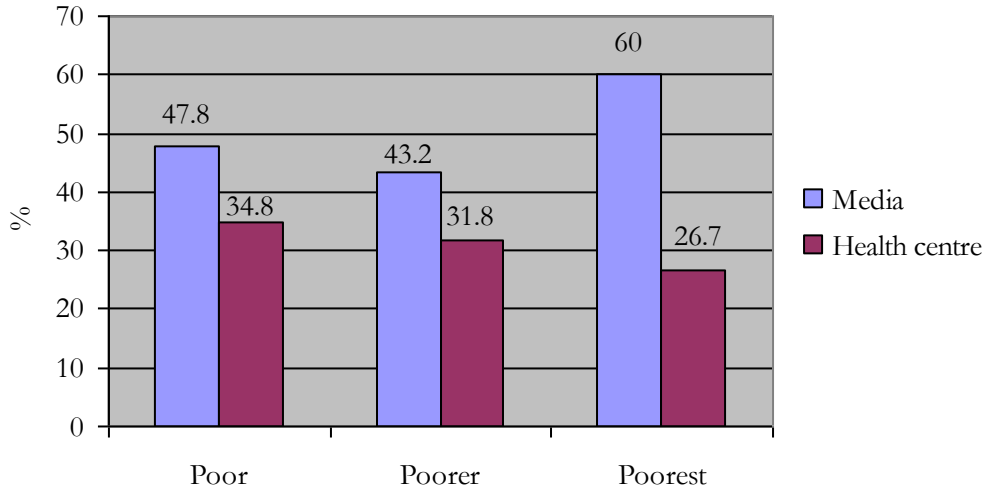


Figure 5.9 Media and health centre as malaria information sources by poverty group (%)

Heard of local terms for malaria

Studies in SSA indicate that there are multiple taxonomies related to 'malaria' and that the nomenclature given to words closely related to malaria may in fact include a range of other related illnesses (Okrah *et al.,* 2002; Beiersmann *et al.,* 2007; Essé *et al.,* 2008). The local terms for malaria identified during the research process in the Mopti region included *soumaya*, *keyfi*, *boubal, geynou* and *jonte*, in Bambara, Fulani, Dogon and Sonraï respectively[127]. Some of the terms carry nuances of meaning, for example between *jonte* and *keyfi*. However, *keyfi* more precisely refers to illness before *jonte*, but it does not always lead to *jonte* (Castle, 1992).

The majority (97.3%) of respondents in all three villages had heard of the local terms for malaria. Statistical analysis shows no significant difference between village and having heard of the local term for malaria with $\chi^2=1.798$ and $p>0.05$. This suggests the vital role of social networks as mentioned above, as providers of knowledge through informal daily interactions. It also suggests that because people interact in their local languages,

[127] There are two words for malaria in Fulani, namely *keyfi* and *jonte*. *Soumaya* is the local illness concept closest to the biomedical term malaria covers a broad range of recognized symptoms (Okrah *et al.,* 2002). Aetiologically, *soumaya* is associated with mosquito bites, but also with a number of other perceived causes. The same term in the *Djoula* language of Burkina Faso is used in public health discourse to communicate with the population on malaria-related matters (Okrah *et al.,* 2002). Soumaya literally means 'a state of being cold' and is unanimously considered a serious illness "…the mother of all illnesses" (Okrah, *et al.,* 2002: 242) and perceived to be caused by natural factors such as an unclean environment, the climate (cold, wind), or certain kinds of foods, too much sugar, too much condiment (Beiersman *et al.,* 2007).

the local terms are more likely to get transmitted and absorbed[128]. There were no significant differences between gender and hearing about the local term for malaria, as nearly everyone had heard of the local terms for malaria (χ^2=0.0534, p>0.05).

Sources of information on local terms for malaria[129]

Through informal discussion with respondents in Doucombo, it emerged that often health personnel would not take the trouble of telling the patient how malaria was transmitted and how it could be prevented. In addition, no-one in the survey said they got their information from the *relais communautaire*, intended to be the main health agent in the village.

Nearly half of the respondents had heard of the local terms for malaria from friends and relatives, 19% of the sample responded radio and TV as a source of information for the local term for malaria. Health staff was a source of information of local terms for only 12% of the respondents.

Village differences in the sources of information on local terms for malaria

There is a statistically significant difference between village and sources of information on local terms for malaria (χ^2=28.534, p<0.05). Figure 5.10 shows the various combinations of sources of information on local terms for malaria. Relatives and friends confirm there place for local terms in both Promani and Doucombo, with 64% and 36% respectively.

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[128] The *Prefet* of Djenné elucidated that singers cover social and cultural aspects in their lyrics, including social relationships and behaviour and therefore can serve as a useful vehicle for health education (interview, 31st October 2007, Djenné), as is illustrated by the initiative of the Malian artists (Plate 5.1). A recently established online journal (March 2009), The *Itupale* Online Journal of African Studies, considers culture-specific Africanisms, and contributions may provide valuable insights on language and cultural interactions among diverse ethnic groups in West Africa, and Mali in particular. Two recent papers in the journal, Babalola & Taiwo (2009) and Adegoju (2009) present the social commentaries on the influence of lyrics on cultural realities in Nigeria, which resonate in Mali.

[129] Explanatory note: Here, the households who had heard of the local terms for malaria are included minus the households from Nantaka (as explained in footnote 8 above), that is 292 – 97 = 195 households.

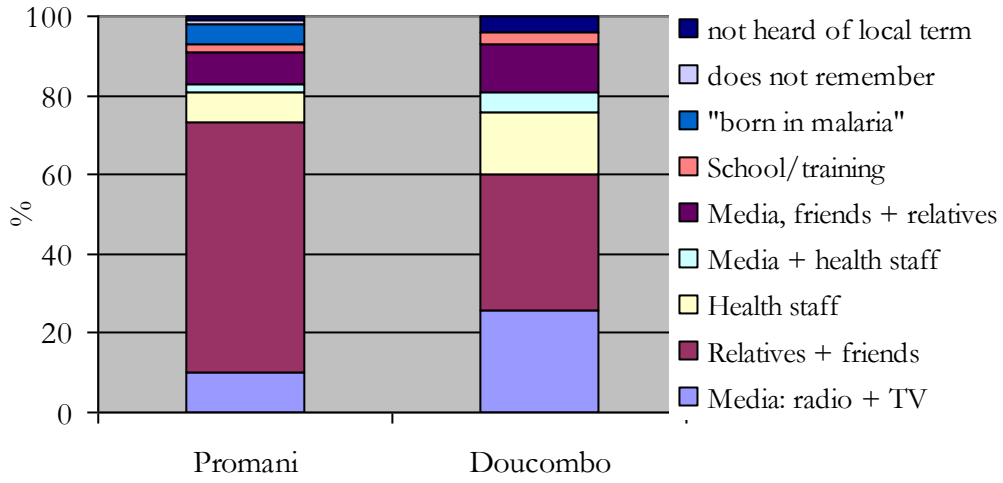


Figure 5.10 Sources of information on local terms for malaria in the two villages (%)

Figure 5.11 shows that the media plays a bigger part in being a source of local terms for malaria than does the health centre, however this more so in Doucombo (45%) than in Promani (20%). Health centre as a source of information on local terms for malaris is 10% for Promani and 22% for Doucombo.

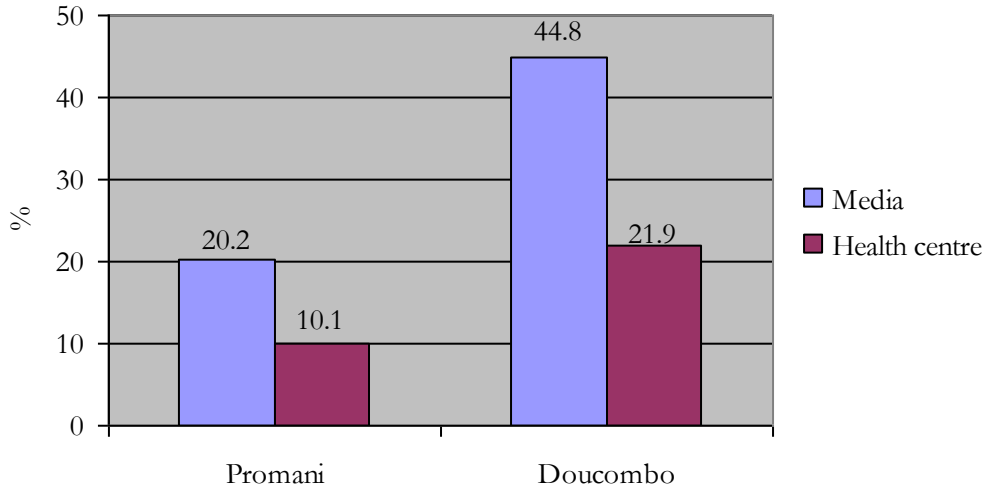


Figure 5.11 Media and health centre as malaria information sources in two villages (%)

Gender differences in the sources of information on local terms for malaria

There is a statistically significant difference between gender and sources of information on the local terms for malaria ($\chi^2 = 18.144$, $p<0.05$). Figure 5.12 shows the various

combinations of sources of information on local terms for malaria for men and women. The survey revealed that relatives and friends are a significant source of information regarding the local terms for malaria, for 50% women and 49% men.

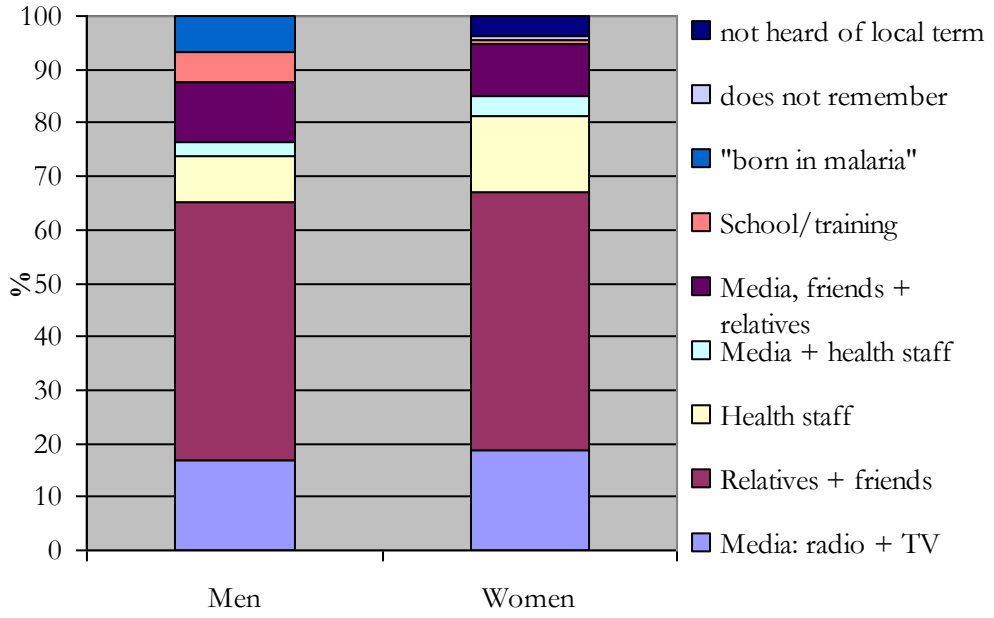


Figure 5.12 Source of information on local term for malaria by gender (%)

Figure 5.13 shows that the media plays a bigger part in being a source of local terms for malaria than does the health centre for both men (31%) and women (33%). More women (19%) than men (11%) received their information from health centre staff. This may be possibly due to a higher level of social networking of women with health staff and other visitors to the health centre (Chapter 6) and suggests that perhaps more women visit the health centre than do men (Chapter 6).

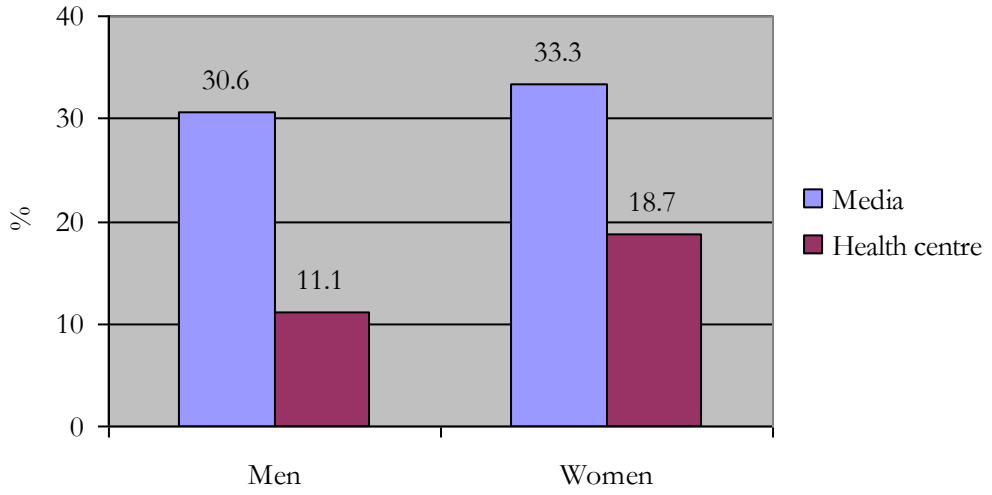


Figure 5.13 Media and health centre as malaria information sources by gender (%)

Poverty differences in the sources of information of local terms for malaria

There is a statistically significant difference between poverty and sources of information of local terms for malaria, (χ^2=46.131, $p<0.05$). Figure 5.14 shows the various combinations of sources of information on local terms for malaria across the three poverty categories. The survey revealed that relatives and friends are a significant source of information regarding the local terms for malaria, for 30% poor, 45% poorer and 60% poorest respondents.

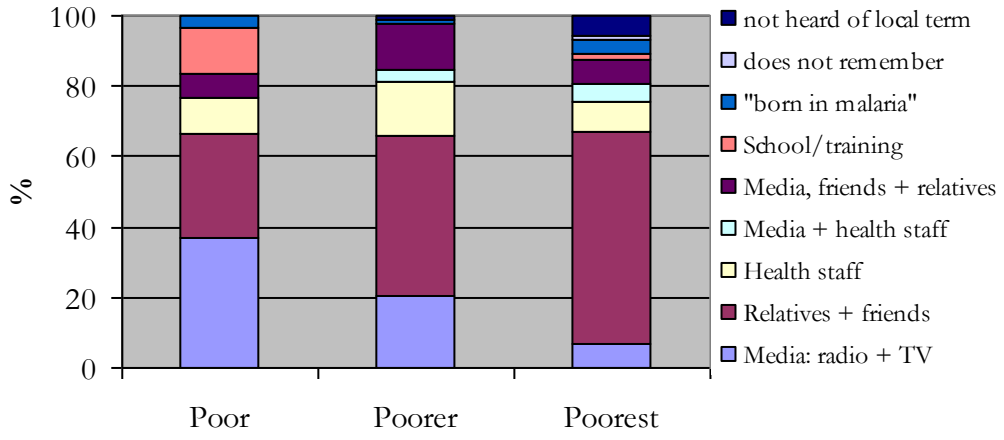


Figure 5.14 Source of information on malaria in the three poverty categories (%)

Figure 5.15 shows the most important sources of information across the three poverty categories. It shows that the media plays a bigger part in being a source of local terms for malaria than does the health centre across the poor (43%), poorer (38%) and poorest (20%) groups. More of the poorer group (19%) received their information from health centres than wither of the poor (10%) or poorest (15%) respondents.

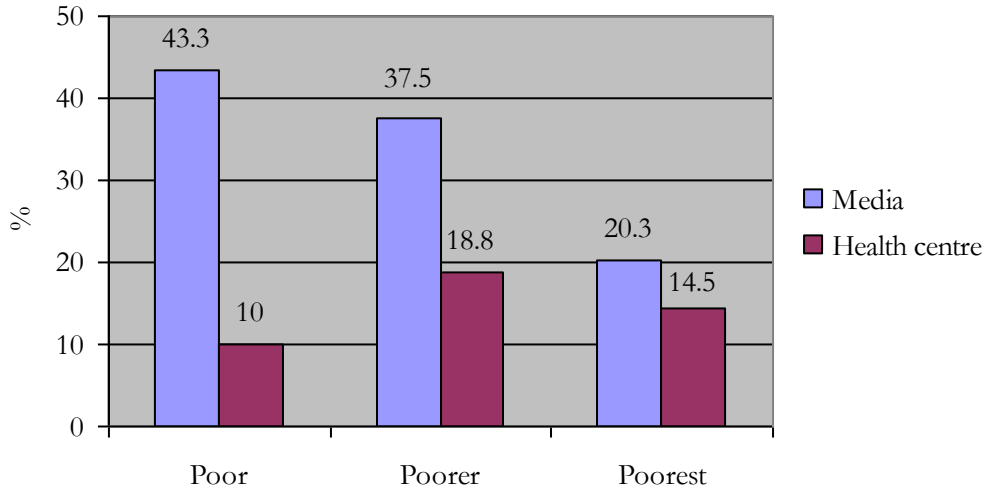


Figure 5.15 Media and health centre as malaria information sources by poverty group (%)

Potential further sources of information on malaria

Further potential key sources of information for malaria were observed through interactions in the villages. One major source is children themselves. The national primary school curriculum includes health education including malaria, as discussed earlier. In addition, state schools have instituted a 'children's government' with a prime minister and every minister with a deputy minister, in each of the main categories, including health, education, environment (Teachers' focus group discussion, Nantaka, 2007). Interviews with the school directors in Nantaka and Doucombo suggested that this form of involvement instilled responsibility and awareness of social and environmental issues at both local and external level. A brief illustration of this is given in Chapter 6 on access to health care.

Community schools[130] can also play a key role in imparting knowledge on malaria as well as other health issues. One respondent[131] in Doucombo was a teacher in a community school in another village and had a high level of knowledge of malaria's signs and symptoms as well as cause of transmission and prevention and treatment methods. It seemed however, that this knowledge acquisition was self-motivated. It was very propitious that I was able to have a discussion with him, as he also had a textbook in French on malaria. Such figures can be invaluable in their communities as additional sources of information. This could also lead to a reduction in external reliance on *animateurs*, as explained earlier, and lower overall costs. However, they may also need financial and material incentives to carry out *sensibilization* (awareness-raising activities, sensitization) in the community, since these particular respondents were on leave from their normal place of work in another village. The issues of incentives and motivation have been discussed at length in Chapter 4.

Similarly, the motivation of a school-teacher in Nantaka, who was identified as 'health personnel' seemed to be out of a general concern for the well-being of the community rather than any other incentive (see Chapter 6). He and his wife, both teachers at the same school, would be well placed to carry out awareness-raising activities within and outside of the school[132]. However, during the course of an interview, he did state that it was only if some remuneration was available would he consider working with the community health workers. Therefore, financial motivation was the main driver of collaboration with other health workers (Salif, interview, Feb 2009). The issue of motivation and incentives for the *relais communautaires*, which I introduced in Chapter 4, is one I return to in Chapter 6.

While various media campaigns, for example by USAID, that I mentioned earlier in this section, are useful in the dissemination of malaria awareness, and events such as malaria awareness week, held in April/May each year, their effectiveness in raising awareness and behaviour change has not been systematically measured and would be a valuable area to research in future. As no-one actually mentioned these initiatives it is difficult to

[130] Community schools (*écoles communautaires)*, which do not benefit from state funding, are supported by the local communities who pay teacher salaries and contribute to the upkeep of the school.
[131] I was intending to return to him for further discussion on knowledge dissemination in their 'home' community in malaria management, but he passed away in January 2009, two weeks before my return to Mali for the third phase of the research.
[132] Both teachers were also living in Nantaka in 2007 and 2009, while other teachers would 'commute' from Mopti town. The school director also lived in Nantaka with his family.

determine whether they bought bed-nets as a result of these campaigns. However, several responses affirmed that even with all the health education in the world, the main issue remains that of cost, even if people understand the importance of using a bed-net, whether insecticide- treated or not, to prevent mosquito bites. The KAP section of the survey therefore adds to the paucity of data available in Mali on issues of prevention of malaria. The issues of affordability and access are themes discussed in Chapter 6.

Behaviour change agents often take the form of *animateurs,* often coming from outside the villages. Some *animateurs* were occasionally present in the villages. As Friedmann states,

> Their [animateurs] basic task is to 'animate' – that is to blow the breath of life into the soul of the community and move it to appropriate actions. They are meant to 'spark' endogenous change 'from within', not to carry out the change program; this is the responsibility of the organized community.
>
> Friedmann, 1992: 144

As there were no *animateurs* present from health NGOs in the villages during the period of study, it is difficult to establish how much 'breath of life' they actually blew into the soul of the communities.

Signs and symptoms of malaria

Understanding community knowledge on signs and symptoms of malaria is important in developing appropriate health education programmes to raise awareness about malaria. In this section I discuss the level of knowledge on signs and symptoms of malaria across the three villages and compare these findings with other studies conducted in SSA. I also investigate patterns between different socio-economic factors to see if they have a bearing on knowledge of signs and symptoms of malaria.

About 47% of the respondents in the whole sample identified the body becoming hot or fever as a sign and symptom of malaria. This was followed by 20% who reported vomiting and diarrhoea, and 6% who stated a change in the colour of urine and eyes as a sign and symptom of malaria. About 28% of the sample did not know what the signs and symptoms of malaria were.

Village differences in knowledge of signs and symptoms of malaria

There is a statistically significant difference between village and the knowledge of signs and symptoms of malaria (χ^2=20.396, $p<0.05$). The signs and symptoms of malaria identified by the respondents are presented in Figure 5.16. Fever was reported as a sign and symptom of malaria by 41% in Nantaka, 51% in Promani and 48% in Doucombo. Vomiting and diarrhoea as a sign and symptom of malaria was reported by 24% in Nantaka, 20% in Promani and 15% in Doucombo. A change in the colour of eyes or in the colour of urine was reported by 11% in Promani and 6% in Nantaka. Nobody in Doucombo reported these signs and symptoms of malaria.

In Doucombo, 37% did not know, 29% in Nantaka and 18% in Promani did not know what the signs and symptoms of malaria were. This raises an important question on the effectiveness of education and media messages in the dissemination of correct biomedical knowledge on malaria, as discussed in the previous section, and is concerned with sources of information on malaria as a whole. In addition, the relative poverty of Nantaka and Promani may also have a bearing on knowing the signs and symptoms of malaria due to easier access to sources of information outside the village itself.

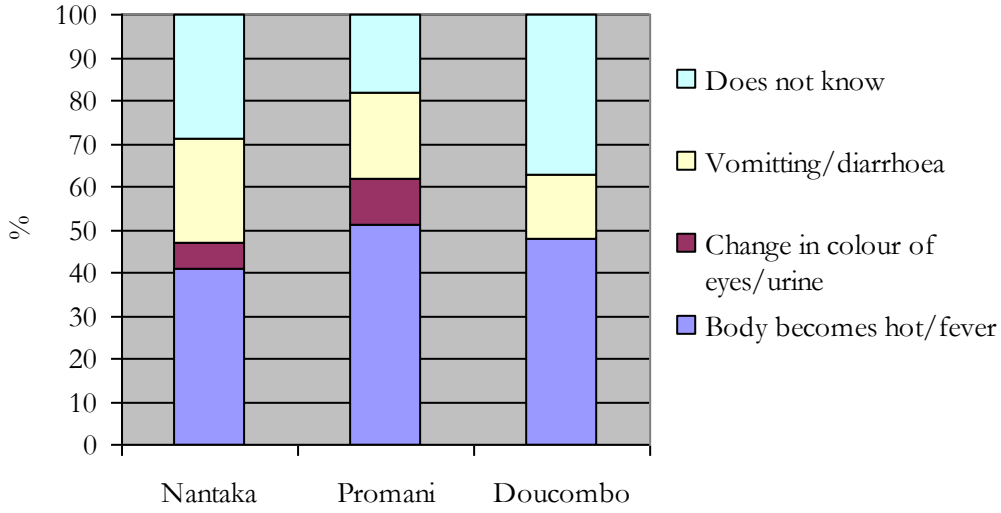


Figure 5.16 Signs and symptoms of malaria in the three villages (%)

During an interview with a traditional healer, he stated that "you cannot eat correctly" as one of the signs and symptoms of malaria, as well as "you need to drink lots of water"

and "mangoes cause malaria, *on le sait*[133]" (male traditional healer, interview, Nantaka, 2007). This interview touched a number of themes: the knowledge of signs and symptoms of malaria, knowledge on the cause of malaria (multiple causes: consuming certain foods, or consuming the same foods, and working under the sun), and knowledge on the ways of preventing malaria. It also indicated that his knowledge on treatment of malaria was not updated to include the new treatment with ACT (Chapter 1, Chapter 4 and Chapter 6), as he referred to pharmaceutical drugs based on chloroquine as treatment for malaria. This is reflective of the lack of communication at community level between health service agents (including *relais communautaires*) and the residents. It reveals that the decentralized health system is not working as it aimed to. The view of a health official in Bamako (Traoré, interview, January 2009, Bamako) that the community health worker is responsible for disseminating information about the new treatment to the community does not seem to be borne out in reality. It is clear from the conversation with the traditional healer that this is not the case.

Gender differences in knowledge on signs and symptoms of malaria

There is a statistically significant difference between gender and signs and symptoms of malaria, (χ^2=18.93, $p<0.05$). Of the women, nearly 43% reported a hot body or fever as a sign or symptom of malaria and nearly 54% of men reported a hot body or fever as a sign and symptom of malaria (Figure 5.17). Vomiting and diarrhoea as signs and symptoms of malaria were reported by almost 20% of women and by almost 20% of men as well. A change in the colour of eyes or in the colour of urine was stated as a sign and symptom of malaria by about 11% of men and 3% women. There were more women than men who did not know what the signs and symptoms were (35% and 16% respectively). This is unsurprising and reflects an important issue about women's access to knowledge which has received some attention in the literature on women's access to health care (Chapter 2).

[133] "it is known" – author's translation.

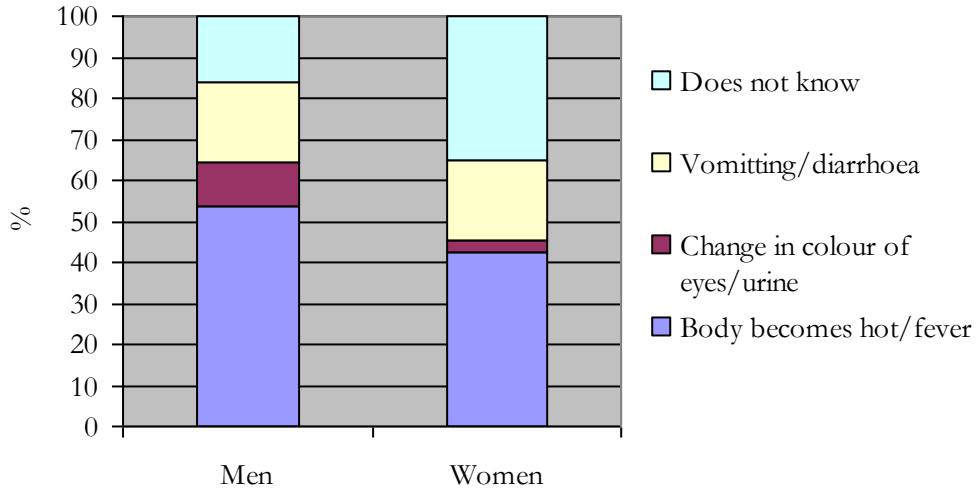


Figure 5.17 Signs and symptoms of malaria by gender (%)

Poverty differences in knowledge of signs and symptoms of malaria

There was a statistically significant difference between knowledge of the signs and symptoms of malaria and poverty category, (χ^2=15.33, p<0.05). Unsurprisingly, a higher proportion of respondents in the poorest category (34.5%) did not know what the signs and symptoms were compared with the poor (20%) and poorer groups (28%) respectively (Figure 5.4). This corroborates the issues of poverty being a major barrier to seeking knowledge, together with lack of access to radio and other sources of information as examined earlier in this chapter.

Surprisingly, more poorer and poorest people correctly reported the body becoming hot or fever as a sign or symptom of malaria (50% and 45% respectively) than the poor (42%) (Figure 5.18). Vomiting and diarrhoea as a sign and symptom was reported by 35% in the poor, 17% in the poorer and 13% in the poorest category. A change in the colour of eyes or in the colour of urine was reported by more people in the poorest category (7%) than in the poorer (6%) or poor (3%) categories. This suggests that the poorest know the least about the individual signs and symptoms of malaria other than fever.

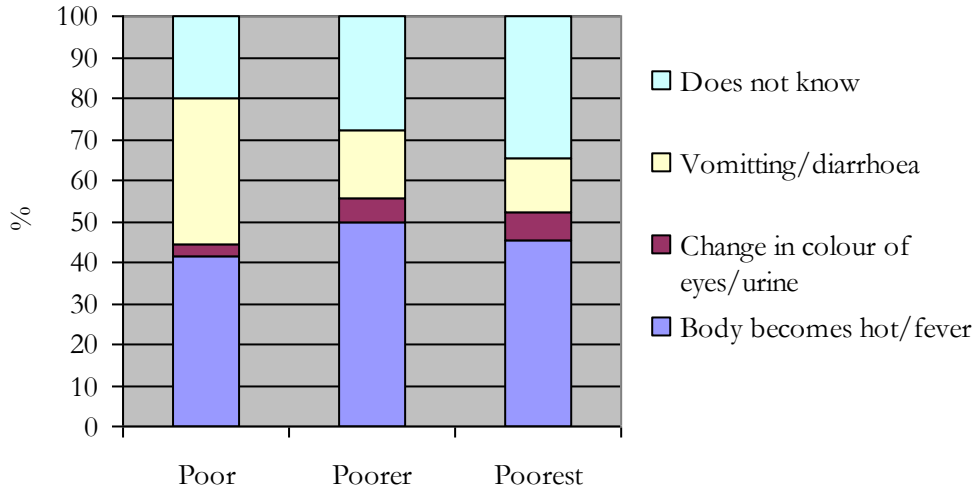


Figure 5.18 Signs and symptoms of malaria in the three poverty categories (%)

Cause of malaria[134]

Knowledge on the causes of malaria in the three villages of my study is discussed in this section. Community perceptions and understandings of causes of malaria have been widely studied across SSA (Chapter 2). Clearly, it is important to know what level of awareness exists in any community with regard to causes of malaria and how these vary with different socio-economic factors, gender and location. This in turn assists public health programmers to develop appropriate strategies to address both the traditional understandings of the causes of malaria with the correct biomedical understandings prevalent in the communities.

The cause of malaria is shown in Figure 5.19. A quarter of the total sampled population in my study stated that malaria was caused by mosquitoes. Malaria caused by eating certain foodstuffs such as mangoes, sugary foods, drinking too much tea was reported by just over 7%. Environmental conditions such as playing in water and working too hard under the sun caused malaria for 17% of the sampled population. In my study, 45% of the whole sample said they did not know the cause of malaria. About 6% associated malaria with uncleanliness and the rainy season.

[134] During the household survey, the French term used was "comment on attrappe le paludisme" (how do you contract malaria?), following Agyepong *et al.,* (1995) & Najera & Hempel (1996) and the Malaria Consortium (undated).

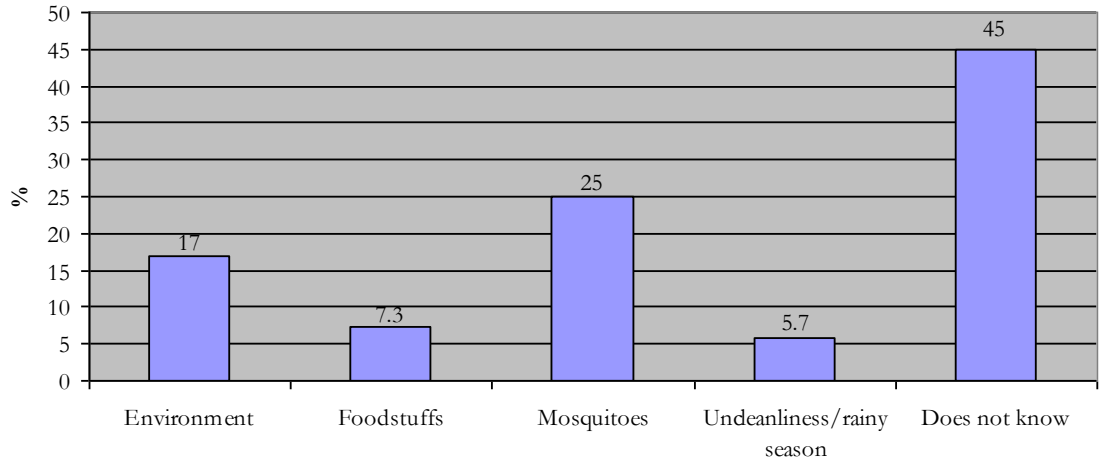


Figure 5.19 Cause of malaria

My findings therefore resonate with those in other SSA countries. The association between malaria and mosquitoes is much lower in my study in rural Mali than that found in other studies (Chapter 2).

Malaria is perceived by many communities in different regions of the world as a health problem related to the physical environment, including many factors besides mosquitoes (Agyepong, 1992). Other concepts, like insect bites in general or certain conditions in the environment soon after the long rainfall, like dirty water pools or excessive heat of the sun, that kinds of food which are available shortly after the rainy season, when plenty of mosquitoes are around, may be presumed to be related to malaria (Aikins *et al.*, 1994). My study therefore adds to the existing literature on community understandings of malaria, in particular for Francophone West Africa. It reinforces the fact that local perceptions of malaria causation exist alongside biomedical knowledge. It also suggests that the majority of the respondents do not rely on the formal health structures for their knowledge of malaria. It also finds that cultural understandings of malaria continue to form the basic knowledge of malaria, an aspect which resonates in other parts of SSA.

Malaria was sometimes perceived as an illness which is common and 'normal' in people's lives, a theme I return to later in this chapter. They considered the importance of the disease/illness 'malaria' as a major problem in their areas to be dependent on the season of the year, as was the case in my study where respondents also referred to malaria

coming in the rainy season (when mangoes were also plentiful and therefore also associated with bringing malaria).

Village differences in knowledge of the cause of malaria

There was a statistically significant difference between village and knowledge of the cause of malaria (χ^2=23.497, p<0.05). More people in Doucombo (33%) than Nantaka (24%) and Promani (18%) correctly attributed malaria to mosquitoes (Figure 5.20). Environmental factors, such as playing in the water, under the sun, air caused malaria for 23% in Nantaka, 13% in Promani and 15% in Doucombo. Foodstuffs were the cause of malaria for 11% of the respondents in Nantaka, 10% in Promani and just 1% in Doucombo. Malaria caused by uncleanliness was the response of 4% in Nantaka, 10% in Promani and 3% in Doucombo. A higher proportion of respondents in Doucombo (48%) did not know what caused malaria compared to 38% in Nantaka and 49% in Promani.

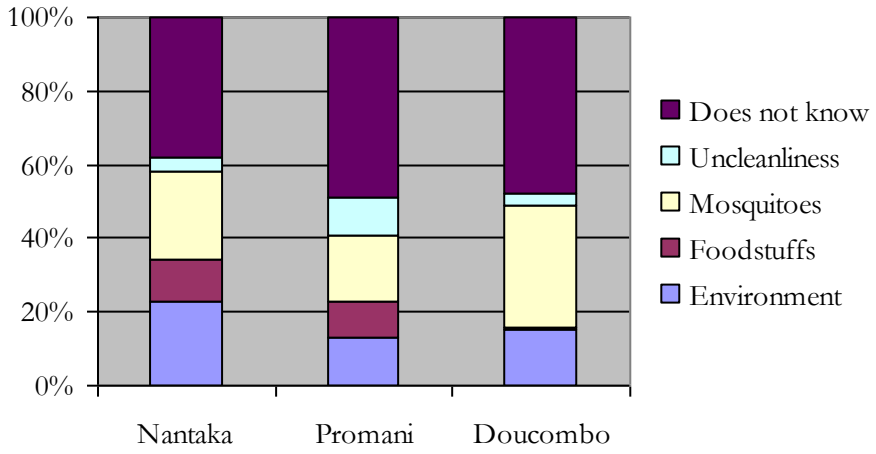


Figure 5.20 Cause of malaria in the three villages (%)

There may be a number of reasons underlying the findings in Figure 5.20. Participant observation in the three villages suggested that some *relais communautaire* were more active in health campaigns in two out of the three villages, a theme I will elaborate in Chapter 6 on access to prevention and treatment of malaria. Therefore, the fact that there is a higher level of awareness in Doucombo that mosquitoes are the cause of malaria, with respect to the other two villages may be due to its *relais communautaire* being widely recognized within the village, but also carrying out their role more effectively. There is a

contradiction here with the fact that none of the respondents identified the *relais communuataire* as a source of information across the three villages. However, Doucombo also had a health worker who worked in the community health centre (CSCOM) in Bandiagara, and therefore was another key resource in the village.

Gender differences in knowledge of the cause of malaria

There was a statistically significant difference in gender and knowledge of the cause of malaria (χ^2=16.323, $p<0.05$). More men (33.9%) than women (19.7%) attributed malaria to mosquitoes (Figure 5.21). Environmental factors as a cause of transmission was stated by just under 22% of men of the sample compared with about 14% of women. This may be attributed to the fact that perhaps men are more likely to be working in the fields under the sun and in the river, collecting water for their fields, although many women also undertook tasks entailing working under the sun and washing in the river. The cause of malaria attributed to the rainy season and uncleanliness was stated by almost 6% of the women and just over 5% of the men. Eating certain types of foods caused malaria for 5% men and 6% women. Further, a higher percentage of women (53.2%) than men (32.3%) did not know what caused malaria, which is expected given the literature on awareness of malaria (Yeneneh *et al.*, 1993; Kengeya-Kayondo *et al.*, 1994).

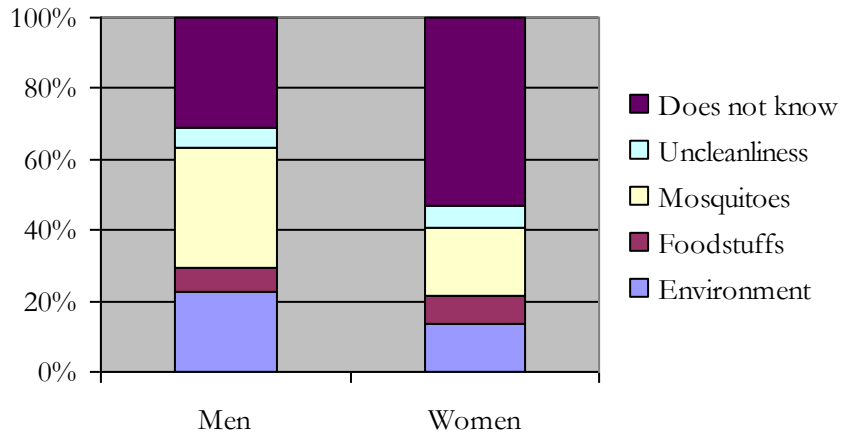


Figure 5.21 Cause of malaria by gender (%)

Poverty differences in the knowledge of the cause of malaria

There was a statistically significant difference between poverty categories and knowledge of the cause of malaria (χ^2=54.8244, p<0.05). Mosquitoes as the cause of malaria was correctly attributed by more respondents in the poor category (52.3%) compared to the poorer (21.9%) and poorest (9.5%) respectively as might be expected (Figure 5.22). The environment was the cause of malaria for 15% poor, 18.5% of the poorer and 16% of the poorest respondents. Malaria was caused by foodstuffs by 3% of the poor, 7% of the poorer and 11% of the poorest respondents. Uncleanliness was responsible for malaria for 9% of the poor, 3% of the poorer and 8% of the poorest respondents. As expected, more respondents in the poorest category did not know what the cause of malaria was (55.6%) compared to the poorer respondents (49.7%) and the poor respondents (20%). Again this corroborates that poverty is a key factor in knowledge of malaria and its role in facilitating knowledge acquisition of malaria.

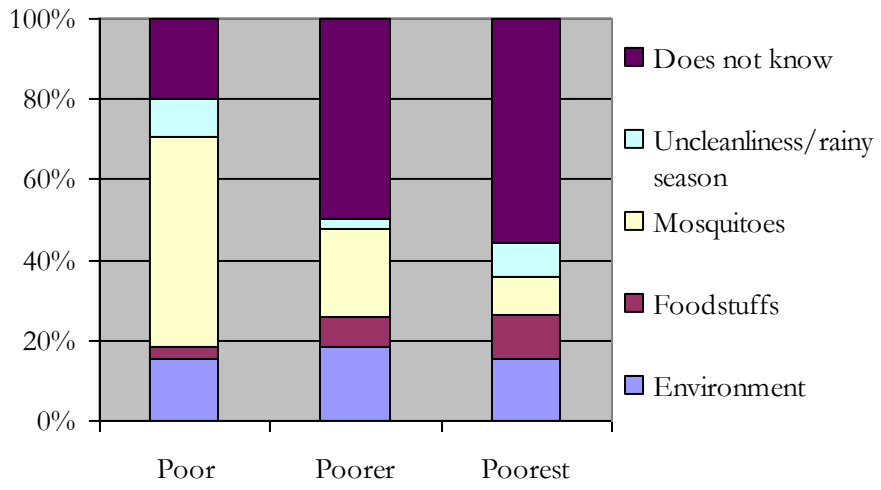


Figure 5.22: Cause of malaria in the three poverty categories (%)

Overall, the findings in this section suggest that, compared to other studies in SSA (Chapter 2) the attribution of malaria to mosquitoes is lower in my research areas.

Knowledge on prevention of malaria

Prevention of malaria is a key factor in reducing malaria morbidity. Therefore, the sample population was asked what the best method of preventing malaria was to

determine their knowledge on prevention measures of malaria[135]. This revealed an array of responses, including avoiding certain types of foodstuffs, for example mangoes, sweet foods, sugar, rice and certain environmental factors such as "avoid working too much in the sun" and playing in water, assuring cleanliness (of both the environment and coverings, for example blankets). The levels of awareness on the different preventive measures are important within the broader health decentralization debates (Chapter 2).

Bed-nets, whether insecticide-treated or not, as the best preventive measure was the response of 15% of the whole sample. Nearly 11% said that traditional medicine was the best way of preventing malaria. Foodstuffs also were mentioned by just over 6% of the sample population, in the sense that attention needed to be paid in eating well and avoiding sweet foods, mangoes in particular and sweet foods in general, or sugar in tea. Over one third of the whole sample did not know what the best method of preventing malaria was (38%). That there was nothing that could be done to prevent malaria was answered by 4% of the sample.

In my study IRS as a preventive strategy (Chapter 1) was notable by its absence as it had not been mentioned by any of the respondents, possibly due to lack of awareness of this preventive measure in the areas of study. Although this strategy has been adopted as of 2008, it has not been widely rolled out, being in the testing phase in the Sikasso and Koulikoro regions of Mali (WHO, 2010). However, one respondent with a malaria textbook in Doucombo did mention in an informal discussion that IRS was also an option (with DDT) but that it was not applied in the village and according to him possibly due to lack of funds and political commitment (Ali, village resident, 2007, Doucombo).

In a focus group among village shopkeepers in Nantaka all had heard of malaria and knew the signs and symptoms ("body becomes hot, you have fever, the joints ache and you want to vomit every time"). They also attributed the cause of malaria to mosquitoes along with consumption of sugar and *karbala,* a change in climate. When asked if mosquitoes are the cause, how do you prevent them from biting? They answered: you prevent mosquito bites with bed-nets. However, they did not stock bed-nets in their shops as they did not sell fast; their proximity to Mopti meant that people from Nantaka

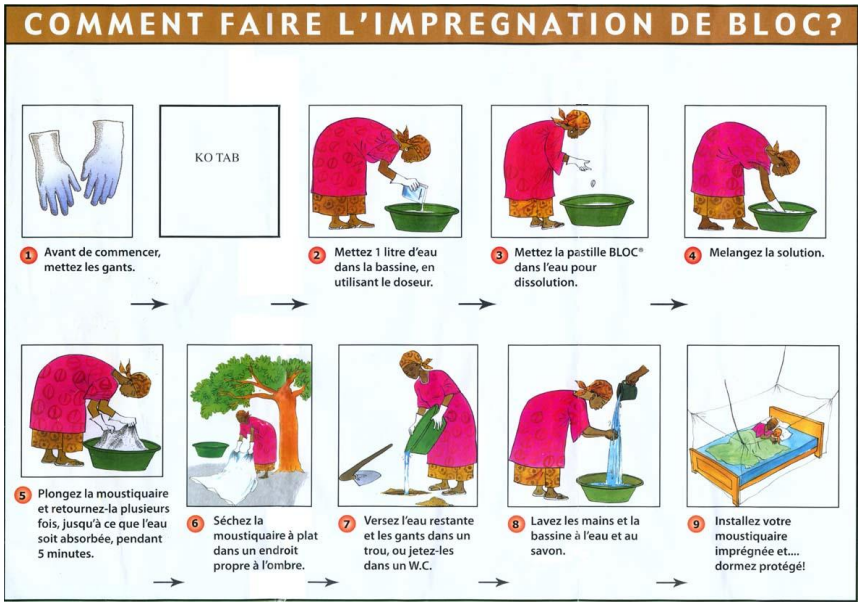
[135] While this is not necessarily what they use to prevent malaria, this is considered in the next chapter on prevention practice.

went to Mopti to buy them. A preventive measure they did stock was the insecticide tablet to treat bed-nets shown to me by one shopkeeper in Nantaka (Plate 5.2 and Plate 5.3). The shopkeepers in the focus group said that while they knew how to use the tablet to treat the bed-net, as the instructions were written on the packaging, they asked "but how many know how to read here?" The literacy figures for rural Mali are 72.2% males with no literacy, compared to 80.6% in the Mopti region and 50% in my study (see Chapter 3). Only 1.7% of males in the Mopti region had completed primary schooling compared to 2% in rural Mali, and 19% in my study population (Chapter 3). For females, the figures stand at 81.5% with no literacy in rural Mali compared with 80.9% in the Mopti region, and 89% in my study (Chapter 3). There were 1.2% females in the Mopti region having completed primary schooling compared to 1.1% in rural Mali (CPS/MS, 2007). In my sample, 11% of women had primary schooling.

This statement clearly indicates that there is much to be done in terms of health education and communication in low literacy environments. Even when efforts as community-based bed-net treatments are sometimes carried out, there is a need for widespread dissemination of the availability of such treatments at the village level, either in shops or through the *relais communautaire* (Chapter 6). In Chapter 6, I will elucidate some of the issues surrounding such efforts at the community level, given that some people do not even want to avail of this service in their village. However, an increase in the availability of people to carry out this treatment may also be a good way of incentivizing the community in health-seeking behaviours.

Plate 5.2: Insecticide-treatment pack for mosquito bed-net[136]

Plate: 5.3: Instructions on bed-net treatment with insecticide[137]



Source: PSI, Mali

[136] Author's translation: BLOC serves to treat all types of bed-nets. It is so simple and can be done at home at any time. BLOC: the force behind your bed-net! To better protect your family and sleep easy every night, your babies and your children under a treated bed-net. Protect your family against malaria; the mosquitoes that bite at night are the only cause of malaria; pregnant women and young children are the most vulnerable to malaria; malaria can cause miscarriages and premature births to pregnant women; everyone can catch malaria: mothers and fathers, young and older children, elderly, in the city as well as in the village; the WHO programme recommends the use of insecticide-treated bed-nets as a prevention measure against malaria; the insecticide-treated bed-net protects you and your children against mosquito bites that transmit malaria.

[137] Author's translation: How to treat bed-nets with BLOC? 1. First, wear gloves. 2. Put 1 litre of water in a tub, using the dosage bag. 3. Dissolve the BLOC tablet in the water. 4. Mix the solution. 5. Immerse the bed-net and turn it several times, until the water is absorbed in approximately 5 minutes. 6. Dry the bed-net flat in the shade. 7. Pour the remaining water with the gloves in a hole or in the latrine. 8. Wash your hands and the tub with soap and water. 9. Hang up your treated bed-net and sleep protected.

Village differences in knowledge of prevention of malaria

Analysis reveals a statistically significant difference between village and knowledge of prevention of malaria, $\chi^2=75.197$, $p<0.05$. Bed-nets were the best preventive measure for 19% in Doucombo, 16% in Promani and surprisingly only 11% in Nantaka (Figure 5.23). The lower percentage of knowledge of bed-nets as a preventive measure in Nantaka is very surprising considering they are a poverty village in relation to Promani and Doucombo, is closer to Mopti and has a wide range of sources of information regarding malaria. Considering that fewer people in Promani had heard of malaria, it is interesting that it is here that more responded bed-nets as the best way of preventing malaria. This may be connected with knowing the cause of malaria as discussed in the previous section. However, we will see in the next chapter how this knowledge of bed-nets as the best way of preventing malaria is translated into the practice of prevention of malaria.

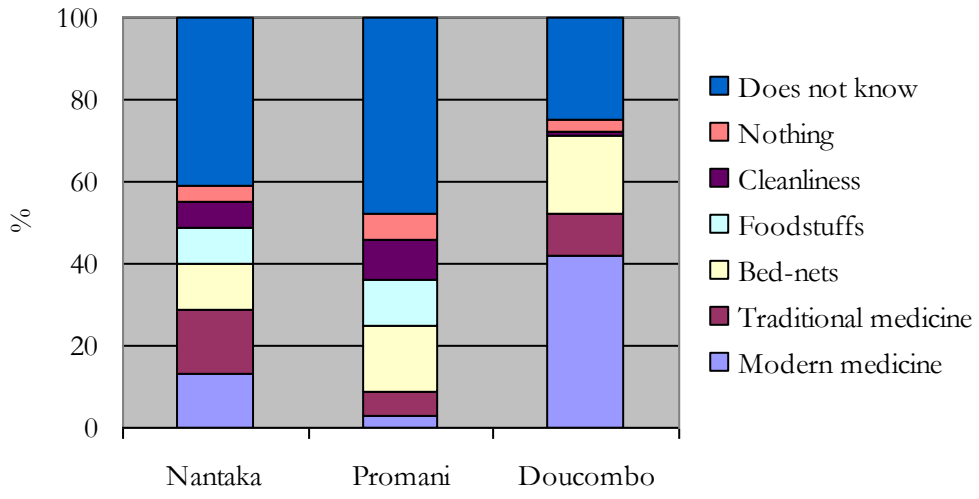


Figure 5.23 Best way of preventing malaria in the three villages (%)

Traditional medicine was also considered the best way of preventing malaria by more people in Nantaka (16%), followed by Doucombo (10%) and Promani (6%). This is an interesting finding, given that more people in Doucombo rely on modern medicines overall as treatment (see Chapter 6), has more community health workers and is close to a health centre and research centres as mentioned earlier in this chapter. Modern medicines were the best way of prevention for 9% in Nantaka, 3% in Promani and 42%

in Doucombo. Eating certain kinds of food were the best way of prevention for 9% in Nantaka and 11% in Promani. No one in Doucombo said the same. Keeping a clean environment, including reducing breeding sites was the best way of preventing malaria for 6% in Nantaka, 10% in Promani and just 1% in Doucombo. That nothing could be done to prevent malaria was the response of 4% in Nantaka, 6% in Promani and 3% in Doucombo.

More respondents in Promani (35%) did not know what the best way of preventing malaria was, followed by Nantaka (29%) and Doucombo (19%). Modern medicines as the best preventive measure accounted for 42% in Doucombo, 9% in Nantaka and 3% in Promani.

It is striking that there is least awareness of the signs and symptoms of malaria in Doucombo as this contradicts the prevention-seeking behaviour, and methods of prevention used compared to Nantaka and Promani and knowledge on the cause of malaria.

This raises the question of how effective the health education campaigns are and whether these messages are reaching the rural populations. It may also be a reflection of the cost involved in purchasing a bed-net, regardless of whether it is treated with insecticide or not, an issue I return to in Chapter 6.

Gender differences in knowledge of prevention of malaria

There was a statistically significant difference between gender and knowledge of prevention of malaria ($\chi^2=69.136$, $p<0.05$). Gender differences in knowledge of prevention of malaria are shown in Figure 5.24. More men (24%) considered bed-nets as the best way of preventing malaria compared to women (10%). Modern medicine is considered the best way of preventing malaria by more women than men (27% and 7% respectively) and this is corroborated by the finding that modern medicine is the used to both prevent and treat malaria (see Chapter 6). Traditional medicine was considered the best way of preventing malaria by 15.2% of the men and 8% of the women. This is surprising as it contradicts the wider literature that suggests that women have sought traditional remedies more than men (Bignante, 2010). The lower level of awareness among women of bed-nets being the best way of preventing malaria may be due to their

lower level of access to prevention, as will be seen in Chapter 6 and lower levels of knowledge of having heard of *paludisme*. Eating certain kinds of foods was the best way of preventing malaria for 8% men and 6% women. Maintaining a clean environment was the best way of preventing malaria for 8% men and 4% women. More women than men said nothing could be done to prevent malaria (5% and 3% respectively).

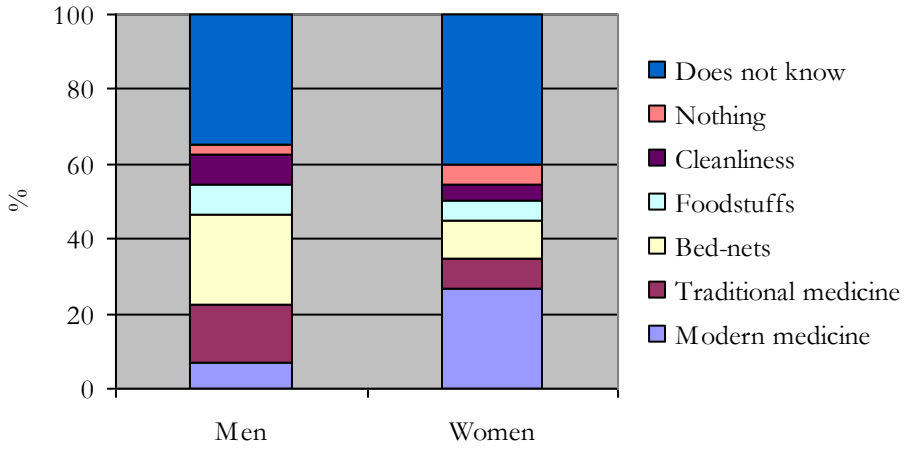


Figure 5.24 Best way of preventing malaria by gender (%)

As expected, more women than men did not know what the best way of preventing malaria was (30.9% and 22.3% respectively) and this is commensurate with the fact that women have traditionally had less access to knowledge of health (Tanner & Vlassoff, 1998; Vlassoff & García-Moreno, 2002). Furthermore, their gender roles often do not permit them to practise positive health behaviours (see Chapter 2 and Chapter 6) and when they do, it is more likely to be for children who are ill rather than for themselves (Vlassoff, 1994). However, those with some economic independence will seek out prevention and treatment for themselves as well (Sangaré, *email comm.*, July 2008).

A women's group discussion considered looking after the environment to eliminate mosquito breeding-sites and general cleanliness as important in preventing malaria (Women's group discussion, Doucombo, Feb. 2009). Environmental care included sweeping inside and outside the homes and courtyards, removing household waste, ensuring that their animals had separate spaces and did not mix with the cooking areas. As discussed above however, knowledge on preventive measures in this study was very low compared to studies elsewhere in SSA.

From this finding, it appears that men have more accurate knowledge about the cause of transmission and methods of prevention of malaria than do women. This may be attributed to the higher likelihood of socialization outside of their village, being more mobile members of the community. Their frequent visits to the local towns and general mobility and contact with health personnel within the district and further afield (some respondents had been to other countries in the region, for example, Côte d'Ivoire, Nigeria, Niger and Guinée) and had been informed by relatives in the health services about malaria.

Poverty differences in knowledge of prevention of malaria

Analysis reveals that there is a significant difference between poverty and knowing the best way of preventing malaria (χ^2=38.792, $p<0.05$). More respondents in the poor category (32.2%) compared to 12.6% in the poorer category and just over 7% in the poorest category stated that bed-nets were the best way of preventing malaria. Interestingly, more respondents in the poorest category said that modern medicine was the best way of preventing malaria (26%) compared with 19% in the poorer and 11% in the poor categories (Figure 5.25). Traditional medicine was the best way of preventing malaria for 6% poor, 15% poorer and 6% poorest respondents. Eating certain types of food was the best way of prevention for 4.6% poor, 8% poorer and 6% poorest respondents. Maintaining a clean environment was the best way of prevention for 9% poor, 4% poorer and 6% poorest. That nothing could be done to prevent malaria was the response of 3% poor, 3% poorer and 7% poorest respondents. As expected, more of the poorest (41.7%) than the poor (33.9%) or poorer (37.8%) did not know what the best way of prevention was.

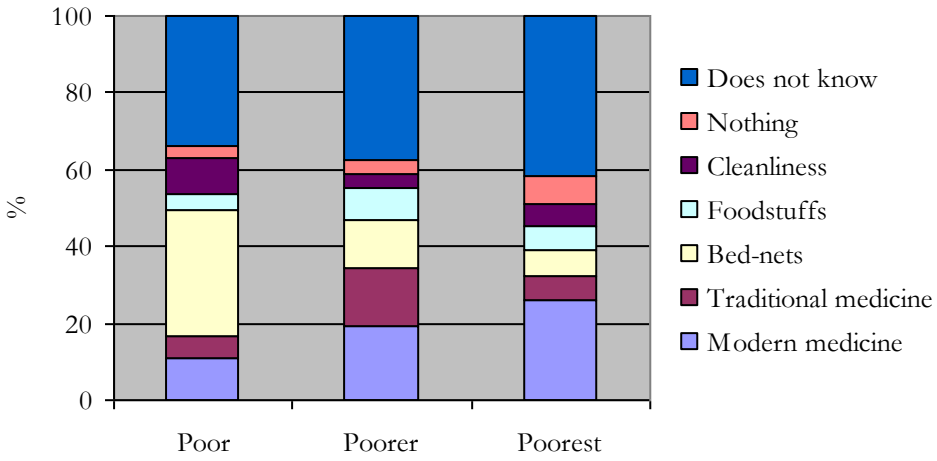


Figure 5.25 Best way of preventing malaria in the three poverty categories (%)

Turning knowledge into behaviour change

The importance of informal networks in health-seeking behaviour has been commented upon widely (Andrzejewski *et al.*, 2009; Bignante, 2010). A sociologist working in the Pays Dogon area of Mali since the early 2000s asserted that informal networks in Mali led to *savoirs populaires*, or popular knowledge (Esnault, interview, August 2007, Bandiagara). She stressed that social cohesion is a determining factor in the kind of information that circulates in the informal networks and that people aimed to forge good relationships with health centre staff as "there is good information in hospital". Therefore the hospital was seen as a valuable networking site, though this contradicts my findings that malaria knowledge was acquired more from the media and social networks than health facilities. Such local networks served as social security in that it facilitated access to information and health care, sometimes on a priority basis and facilitating reduction of fees for service, depending on the networks and relationships forged (Chapter 2 and Chapter 4).

The fact that "malaria is not considered so serious, which may be the reason that not many people do a lot to prevent it nor do they know a lot about it" (Esnault, interview, August 2007, Bandiagara) is a perception that resonates in other countries in SSA, where "the majority of individuals in the study area do not consider that the impact of malaria was serious" (Yeneneh *et al.* 1993: 770). The perceived seriousness of malaria and thus the attention given to malaria can also be minimized in the face of having to deal with people with AIDS (MacLachlan & Namangale, 1997). In addition, malaria was

considered an everyday occurrence and in the face of other more tangible hardships of poverty and food insecurity it was not easy to understand why there was so much attention on malaria. As Gramiccia stated,

> The multiplicity of afflictions from which the people suffer takes away a good part of the motivation they might have for self-help in controlling malaria…
>
> Gramiccia, 1981: 386-387

As there are often more tangible challenges of immediate concern, malaria education messages do not always hit home. When they do, the prevention of malaria in itself may not be a priority concern among rural households, even if there is an awareness of the importance of preventing it. Further, there appear to be limitations of health education in malaria control. Gramiccia observed nearly 30 years ago that:

> There are four main reasons for the failure of health education in malaria control….the first reason is the type of populations that suffer from endemic malaria in poor countries or in depressed areas with low educational standard and poor housing, hygiene and general environmental conditions. Accessibility to these populations is often difficult, and the medical facilities available to them are, to say the least, scarce…A second reason is that malaria is part of a socio-economic depression complex from which people have difficulty singling out of malaria for particular concern…the people cannot understand why malaria should be selected for elimination rather than poverty, hunger, or other diseases or conditions… A third difficulty is the nature of the disease itself, specifically the complexity of its epidemiology…The fourth reason for failure of health education in malaria control is the methods currently employed. Generally speaking, they have not been well adapted to local conditions.
>
> Gramiccia, 1981: 386-387

He added that "any attempt at educating people in self-help in malaria control should take into consideration the many serious scourges affecting the particular population and the order of priority given them by the people" (Gramiccia, 1981: 388).

Summary

In this chapter I have presented a picture of the level of malaria knowledge, its causes and knowledge of preventing measures, sources of information on malaria, differentiated by village, gender and poverty in the three villages of the study. Results presented in this chapter indicate a lower level of knowledge of malaria, its signs and symptoms, causes of transmission and ways of prevention compared to other regions in SSA. This may be because of fewer health interventions in the Mopti region, higher levels of poverty in the area (Chapter 1), and a higher dependence on local and cultural knowledge. The data

suggest that the decentralized health system is not effectively engaging local communities in health knowledge dissemination and malaria knowledge in particular.

The study examined how this knowledge varies across communities taking into account different socio-economic factors of village, gender and poverty. These clearly reveal that these factors affect knowledge of malaria, signs and symptoms and prevention measures. The data has provided a valuable baseline based on gender and poverty, given that SES has also become an important aspect in public health programming. Clearly, poverty is a key barrier in knowledge seeking.

The stark finding that no-one actually mentioned the *relais communuataire* as a source of information regarding malaria is crucial given the heavy reliance on them by the decentralized health system (Chapter 4). Increasing their recognition both by the village residents and being recognized as key actors in health status in the villages would be a valuable way of improving health knowledge in the village. Furthermore, that the media is a source of information on malaria than health centres is another finding that can help policy address the knowledge dissemination mechanisms at the health centre level. This can be via refresher courses for the health staff as well as improving community outreach programmes.

Under half of the respondents identified the correct signs and symptoms of malaria and this is an area that would need improving. A quarter of the respondents identified mosquitoes as the cause of malaria. This is very low compared with other studies in SSA (Chapter 2) and clearly demonstrates the need for raising awareness on the cause of malaria, through a number of different locally appropriate channels.

The results in this chapter are important to policy because they indicate that not all the households know about the causes of malaria and how to prevent it. This provides important insights into the aim of national health policy to promote community participation in health. In particular the lack of knowledge dissemination by the key actors of CHW and school curriculum is amply demonstrated by the sources of knowledge of malaria in the survey. The results clearly show the need for strengthening health centre services as disseminators of information of malaria. While the media has a role to play in awareness-raising, it is not clear how many households are listening to

radio messages on health. Even where malaria campaigns are heard, and this is an area that would require further research, the largely prohibitive cost of a bed-net may inhibit prevention rates. This will be discussed more in detail in the next Chapter on access to health care. A dependency on health centre distributed ITNs raises the question of sustainability of distribution of bed-nets via public or private sector initiatives (Chapter 6). Treatment sessions of bed-nets not widespread and this is an area that needs more encouragement on behalf of the CHW as well as on part of the community.

In particular, three villages in the Mopti region have far lower levels of awareness overall of malaria, its signs and symptoms, causes and methods of prevention compared to the studies highlighted at the start of the chapter. This may be due to more established research programmes in those regions, for example the AMREF[138], and other key disease control sites across southern Africa[139]. This suggests that there may be more health education initiatives in Southern and East Africa. It is also possible that the lower level of awareness in the three research locations is due to attention being diverted away from malaria as a disease to HIV/AIDs (Chapter 1) despite many media initiatives, both in French and local languages, as I will discuss later in this chapter.

In order to increase levels of awareness of malaria in rural communities, many have advocated health education that takes into account local understandings of malaria (Gramiccia, 1981; Mwenesi *et al.,* 1995; Brieger 1996). The findings are relevant to formulating appropriate health education strategies taking local terms and their meanings into account in the context of rural Mopti.

The study reflects an interesting pattern of the levels of awareness across the three villages and suggests that place may have a correlation with having heard of the word *paludisme.* The higher level of awareness of the term *paludisme* among men than among women confirms findings from other studies highlighted in Chapter 2 and suggests that gender may be a key constraint in hearing about *paludisme.* The differences among two villages of the sources of information on *paludisme* have implications for tailoring malaria education messages in order to reach a wider audience as possible and increase the levels of knowledge on malaria. While the differences among men and women and their

[138] African Medical Research Foundation, see www.amref.org, last accessed 20th April 2010.
[139] See, for example, MARA (www.mara.org.za, last accessed 20th April 2010) and EANMAT (www.eanmat.org, last accessed 21st April 2010).

sources of knowledge on *paludisme* are not in themselves statistically significant, they reflect an interesting pattern which can be harnessed to maximize the levels of awareness on *paludisme*.

That poverty has a bearing on source of information on *paludisme* is important in improving access to information for the less poor in the sample. The sources of information for local terms for malaria invariably remain friends and family. This suggests that social networks remain an important vehicle of information exchange (Andrzejewski *et al.*, 2009; Bignante, 2010). The findings show that there is an overwhelming reliance on media rather than health centres as sources of information on local terms for malaria and poverty. This is an important finding for health education. It suggests that there is scope for improvement in terms in the health centre as a source of information and resonates with the findings, as above, that social networks play an important role in knowledge transmission.

The difference between gender and the levels of knowledge on signs and symptoms of malaria resonates with other studies in SSA and are important in formulating appropriate messages that reach both men and women (Chapter 2). The poorer sections of the communities are not being reached in terms of awareness-raising, either through media or health centres. More effort is required to reduce this gap. The study further corroborates gender's influence in access to health information in general and malaria knowledge in particular (Rathgeber & Vlassoff, 1993; Tanner & Vlassoff, 1998). The results also find that there is a difference between poverty and knowledge on the best way of preventing malaria. This is not really surprising.

The chapter results are important for policy as they suggest that there is a higher reliance on media and social networks than on the health centres and health personnel, including the *relais communautaires.* A more sensitive approach to receiving patients at the health centres may be one way of improving information exchange, particularly for men. In particular, the lack of apparent participatory mechanisms for knowledge-sharing suggest that the decentralized health system is somewhat lacking in including rural residents in health awareness. The reticence of some respondents to visit the health centres for information seeking needs to be addressed. Some to the factors hindering such access are examined in Chapter 6 in access to prevention and treatment of malaria.

Chapter 6

Access to prevention and treatment of malaria

Almost every death from malaria is a wholly avoidable tragedy[140]

Introduction

The thesis is concerned with decentralization and participation vis-à-vis health care in rural Mali. This chapter examines how location, gender and poverty affect access to prevention and treatment of malaria in the three villages. As an understanding of the prevention and treatment of malaria is important in planning approaches to preventing and controlling the disease (Yeneneh *et al.,* 1993), preventive behaviours and treatment-seeking patterns were researched. This chapter presents these patterns within the broader socio-cultural context that influences access to health care as well as the context of decentralization.

The broader structural factors influencing access to health care have become the focus of recent attention surrounding equity in health care (CSDH, 2008; Jones & Williams, 2004). The ability to access health care and other services is also frequently influenced by socio-cultural considerations such as gender, ethnicity, political affiliation, class, SES and age (Jones & Williams, 2004). These factors bear upon the (in)ability to access preventive measures due to costs or acceptability. Another key influence on access to health care is the nature of decision-making processes. The importance of the role of decision-making within households within different social and cultural contexts has gained currency over the last decade, particularly in light of the failure of classical vertical models of disease control and malaria eradication (Heggenhougen *et al.*, 2003).

Type of health service

I now come to examining the types of health care, including services and treatments, available to the respondents in the three villages. This broader section addresses whether

[140] Prof. Chris Whitty, *Fool's Gold: searching for simple solutions for complex problems,* Inaugural lecture, 18th November 2008, SOAS, London.

treatment was sought for malaria, and what types of treatment were given and where respondents went for malaria treatment. Given that affordability is a factor affecting access, the cost of treatment and the cost of travel for seeking treatment are also examined in the research locations. Moreover, given the levels of awareness of malaria (Chapter 5), prevention practice and methods used against malaria are examined across villages, gender and poverty.

Access to health care is broader than just physical accessibility; it includes affordability, availability and acceptability (O'Donnell, 2007) and freedom to use (Thiede, 2005). With this in mind, access to health care, in particular treatment of malaria in Mopti region was researched through the survey. As the rural areas of Mali are in general characterized by sparse health service provision (Chapter 1), the study aimed to find out what type of health service was available in the villages that the respondents referred to. While the villages were all selected for the absence of a health centre, the respondents' understanding of health service was sought through the survey.

All the respondents in Promani said there was no service, as did the majority in Nantaka (98%) and in Doucombo (87%). In Doucombo, 2% referred to the *'infirmier'* as the type of health service available. In fact, he was a nurse in the CSCOM in Bandiagara who lived in the same village. I also met him at the CSCOM in Bandiagara.

In the survey, no-one referred to the *relais communautaire* as a health service in the community. It may be due to the fact that the government does not do anything to promote them as the key health figure in the villages, as corroborated by one *relais communautaire* in Nantaka (Habi, interview, April 2007, Nantaka). Indeed, one health official asserted that it was not the job of the government to do so, as it was the responsibility of the local community, CSCOM and village leadership to engage in their promotion (Dramé, interview, February 2009, Bamako). This was another example of how decentralization was not really working, despite certain local governance structures in place. The perception of a health service also appeared to be associated with a physical asset, such as a building, for example a maternity unit or *dispensaire*[141], as on several occasions I was asked whether I was going to build a health centre

[141] A *dispensaire* is a community clinic, providing free services and maternity services.

(Chapter 3). However, further enquiry would be necessary to ascertain whether health service would mean knowledge and competence of health staff as well, rather than a physical and visible sign of a health service.

Treatment-seeking for malaria

Treatment for malaria was sought by 86% of the sample. This is an encouraging sign, given that considerable effort has to be expended in accessing treatment. This suggests that one of the aims of the national malaria policy of seeking treatment for malaria is being met to a considerable degree. Given low levels of health service provision in rural areas generally (Chapter 1), seeking treatment for malaria becomes even more challenging.

Treatment-seeking for malaria by village

A higher proportion from Nantaka (89%) sought treatment for malaria than did in Promani (84%) and Doucombo (83%) respectively (Figure 6.1). There was no significant difference between seeking treatment for malaria and village, with $\chi^2=0.826$ and $p>0.05$.

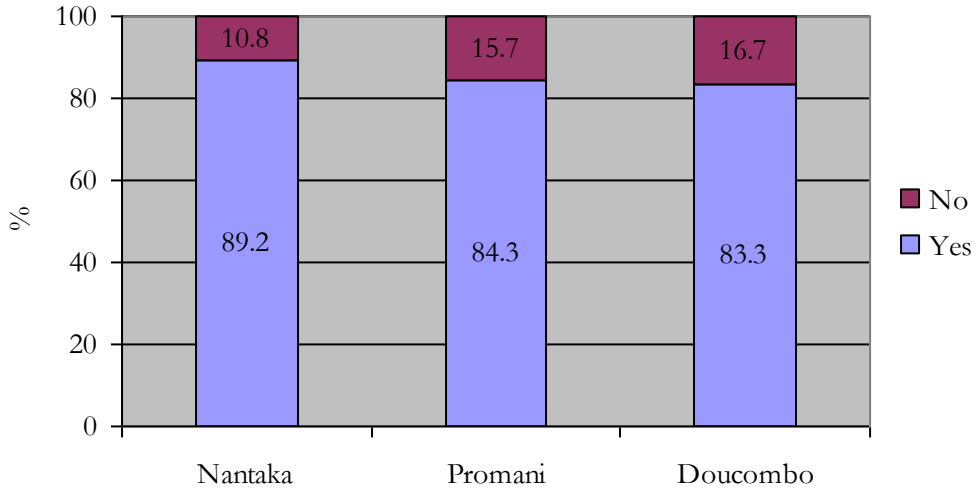


Figure 6.1: Treatment sought for malaria in the three villages (%)

Treatment-seeking for malaria by gender

More men (96%) than women (81%) sought treatment (Figure 6.2), revealing a statistically significant difference between gender and seeking treatment for malaria, with $\chi^2=5.788$,

$p<0.05$. This may reflect the decision-making factors as discussed earlier in the thesis (Chapter 2) as well as barriers to access to treatment for women rather than men, where historically, there have been more hindrances for women to access treatment, either for themselves, or for their families, primarily children (Vlassoff & García-Moreno, 2002, see Chapter 2).

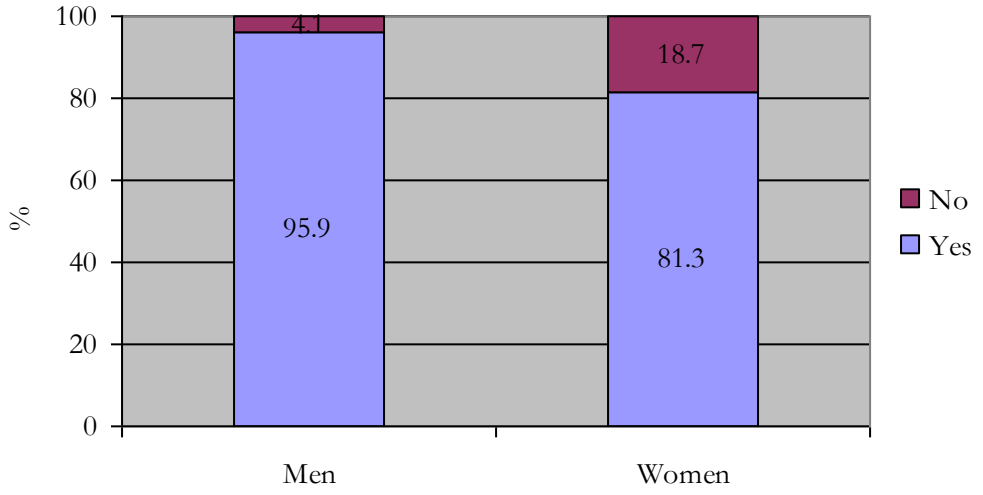


Figure 6.2 Treatment sought for malaria by gender (%)

During one evening in Nantaka, an impromptu group discussion of mostly women including a *marabout* took place. The women confirmed that the man is responsible for the household. If the husband is absent, the woman needs to ask her husband's family for permission to go to hospital, if the child is ill. Male decision-makers undertake the costs of the family, though few decide in favour of seeking treatment at the health centre. Men do not always financially support women to visit the health centre and this was just the reason that one of my respondents in Promani said that her health had been neglected by her husband, prompting her to say "il a beaucoup negligé ma santé. Il faut que je change mon mari!"[142] (Ummu, *pers. comm.,* February 2009, Promani). This is in direct contrast with what Castle (1992) explained about husbands providing all financial support for the wife and family, in the research in two communities in central Mali discussed above.

[142] "My husband has neglected my health. It's time I changed my husband!" – author's translation.

Culturally in Mali, child-bearing and childbirth is the responsibility of the women of the household ("la grossese, c'est l'affaire de la femme"[143]), and therefore men provide little if any support there, as was reaffirmed during an informal conversation in Promani. Therefore women go into trade and other income-generating activities to earn income not just for themselves but for the children as well. A *relais communautaire*, though, asserted that treatment-seeking 'is a question of money, nothing to do with decision-making in the household' (Gorou, male *relais communautaire,* interview, February 2009, Promani).

During a group discussion in Doucombo with some young men who had mobile phones and were smoking, I asked them why they did not take their mothers, wives or other female relatives to the health centre. The united response was that health was the business of the women and that they did not have the means to take them. When I pointed out that they appeared to find the means to fund mobile phones and buy cigarettes, my comment was met with indifference. For women, this financial constraint may be due to the fact that husbands or other male relatives do not always facilitate access to health care by withholding cash from their wives. This in itself is not necessarily indicative of unwillingness to pay, but rather the more real issue of poverty (Sangaré, *email comm.,* September 2008). This is also a key constraint for women who frequently do not have the financial means to get to the health centre (Sangaré, interview, November 2007, Sevaré).

When faced with health costs, a woman's husband or family nearly always bears the burden of the related costs. An additional constraint is women's lack of autonomy in nearly all the rural settings in Mali. Those who have a certain amount of autonomy[144] prefer to "save their own skin" and visit the health centre, rather than wait for the husband to make a decision, often which it is too late (Sangaré, *email comm.*, September 2008). This is echoed in rural Ghana, where sometimes decision-making is left to the mothers of children if they pay for treatment (Tolhurst & Nyonator, 2006). As has been highlighted in Chapter 2, gender has a significant bearing on accessing health care. Their lack of financial independence, and dependence on male relations in general and not just the husband can mean significant

[143] "Pregnancy is a woman's business" – author's translation.
[144] A discussion on which women have autonomy, type and degree, dependent on culture and social group, is outside the scope of this thesis.

delays in accessing treatment for themselves and their children (Chapter 2). For example, if the husband is not present in a situation requiring a decision to be taken regarding the health of the child, then the husband's family takes on the role of decision-making, underlying the "manque de l'autonomie de la femme"[145] (Sangaré, *email comm.,* 2008 and group discussion, February 2009, Nantaka).

The decision-making process entails essentially joint decisions, however, this problem is further exacerbated when, if a woman does go to the health centre without the husband's permission, it is she who has to bear the economic burden of travelling to the health centre, the health consultation, prescription and medicines and not the husband. It may be that those women who did not seek treatment for themselves did not have the means to either get to a health centre or afford the medication. In group discussions in my study villages many women said that they could not even afford to get to the health centre, due to both monetary and time constraints.

Treatment-seeking for malaria by poverty

There was no statistical difference in the poverty categories and treatment seeking for malaria, with $\chi^2=4.78$ and $p>0.05$. As might be expected, treatment-seeking for malaria was higher among the poor (93%) and poorer (89%) respondents than the poorest (76%) (Figure 6.3). Combining the poor and poorer categories reveals that 90.2% of them seek treatment for malaria, which reinforces the fact that poverty does indeed affect treatment-seeking for malaria.

[145] "Lack of independence of women" - author's translation.

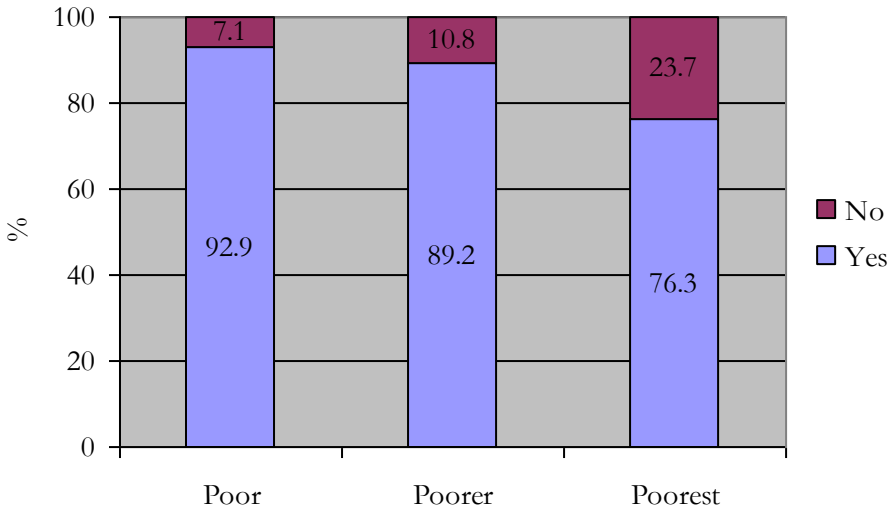


Figure 6.3 Treatment sought for malaria in the three poverty categories (%)

The issue of poverty affecting access to health care was questioned by a senior health official,

> Ils ont beaucoup de betailles, donc ils sont pas pauvres, ils ont les moyen. On peut les vendre. Il faut changer la mentalité avant de changer le comportement[146]
>
> Sangaré, interview, November 2007, Sevaré

This reflects divergent views of what is considered not only poverty but the priorities given to disease and ill-health, which subsequently affect health planning. From the community point of view, there were a few households which own livestock which can be considered relative wealth[147]. This presents an interesting dichotomy between officialdom and grass-roots perceptions of reality and notions of what is considered wealth and what is not.

Last treatment for malaria

This section considers the last treatment given and place of treatment respondents went to for this treatment. As discussed in Chapter 4, the primary health care facilities were the

[146] "They have many livestock, therefore they are not poor, they have the means. One can sell them. You have to change mentality before changing behaviour" – author's translation.
[147] According to one village chief, his livestock of 60 cattle was not even considered wealth by 'real' owners of livestock who had cattle in the hundreds and thousands (Diallo, *pers. comm.*, January 2009, Nantaka)

CSCOMs, present in the rural towns, as sources of treatment. Differences in the treatment and place of treatment by village, gender and poverty category are also analyzed.

Of the people seeking treatment for malaria, the majority sought recourse purely to modern medicines (67.5%). Those people given traditional medicine were 29.2% in the whole sample.

Last treatment for malaria by village

Statistical analysis suggests that there is no difference between the last treatment given for malaria and the village, with $\chi^2=4.296$ and $p>0.05$. This is very surprising given the very high percentage from Doucombo (80%) relying on modern medicine, compared to Nantaka (67%) and Promani (62%) (Figure 6.4). Modern medicine included tablets of paracetamol and nivaquine, usually given for fever. There were 31% from Nantaka, 31% from Promani and one fifth from Doucombo who sought traditional medicine as treatment for malaria. The low percentage from Doucombo having traditional medicine is commensurate with the low level of reliance on traditional medicine among those interviewed during the survey in this village[148]. Similarly, only a small percentage relied on both modern and traditional medicines as treatment for malaria (just over 7% from Promani), under 2% in Nantaka and none in Doucombo using both.

[148] Further investigation would be required to ascertain the reasons for this. However, some informal discussions did throw some light on this suggesting that the traditional medicine was ineffective and one could not trust the source, whether the traditional healer or substance itself, and preparation time and its effectiveness were too long.

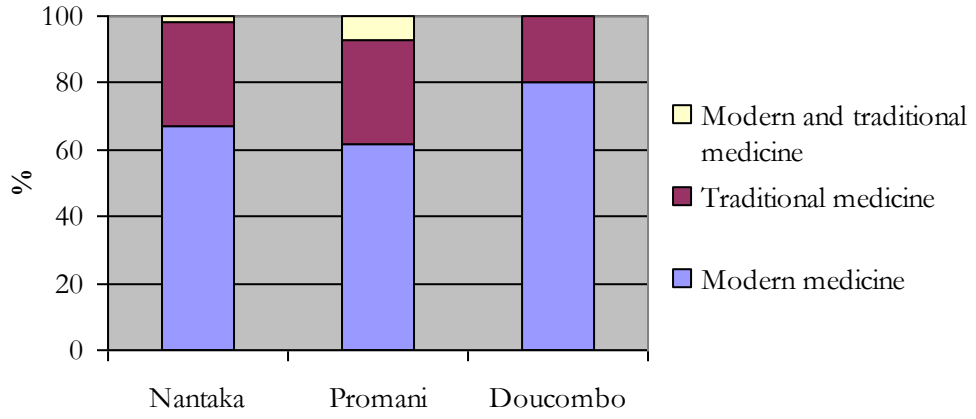


Figure 6.4: Last treatment given for malaria in the three villages (%)

This presents an interesting picture in terms of the last treatments given for malaria. From previous literature, the importance of traditional healers and their role does not seem to be corroborated by these findings. A focus group among traditional healers in Doucombo as well as interviews with traditional healers in Nantaka and Promani suggested that people there did not rely on traditional healers[149] very much, only approaching them as a last resort. They thought that those claiming to be traditional healers were nothing more than quacks (Focus group, traditional healers, Promani, 2007; Dauda, traditional healer, interview, Promani, 2007; Ali, traditional healer, interview, Nantaka, 2007).

In-depth interviews and a focus group discussion with traditional healers revealed that they were sought when modern medicines had failed to work (or cure) or when it was too late. A traditional healer in Promani observed that "they wait till the end, when illness is critical. It is easier to treat illness early than at the end" (Dauda, traditional healer, interview, July 2007, Promani). Patients only went to the traditional healers for treatment of children and infants and in a few cases for adults as well. A traditional healer in Nantaka stated that

[149] According to the *Bamanan*, there are different categories of traditional healers: herbalists (*jiridònnaw*) who treat exclusively with plant remedies accompanied by incantations; fetishists (*bastigi*) who use magic powers as well as plants to provide both well-being and ill-being; anti-sorcerers (*nyagann*) who are capable of recognizing sorcerers and finding an antidote to their powers; psychics (*filèlikèlaw*) who use their powers to find the cause of illness and so determine a cure; marabouts (*morin*) who use the powers of the Qu'rān to protect from illness or treat the patient; traditional birth attendants (translated by the author from Diakité, 1993: 30).

"people come after 1, 2, 3 months" (Ali, traditional healer, interview, May 2007, Nantaka). A female traditional healer added that "they come when the illness starts, some come when it is more grave" (Adda, traditional healer, interview, May 2007, Nantaka). It appears that, while traditional medicines were less expensive than pharmaceutical products, people still preferred the latter option, suggesting an increasing reliance on modern medicines and increased medicalization of health even in rural areas of Mali.

Indeed, one traditional healer in Promani said that his wish to help people far outweighed any remuneration given (Dauda, interview, July 2007, Promani). In addition to being a traditional healer, he had a variety of income-generating activities, such as playing the flute at weddings and other social occasions, such as newborns' naming ceremonies[150]. All the other traditional healers I met during the focus groups also did not want to divulge too much information regarding their treatments for malaria nor the method of picking the ingredients. This, they asserted, was confidential, or as I thought of it as their 'trade secret', and they would not share this knowledge even among themselves (Focus group, traditional healers, Promani, 2007).

Resorting to traditional medicine as a treatment has reduced costs, being considerably less expensive than modern treatments. Often, patients are either able to procure the ingredients required for traditional treatments themselves or ask a relative or neighbour to gather them for them. This normally incurs a small payment as a token of appreciation, for example if someone has to climb high up on a tree to pick a particular kind of leaf.

Last treatment for malaria by gender

There appeared to be a significant difference between men and women and last treatment sought for malaria, $\chi^2=8.064$, $p<0.05$. More women (77%) than men (52%) sought modern medicines (Figure 6.5). Modern medicine normally included paracetamol, aspirin, nivaquine.

[150] In Mali, newborns are usually named within one week of birth and the occasion marked by a celebration, known by the French term *baptême*. The local terms for *baptême* are: *lamourou* (Fulani), *idjema* (Sonraï), *dinkoundi* (Bamanan-kan), *bone kounne* (Dogon) (Aldiouma, *pers. comm.*, August 2010). Some communities also circumcise the infant boys during this time, however this is not uniform across the country. Some families will wait until several boys have been born and then hold one ceremony for all when they are circumcised at the same time. This reduces the economic burden of holding several ceremonies at different times.

Contrary to what might be expected, and given the extensive literature on women and traditional medicine (Chapter 2), it is surprising that more men (44%) resorted to traditional medicine than did women (20%). Of those who sought both modern and traditional medicine, 4% were men and 3% were women. My findings that more women than men sought modern medicines corroborate those of another study in Mali (Traoré *et al.*, 1992 in McCombie, 1996).

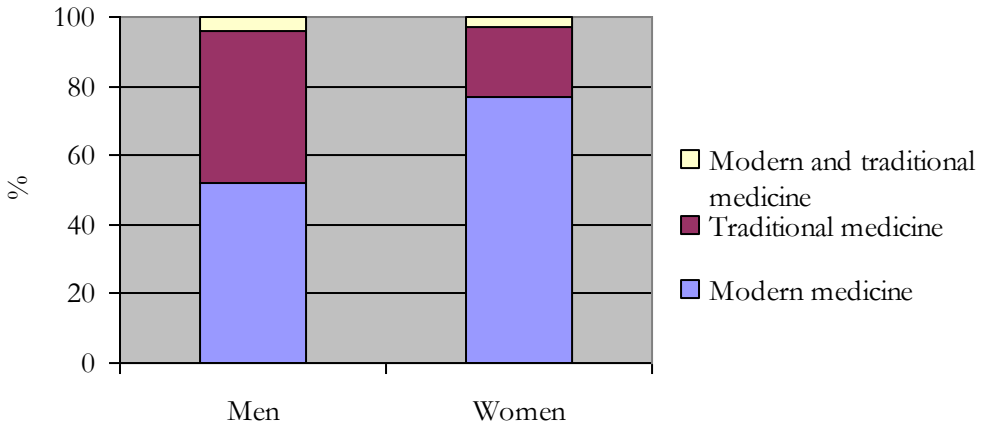


Figure 6.5 Last treatment sought for malaria by gender (%)

Last treatment for malaria by poverty

There was no statistical significance between last treatment given for malaria and poverty category, where $\chi^2=0.711$ and $p>0.05$, which is a bit surprising. Of the respondents in the poor category, 73% sought modern medicines as treatment, whereas 68% of the poorest and 65% of the poorer of the respondents sought modern medicines (Figure 6.6). Traditional medicine was resorted to more by the poorer respondents (32%), followed by poorest (29%) and poor (23%).

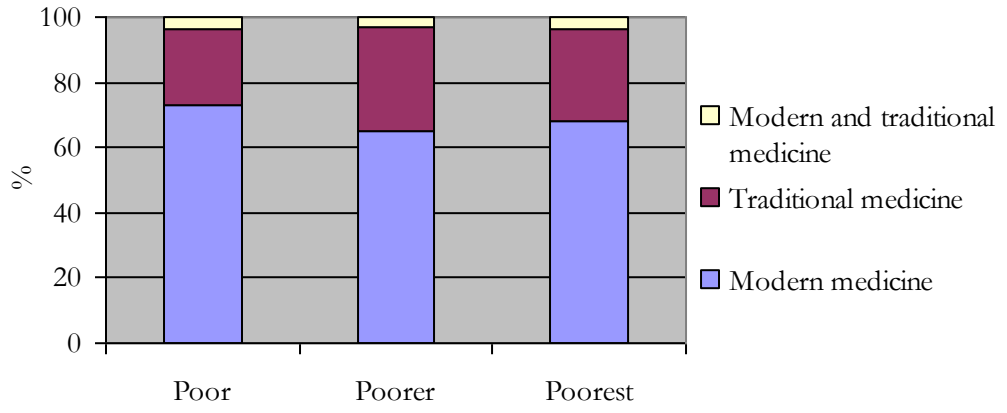


Figure 6.6 Last treatment sought for malaria in the three poverty categories (%)

Place of treatment of malaria

The place of treatment for malaria is important in order to see how the health system is operating in the decentralized system. While the decentralized health system provides for health centres at the rural level (CSCOMs), there remain issues with their utilization. Furthermore, if there are particular places of treatment which are frequented more than others, this can form the basis of health education dissemination in those particular places. For example, if more women than men visit the health centre to seek treatment, then this can form a centre for health education messages to be imparted especially targeted to women. However, this may be hindered by a lack of proper reception for the patients, particularly if they are of lower socio-economic background, which means that they are not treated with respect (Chapter 5). This is important in a decentralized health context, where the aim is to be more responsive to local communities in terms of service provision. With participation of local communities, new or more locally appropriate health messages can be articulated to be more effective. However, it did not seem apparent how the health centres were more responsive to the needs of rural communities, given the oft repeated complaint of lack of appropriate reception at the health centre.

In my study, of those respondents seeking treatment, 38% went to the health centre followed by 26% going for traditional medicine. Itinerant traders, markets and village shops were visited by 36% of the respondents seeking treatment for malaria.

Place of treatment of malaria by village

Analysis suggests that there is a statistically significant difference between villages and place of treatment of malaria, $\chi^2=8.03$, $p<0.05$. Health centres and pharmacies were a place of treatment for 48% of the respondents in Nantaka (Figure 6.7). This may be due to Nantaka's proximity to Mopti where there were at least two pharmacies, as well as the regional hospital and health centres. Pharmacies and health centres were the place of treatment for 28% from Promani, and this was higher for Doucombo (30%) given its proximity to Bandiagara, with at least one pharmacy and several general stores selling medicines. Traditional medicine was sought by more people in Promani (30%) than in Nantaka (28%) or Doucombo (15%). The low proportion of respondents seeking traditional medicine in Doucombo is a bit surprising given its proximity to a research centre on traditional medicine (Chapter 5). Itinerant traders, markets and village shops were the place of treatment for 24% in Nantaka, 42% in Promani and 55% in Doucombo.

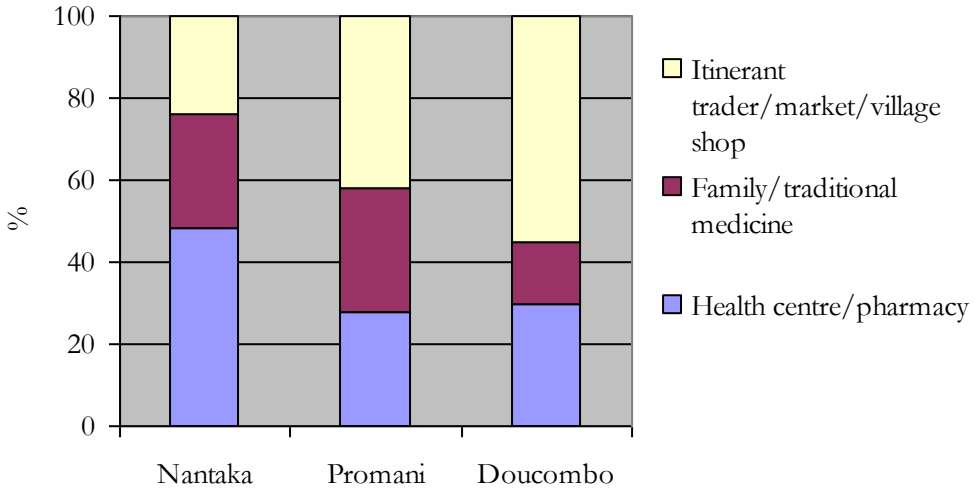


Figure 6.7 Place of treatment for malaria in the three villages (%)

My findings that traditional medicine is resorted to when all else fails (that is modern medicines) are in direct contrast with Berché, who stated that the "medicine du Blanc"[151] (Berché, 1998: 116) is resorted to when all else fails (that is traditional medicines). This amply reinforces the fact that that modern medicine is the preferred treatment across village, gender and poverty. Furthermore, the Mali DHS 2006 found that only 27.4% of households in the Mopti region sought treatment in a health facility for at least one member of the household, representing the lowest percentage seeking treatment at a health facility compared to all the other regions (CPS/MS, 2007).

Place of treatment of malaria by gender

Figure 6.8 shows that the health centre remains the key place of treatment for more women (42%) than men (32%). Statistical analysis suggests that there is no significant difference between gender and place of treatment of malaria, $\chi^2=10.537$ and $p>0.05$. Itinerant traders *(commerçant ambulant)* are also a popular source of medicines for malaria, for more women (42%) than men (26%). More men (43%) relied on traditional healers than did women (16%), which is an unusual finding, as the literature suggests that more women resort to traditional medicine than men. It is also possible that itinerant traders were considered a substitute for the market.

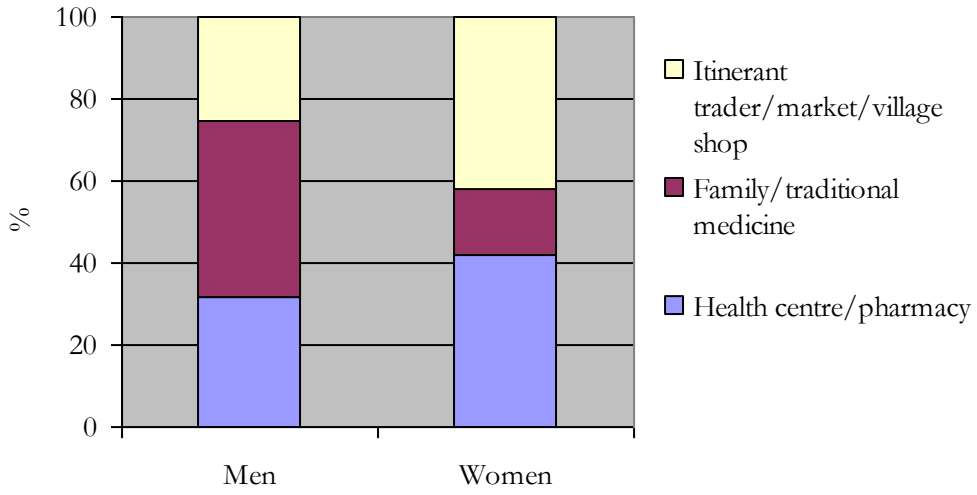


Figure 6.8 Place of treatment for malaria by gender (%)

[151] "white man's medicine" – author's translation.

Place of treatment of malaria by poverty

There was a significant difference among the poverty categories and the place of treatment of malaria, $\chi^2=15.12$, $p>0.05$. Resorting to itinerant traders is evident from the poorest poverty category (55%), followed by 35% of the poorer respondents and 15% of the poor respondents, suggesting that poverty is still the main consideration behind the choice of place of treatment of malaria for the poorest respondents (Figure 6.9). More of the poor were able to find treatment at the pharmacy or health centre (65%), followed by the poorer and poorest groups (36% and 17% respectively). The poorer respondents had a higher proportion (29%) turning to traditional medicine, closely followed by the poorest respondents (28%) and poor respondents (19%). These findings reinforce the fact that poverty constitutes a barrier to seeking treatment at a health centre or pharmacy.

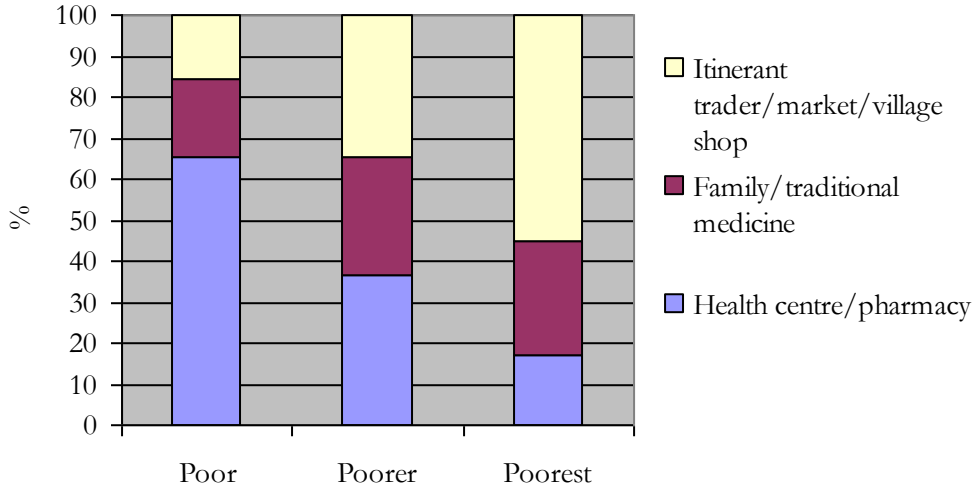


Figure 6.9 Place of treatment for malaria in the three poverty categories (%)

Itinerant medicine traders

A key source of medicines in rural Mali is that of itinerant medicine traders. Itinerant traders enable women to access medicines at their doorstep, as they do not have to travel outside their village to visit the health centre or the pharmacy to obtain medicines. Essentially the 'pharmacy' (*pharmacie par soleil*) is coming to them, where the trader visits individual

households and announces his presence in the courtyard. While not explicitly an appointed figure in the decentralized health system of Mali, it suggests that there is a clear gap within the system that allows the continued presence of itinerant medicine traders in rural areas. In this section I examine some of the benefits and drawbacks of itinerant medicine sellers as a source of treatment for malaria.

Continued use of itinerant traders is an outcome of the formal system not working, due to drugs being either unavailable at health centres or too costly for the majority of the population. Therefore by coming to the rural villages, they facilitate access to medicines which would otherwise be too costly to obtain, with the added burden of travel costs to the market, health centre or pharmacy. Itinerant medicine sellers in the towns sometimes carried bed-nets with them, but not always insecticide-treated ones. While I did not observe itinerant traders in any of the three villages selling bed-nets, there were many more itinerant traders in the rural towns selling just bed-nets, and they were widespread in Bamako, maintaining their existence in response to consumer demand for accessible and affordable drugs (Goodman *et al.,* 2007).

My initial reactions to itinerant traders were positive: they seemed to me a valuable alternative source of medicines in the rural areas, literally bringing the shop to the home. However, on further discussions, a clearer picture emerged. Some informants were not convinced about the value of itinerant traders (Lutterback, interview, October 2007, Bamako; Diallo, interview, October 2007, Bamako). Some medicines past their expiry dates did find themselves into the country and consequently to the markets (Diallo, interview, October 2007, Bamako). While there was a surveillance committee at the district level on the illicit traffic of pharmaceuticals, whose members were drawn from the local authorities, such committees tend to be ineffective as checks were not always carried out and it was also highly plausible that the authorities turned a blind eye to them since they were aware of what was going on (Guindo, interview, February 2009, Bandiagara). The key concern was the quality control and lack of regulation; the sell-by dates are misleading as, often, the drugs are smuggled through in cross-border rackets and the overall level of maintenance and stock-keeping of such drugs tends to be below the required standards. Itinerant traders often store

and handle drugs in inappropriate ways (Plate 6.1) in conditions of excessive heat, light and moisture which can affect their potency (Goodman *et al.,* 2007).

Plate 6.1: An itinerant medicine trader displaying his stock of drugs

The cost of medicines sold by itinerant traders is considerably lower than that found in shops, pharmacies or health centres (the health centres I visited in Bandiagara and Mopti as well as the hospital in Djenné all had a pharmacy on the premises, as well as stocking insecticide-treated bed-nets). On further investigation during 2009, market prices were gathered for comparison (Table 6.1).

Table 6.1: Comparison of malaria treatments available at different locations

Location	**Paracetamol**	**Complete treatment course**
Madiama market*	100 FCFA/*plaquette*** of 10 or 12 tablets	5,000 FCFA/treatment****
Bandiagara market	100 FCFA/*plaquette* of 6 tablets	5,000 FCFA/treatment
Djenné market	100 FCFA/*plaquette* of 6 tablets	5,000 FCFA/treatment
Mopti	100 FCFA/*plaquette* of 6 tablets	5,000 FCFA/treatment
Pharmacy	n/a	4,240 FCFA/treatment

*prices differed among vendors; ** a plaquette is a strip of tablets; *** Coarinate – course of 6 tablets

For itinerant traders to be more included in the decentralized health system, rather than just stand-alone figures in the provision of medicines, more effort and initiative in their

involvement in community health would be beneficial. In other regions in SSA, notably East Africa, this has included a mixture of training/capacity building, demand generation, quality assurance, and creating an enabling environment (Goodman *et al.,* 2007). Successful interventions included comprehensive situation analysis of the legal and market environment, buy-in from medicine sellers, community members and government, use of combination of approaches, and maintenance of training and supervision. Interventions increased rates of appropriate treatment, and medicine sellers were willing to participate (Goodman *et al.,* 2007).

Further investigations in 2009, revealed how some village residents, in particular women, perceive of the itinerant traders. As their products were more affordable and accessible than those found in the pharmacies and the markets in the nearest towns, they welcome itinerant traders as reliable providers of anti-malarial and painkiller drugs (Women's group discussion, 2007, Doucombo). Itinerant medicine traders' source of medicine supplies included the shopkeepers in the towns, who would provide some training and information on the medicines. Even though all medicines were well within the sell by date, this was no indication of their suitability or quality. Most medicines carried the indications in French on the pack and were both branded and generic, manufactured by pharmaceutical companies (Plate 6.1). With the new treatment of ACTs, it was not clear whether itinerant traders would also be a channel for provision of ACTs, since "ACTs pose specific logistics challenges not associated with conventional anti-malarials: the new treatment have a short shelf life of just 2 years" (Bosman & Mendis, 2007: 196). Sustainable community-based distribution systems that are linked to the peripheral health services are advocated to improve access to ACTs as "access to ACTs remains limited in the rural communities that bear the greatest burden of the disease and will continue to be so unless these medicines are deployed in home-based management programs" (Bosman & Mendis, 2007: 196).

A more extensive analysis on the availability of ACT *per se* in the research communities is beyond the scope of this thesis, but is being researched more widely by Bosman & Mendis

(2007), the ACT Consortium[152] and the World Health Organization. In 39 out of 41 countries in SSA where ACTs are being deployed "access to these medicines is still unacceptably low" (Bosman & Mendis, 2007: 193) and "now with the new ACT medicines priced at over $1, the challenge for poor people at risk of malaria will be even more staggering" (Bosman & Mendis, 2007: 196). A considerable proportion of anti-malarial treatment, sought through the informal private sector is being financed by out-of-pocket expenditure by poor people (WHO, 2003), and while there is greater availability of the new treatment, "the current prices of ACT remain too high"[153] (Bosman & Mendis, 2007: 196).

Within the decentralized health context of Mali, there appears to be no apparent mechanism of addressing this imbalance, as the ACTs available at health centres remain out of reach for the majority and are available free of charge at the health centres only to the vulnerable groups of expectant mothers and children under 5 (Chapter 1). This further increases the burden of malaria in terms of access to malaria treatment, generating demand for itinerant traders. However, it is not certain whether and how itinerant traders would be able to stock and sell ACTs, given the storage requirements of these drugs. In addition, the proliferation of counterfeit ACTs, particularly in Southeast Asia[154], is a major concern on the safety of these drugs (Newton *et al.,* 2001, Newton *et al.,* 2002, Newton *et al.,* 2006a, Newton *et al.,* 2006b).

Cost of malaria treatment

The cost of treatment of malaria across village is presented in this section. About 42% of the sample respondents spent under 2,000 FCFA on malaria treatment, about 27% did not spend anything on it. This is likely to be self-sourced traditional remedies from the local area

[152] The ACT Consortium, 'answering key questions on malaria drug delivery' exist to help end malaria, focusing on access, targeting, safety and quality of anti-malarial drugs'. See www.actconsortium.org, last accessed 11th February 2010.

[153] The price of raw material of artemisinin has quadrupled on the world market due to the new ACT treatment that has been recommended by WHO (Chapter 1) and adopted by a number of African countries, making it more expensive to buy. It is not known whether the farmers cultivating *artemisia* have benefited from this increase in price of the raw material or whether the terms of trade remain in favour of the pharmaceutical companies and marketeers of the product (Prof. Chris Whitty, *Fool's Gold: searching for simple solutions to complex problems*, Inaugural lecture, 18th November 2008, SOAS, London).

[154] At least 12 different types of fake artesunate are being sold in mainland Southeast Asia (Newton *et al.*, 2006b).

or treatment received in kind by people known to them. Between 2,001 and 5,000 FCFA was spent by 13% of the respondents and about 18% spent over 5,000 FCFA on treatment.

Cost of malaria treatment by village

Analysis revealed that there was a statistically significant difference between cost of treatment and village, $\chi^2=6.752$, $p<0.05$. This may be explained by the relative poverty of Nantaka compared to Promani and Doucombo. More people in Nantaka (26%) than in Promani (10%) or Doucombo (11%) spent over 5,000 FCFA for malaria treatment (Figure 6.10). This may be due to Nantaka being relatively wealthier than either Promani or Doucombo (Chapter 3). Both Nantaka (30%) and Promani (28%) had more family support for treatment compared to Doucombo (16%), which is in a sense surprising given that it is a largely ethnically homogenous village (Chapter 3). More respondents in Doucombo (63%) spent between 1 and 2,000 FCFA than Promani (48%) or Nantaka (30%). More respondents in Nantaka (13%) than in Promani (15%) or Doucombo (11%) spent between 2,001 and 5,000 FCFA.

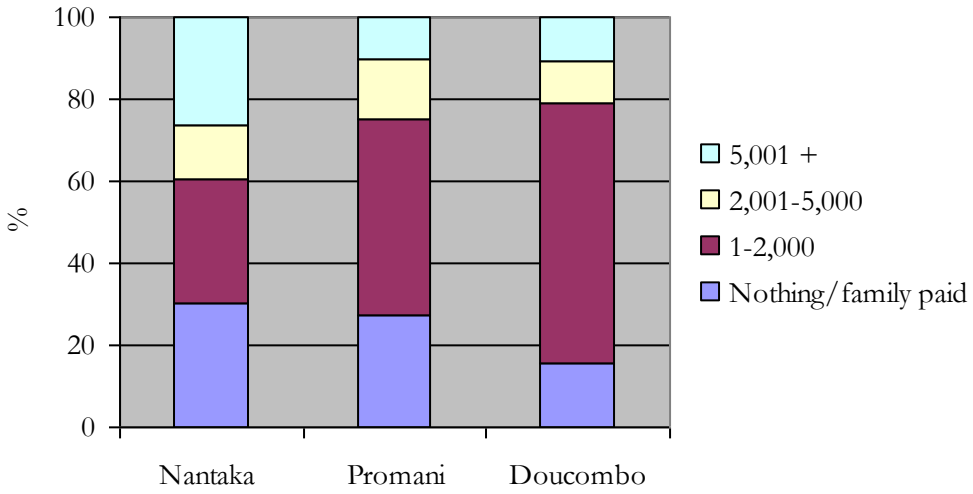


Figure 6.10 Cost of malaria treatment in the three villages (%)

Cost of malaria treatment by gender

There was a statistically significant difference between gender and cost of treatment for malaria, with $\chi^2=5.68$, $p<0.05$. While more men than women paid nothing for the last treatment for malaria (36% and 20% respectively), gender had an influence on the cost of treatment for malaria (Figure 6.11). Interestingly it is more women (19%) who incurred a cost of over 5,000 FCFA than did men (15%). More women (47%) than men (34%) also incurred a cost of up to 2,000 FCFA for treatment. This suggests that while fewer women (81%) than men (96%) are seeking treatment for malaria (Figure 6.2), when they do seek treatment, more women pay for it themselves. This reinforces the explanation offered by a senior health official in the region that women prefer to "save their own skin" if they have some economic independence (Sangaré, *email comm.*, 2008). They are also more likely to become indebted, paying off their debt through petty commerce activities.

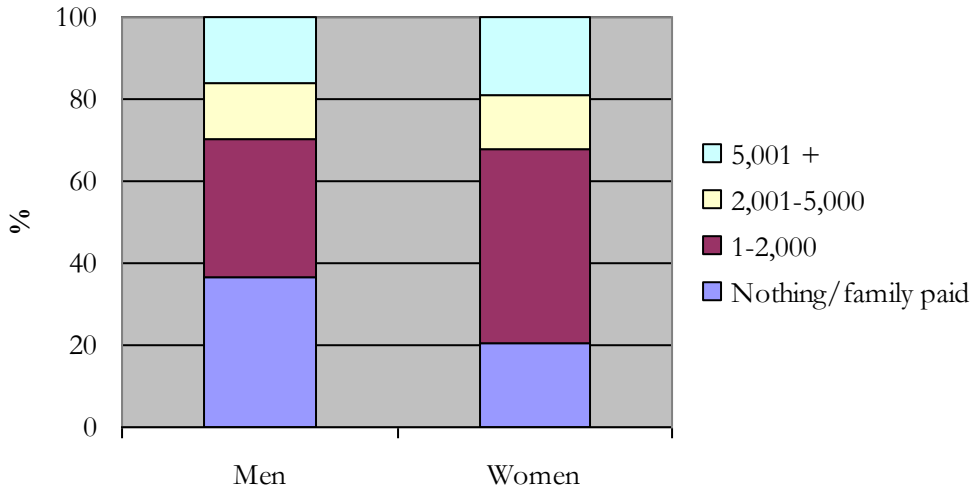


Figure 6.11 Cost of malaria treatment by gender (%)

In their KAP study of anti-malarial drug utilization by women in Ethiopia, Yeneneh *et al.*, (1993) found that, of the 300 women interviewed, 8% said they received treatment free, about 12% paid 1-3 *birr*[155], 27% 4-5 *birr*, 31% 6-9 *birr*, 16% 10-14 *birr*, and 6% paid 15-20 *birr*;

[155] The exchange rate was US$1= 2.07 *birr* in 1993 during the time of the study (Yeneneh *et al.*, 1993: 764) and £1 = 20.7695 *birr* on 1st September 2010 (Source: www.oanda.com).

the average cost was 5 *birr*. These costs were for investigation and treatment only. A total of 57% women had no transportation expenses, while 16% spent 2-3 *birr*, and 26.7% 4-5 *birr*.

Cost of malaria treatment by poverty

Analysis reveals that there is a significant difference between poverty and cost of treatment of malaria, with $\chi^2=11.881$, $p<0.05$. Family support for treatment was given to 29% of poor respondents, followed by 27% poorer and 24% poorest respondents (Figure 6.12). As expected, more of the poor (38%) paid over 5,000 FCFA compared to the poorer (14%) and poorest (10%) of the respondents. Similarly, more of the poorest (52%) paid between 1 and 2,000 FCFA on treatment compared to the poorer (48%) and poor (17%) respondents. Between 2,001 and 5.000 FCFA was spent on treatment by 17% of poor, 12% of poorer and 14% of poorest respondents.

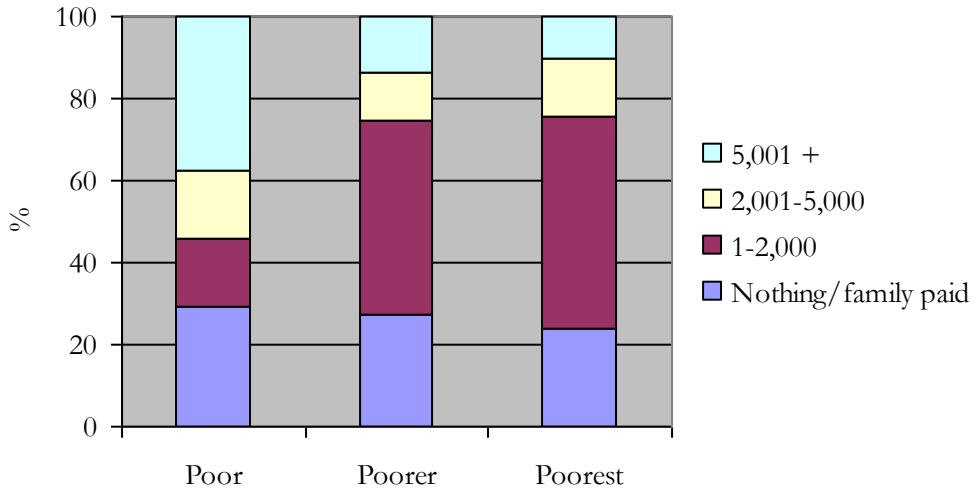


Figure 6.12 Cost of malaria treatment in the three poverty categories (%)

The mobilization and partitioning of resources is also frequently influenced by the social position of the individual within a household, or a household within a community. For example, money for treatment of uncomplicated malaria may be provided more easily and rapidly for the eldest son in a household than for an orphan being raised in the household of a relation, known as kinship fostering (Castle, 1992).

Cost of travel for malaria treatment

Another barrier to access to treatment is the travel cost incurred to access health care in addition to the treatment costs discussed in the earlier sections. Figure 6.13 shows the cost of travel for treatment in the three villages. Those who reported 'nothing' as cost of travel often sought the help of friends, neighbours and relatives in the supply of traditional remedies. For example, to gather leaves from a particular tree, this was often done as a gesture of goodwill. That no costs were incurred in traveling for treatment was reported most in Promani (91%) and Doucombo (88%) compared to Nantaka (39%). More respondents in Nantaka (49%) spent under 500 FCFA compared to Promani (5%). However the highest costs of travel, between 1,001-2,000 FCFA, to seek treatment was incurred in Doucombo (12.5%).

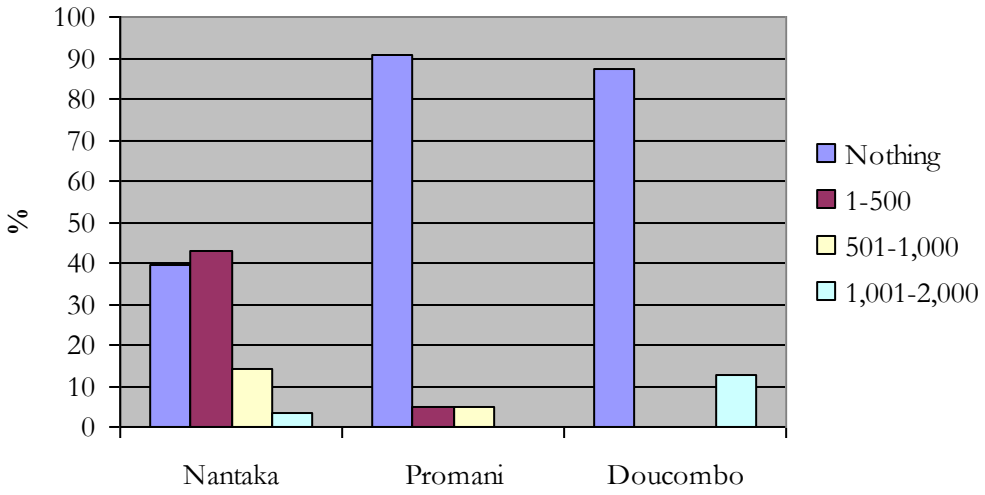


Figure 6.13 Cost of travel for treatment in the three villages (%)

Figure 6.14 shows the costs for travel for malaria treatment by men and women. No costs for travel for treatment were borne by more men than women (69% and 60% respectively). A similar proportion of men (24%) and women (25%) spent under 500 FCFA on travel for treatment. More women than men incurred costs over 500 FCFA for travel (12% and 5%) respectively. Similarly, more women (5%) incurred a cost of over 1,001 FCFA than did men (2.5%). This suggests that it is women who are bearing higher costs of travel to seek treatment for malaria, adding to the existing burdens of caring for their households.

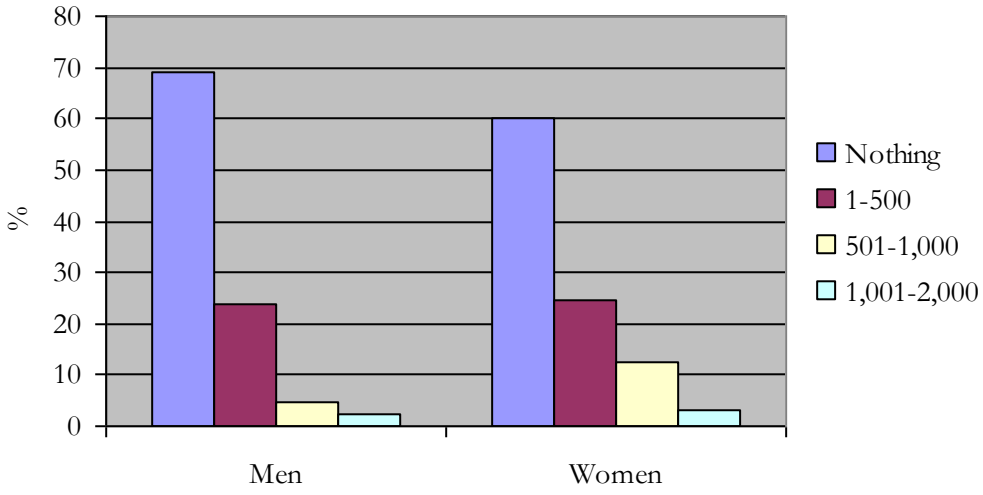


Figure 6.14 Cost of travel for treatment by gender (%)

Unsurprisingly, more respondents in the poorest category (80%) reported 'nothing' as cost of treatment than either poor (39%) or poorer (66%) respondents (Figure 6.15). More of the poor respondents (39%) paid between 1-500 FCFA, compared to the poorer (22%) and the poorest (16%) respondents. More poor respondents (22%) paid between 501 and 1,000 FCFA compared to the poorer (7%) and poorest (4%). The highest cost of treatment was incurred by just over 5% of the poorer respondents.

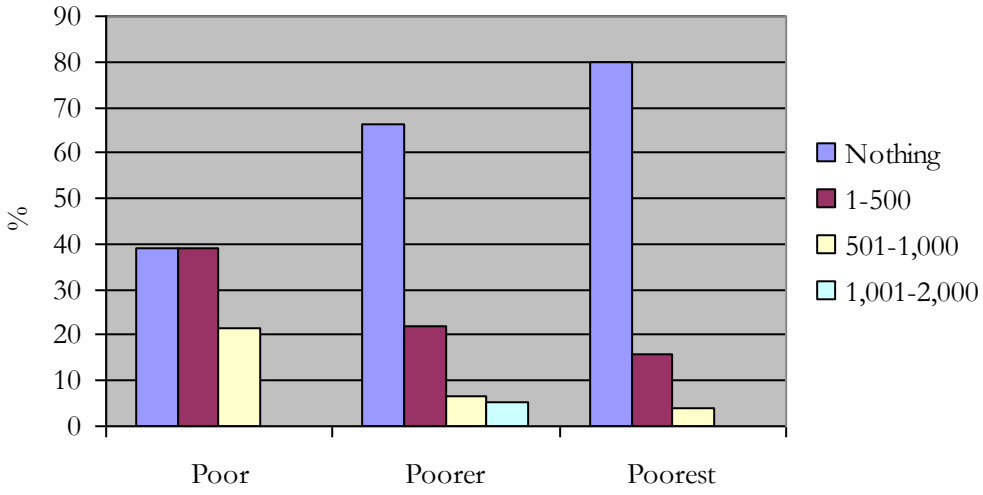


Figure 6.15 Cost of travel for treatment in the three poverty categories (%)

Given the distances involved to accessing the CSCOM, seeking treatment for malaria or other diseases is not always a priority, unless it is urgent. As the villages in this study had relatively shorter distances to the CSCOM (Chapter 3), there are clearly other factors that impinge on seeking treatment for malaria. These include the time involved in reaching the health centre, often on foot, the cost of travel (time and money) and lack of proper care at the health facility.

Visits to the health centre were easier to combine with the market day, covering multiple activities and hence reduce cost of access solely to the health centre (Chapter 2 and Chapter 5). An example of this was illustrated by women in the village of Promani who travel to Madiama to sell their produce, such as fruit from their communal orchards, or *parcelle*[156]. On one such market day I was able to join a group of local women who were going collectively on one *charrette* (cart). This gave me a sense of common purpose, and an idea of the distance and terrain involved in going to Madiama. A group of women get together and contribute to the *charrettière* (cart driver) for taking them to the town and bringing them back at the end of the day. On the morning we went together, however, we did have to wait a couple of hours while the *charrettière* prepared his horse and completed some of his own errands before taking us to the market town. This gave an insight into the time and effort entailed in making such trips to the rural town with the nearest CSCOM (Chapter 3).

Prevention of malaria

We know from Chapter 5 that there are generally low levels of awareness of malaria and of preventive methods in the three research villages. This section tells us more about how many actually act upon their knowledge and see whether the knowledge transmission is actually effectual. Clearly, preventing malaria is crucial to reducing morbidity and mortality from malaria. The levels of awareness of prevention measures in the three villages were examined in Chapter 5. Subsequently, the households were asked whether they used a preventive measure against malaria. Of the sample population, 53% said they used a preventive measure.

[156] *Parcelle* is an allotment.

Prevention of malaria by village

About half the respondents from Nantaka said they did something to prevent malaria, 37% in Promani and 71% in Doucombo (Figure 6.16). It seems from this data that the residents in Doucombo had a higher level of awareness of malaria and the need to prevent it (Chapter 5).

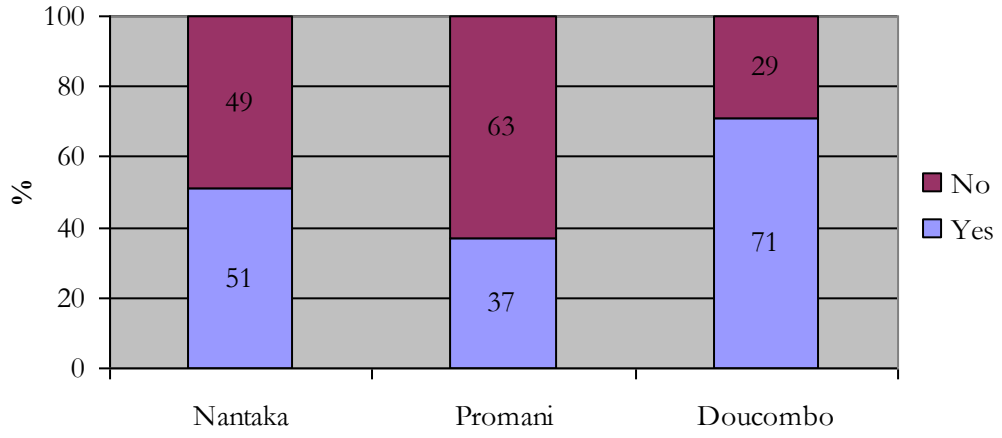


Figure 6.16 Prevention used against malaria in the three villages (%)

Interestingly, here it appears that more respondents from Doucombo say they do something to prevent malaria compared to Nantaka and Promani. This is statistically significant (χ^2=23.439, $p<0.05$). It may corroborate the above finding that while there are fewer seeking treatment for malaria in Doucombo, it may be because there is a higher prevention rate, despite the contradiction of not having heard of *paludisme* but the majority have heard of the local term for malaria (Chapter 5).

Prevention of malaria by gender

Slightly fewer men (52.7%) than women (53.2%) stated they used a preventive measure against malaria (Figure 6.17). This is surprising since the level of awareness of best way of preventing malaria indicated that more men knew of ways of preventing malaria than did women (13.4% and 4.3% respectively, see Chapter 5). There are no significant differences in gender and prevention of malaria in the sample population, χ^2=0.008, $p>0.05$. This clearly

finds that there is a discrepancy between knowing about preventive measures and doing something about it, corroborating Mwenesi *et al.,*(1995) and Gramiccia (1981), a discussion I turn to later in this chapter.

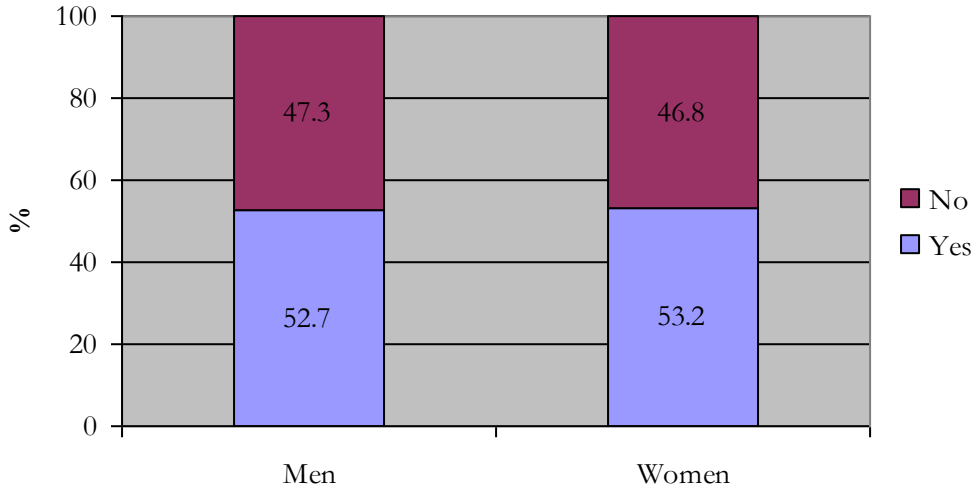


Figure 6.17 Prevention used against malaria by gender (%)

Prevention of malaria by poverty

Similarly, there was no significant difference between preventing malaria and poverty category, $\chi^2=4.458$, $p>0.05$. Figure 6.18 shows that more respondents from the poor category were doing something to prevent malaria (64%), followed by the poorer (52%) and poorest (47%), which is the expected pattern, giving the high poverty levels in the sample population (Chapter 3).

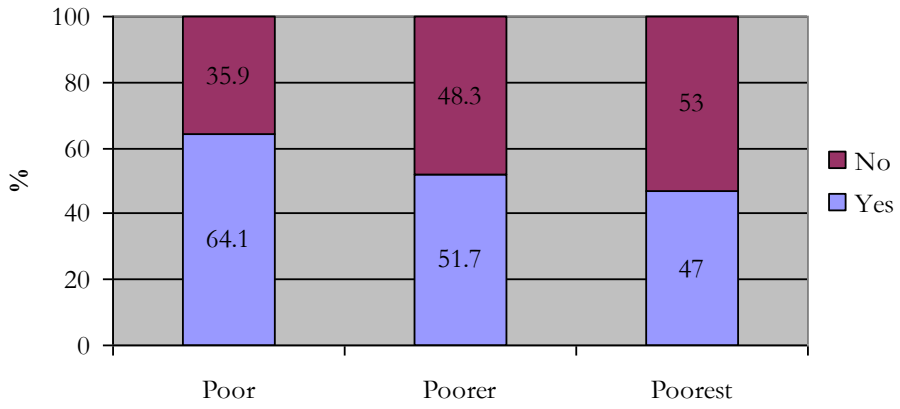


Figure 6.18 Prevention used against malaria in the three poverty categories (%)

The high poverty levels within the study areas therefore have serious implications for any form of participation to take place, in spite of decentralized structures. Given that access to health care, argued in the previous section, is influenced by high treatment and transport costs, it is less likely that people would be willing and able to participate in activities which took them away from their village or entailed significant investments of time. In addition, the prevailing poverty levels hinder accessing preventive methods.

Most important prevention methods used against malaria

Modern medicine, such as paracetamol, aspirin and nivaquine, was used by 42% of the sampled population. Traditional medicine was relied upon by 23% of the sample. Overall, only 12% said they used bed-nets to prevent malaria. This is very low considering that the DHS puts bed-net ownership within households at 69% nationally, falling to 50% for an insecticide-treated one (CPS/MS, 2007). While bed-net ownership in the Mopti region is put at 81%, this falls to 65% regionally for an ITN (CPS/MS, 2007). This is most likely to be due to the much higher costs of ITNs compared to non insecticide-treated bed-nets (see later in this chapter). Due to the national policy of providing ITNs to vulnerable groups (Chapter 1), it may reduce the necessity of purchasing one for themselves if the ones

distributed at the health centres are used within the households. Five percent relied on God as prevention against malaria and 18% took take of their environment to prevent malaria.

Most important preventive method used against malaria by village

Figure 6.19 shows the most important prevention used against malaria in the three villages. There was a statistically significant difference between village and mode of prevention, $\chi^2=80.068$, $p<0.05$. The highest use of modern medicine and traditional medicine combined was in Doucombo (73%) followed by Nantaka (30%) and the least in Promani (6%). More people from Nantaka (29%), followed by Promani (23%) and Doucombo (18%) said traditional medicine was the most important prevention method they used. Keeping a clean environment was reported by 35% in Promani, more than Nantaka and Doucombo (20% and 7% respectively). My findings thus add to the available data on bed-net utilization, which add impetus to the importance of using these as a key preventive measure (Chapter 2). They further add to the need to address the wide gap between knowledge and practice of malaria prevention.

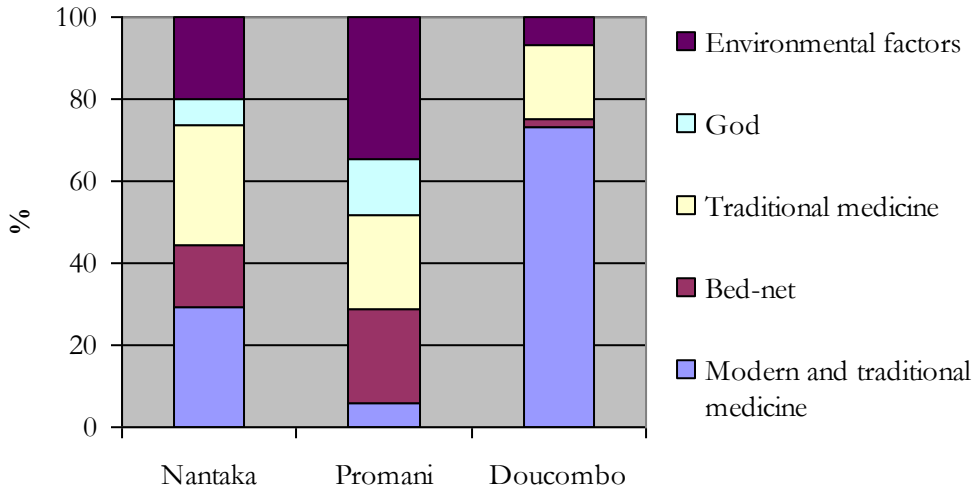


Figure 6.19 Most important prevention used against malaria in the three villages (%)

Bed-net use comes in lower as the most important method of prevention of malaria, with only 12% in the sample population using bed-nets. The highest use of bed-nets was reported in Promani (23%), followed by Nantaka (15%) and Doucombo (2%). This is in

contrast with the higher proportion of awareness of the cause of malaria in Doucombo (Chapter 5) and the lowest use of bed-nets and highest level of prevention (71%) see figure 6.16. It would appear therefore that overall there is a higher degree of both awareness and knowledge of malaria and prevention rates in Doucombo, compared with the other two villages, even though bed-net use is the lowest out of the three villages. These low levels of bed-net use in the three communities are striking.

The DHS for Mali reported a bed-net utilization rate of 36% among children under five who slept under a bed-net the night before the survey, and 36% among pregnant women. Bed-net ownership[157] was 69% of the households (CPS/MS, 2007). For the Mopti region, the figure is 82% of households that own a bed-net. In Mali, a bed-net is often given as a wedding present. It is one way of gaining a bed-net, other than receiving one at the health centre during the course of the ante-natal sessions or when a child's vaccination schedule is completed when the child reaches 9 months (Chapter 1). Some households acquired bed-nets at the health centres, and some bought them from the markets. A few households received them either as wedding gifts or general gifts.

Informal discussions both within the villages and in the rural towns revealed that bed-nets can cost between 2,000 FCFA for a single untreated bed-net to between 3,500 FCFA and 4,000 FCFA for a double untreated bed-net (Traoré, *pers. comm.*, April 2007, Mopti). The price of ITNs in the open market ranged from 2,500 FCFA to 6,000 FCFA and these were normally double bed-nets (personal observation, 2007 and 2009, Mopti, Djenné and Bandiagara markets). Thus access to health care is compounded with the high costs of treatment generally and particularly for the high cost of ITNs.

A survey of the few shops in the villages revealed that none of them stocked bed-nets as they did not sell fast (Chapter 5). However, some of these are also sold less openly by shops in the towns, as they have the same packaging as those supplied for free distribution at the health centres that somehow leak into the local markets and are sold commercially, as was the case in both Bandiagara and Mopti (personal observation, 2007 and 2009). This leakage

[157] This was for any type of bed-net. The figure fell to 62% for a treated bed-net and to 50% for an ITN (CPS/MS, 2007:145). For the Mopti region, 78% of households had a treated bed-net and 65% an ITN.

of donor-supplied ITNs into local markets was also a cause for concern among some health officials, who were not able to explain this practice (Traoré, interview, January 2009, Bamako; Maiga, interview, February 2009, Sevaré). However, it is likely that economic constraints meant that it was preferable to sell a bed-net rather than use it or leave it for distribution at the health centre. There were occasions, as some respondents informed me, that even when they went for a CPN at the CSCOM, they had often run out of ITNs.

Environmental factors are considered important strategies to control malaria. In order to prevent malaria it was important to have cleanliness within and outside the homes, by sweeping the courtyards, removing household waste, ensuring that their animals had separate spaces and did not mix with the cooking areas. In the schools in Doucombo and Promani I observed that the children were involved in managing their school environment through regular cleaning sessions of the playground and contributing to reducing the spread of mosquito breeding sites. This was an activity that involved all age groups in the schools and similar work was carried out at the school in Doucombo, which had bought cleaning materials with a private donation.

Societal rules that govern behaviour directly impact the ability of individuals to make health care decisions (Jones & Williams, 2004). As there is no stigma attached to malaria, being "well-known and socially acceptable", in contrast with HIV/AIDS, there is low social pressure to seek treatment, provide money for treatment of close relatives, or even to comply with completing malaria treatment (Jones & Williams, 2004: 158). The fact that malaria is not perceived to be so serious may explain why many people do not use preventive measures, resonates with findings corroborated by other research studies (Heggenhougen *et al.,* 2003). In addition, Gramiccia expounded that with all the other more pressing hardships rural communities faced, malaria was the least of their worries (Gramiccia, 1981).

Most important prevention method used against malaria by gender

There was a statistically significant difference between gender and most important mode of prevention, $\chi^2=31.91$, $p>0.05$. The most important malaria prevention methods used by men and women are shown in Figure 6.20. The most important preventive method used by

the sample population was modern and traditional medicines (54% women, 21% men), followed by traditional medicine on its own (21% women and 25% men) and keeping a clean environment (for 25% men and 14% women). More men than women stated they used bed-nets to prevent malaria (24% and under 5% respectively). This is a very interesting finding as it raises the question about whether the bed-nets that are distributed at the health centres to expectant women (Chapter 1) are actually used by them or whether they are used by men.

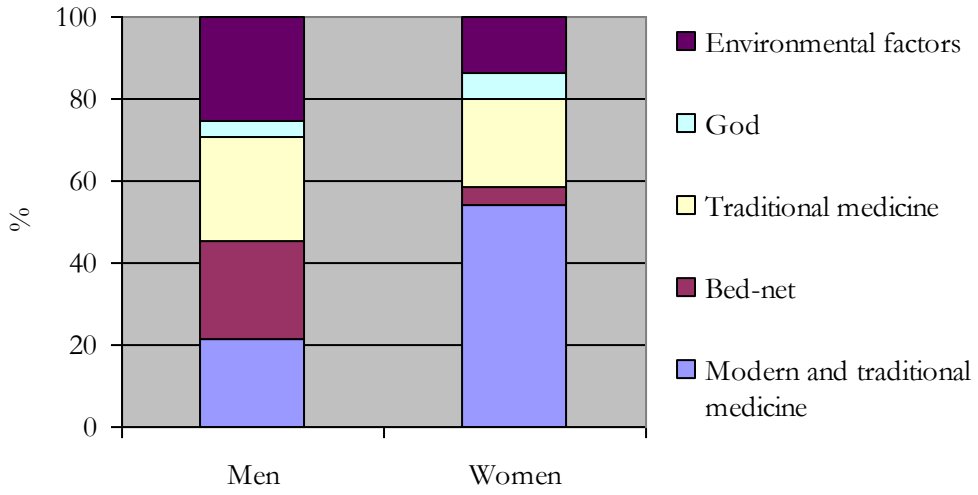


Figure 6.20 Most important prevention used against malaria by gender (%)

Most important prevention method used against malaria by poverty

Analysis revealed a significant difference between poverty and mode of prevention of malaria, $\chi^2=17.54$, $p<0.05$. Modern medicines and traditional medicines combined were used by 38%, 47% and 38% of the poor, poorer and poorest categories respectively (Figure 6.21). Traditional medicine alone was used by the poorer and poorest categories more than the poor category (24%, 24% and 18% respectively). Bed-nets were used by more poor people (20%), followed by the poorest (10%) and the poorer (8%) respondents. Cleanliness of living space and clothes was mentioned by more poor people (22%) than either poorer (18%) or poorest (14%), suggesting a greater awareness and available means of taking care of the environment.

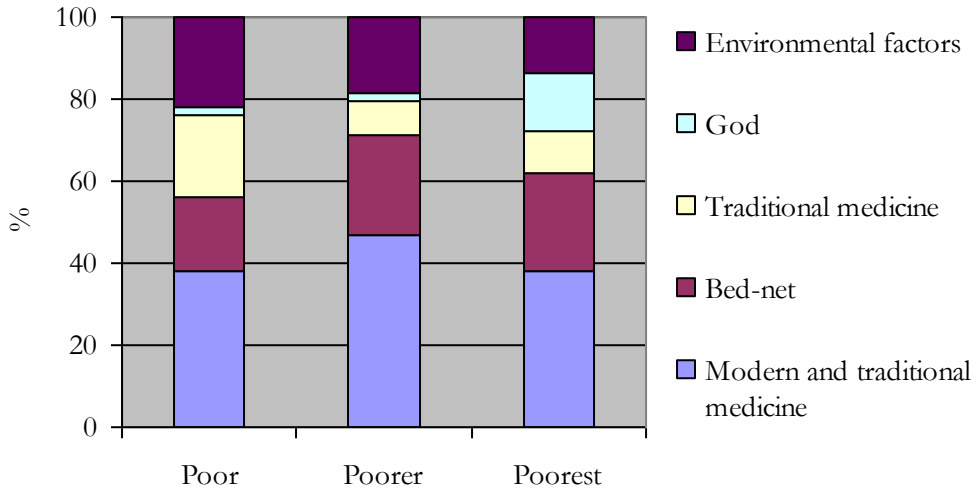


Figure 6.21 Most important malaria prevention used in the three poverty categories (%)

Qualitative data gathered through informal discussions revealed that poverty was the main reason for lack of use of prevention methods, including bed-nets (men's group discussion, Doucombo, 2007, and Nantaka, 2009). While questions on household income were not asked (Chapter 3), informal discussions revealed that the high costs of bed-nets, examined earlier in this chapter, were a key barrier to purchasing one. They also suggested that they waited until their wives were expecting a child so that they could benefit from an ITN received from the health centre during the course of the CPN (Chapter 4). This may explain the low utilization rate of bed-net among women, as discussed earlier in this chapter.

Summary

This chapter has presented a picture of the factors influencing access to health care, specifically in relation to malaria prevention and treatment-seeking behaviours in the three villages. Within the context of the decentralized health system discussed in Chapter 4, it has examined what types of health service are available in the villages, the proportion seeking treatment, the kinds of treatment given, place of treatment and cost of treatment, including the cost of travel for treatment. In recognition of community diversity, the chapter also looked at how prevention practices and treatment-seeking behaviours vary by village, gender and poverty.

A striking finding is that no-one in the survey mentioned the *relais communautaire* as a health service in the village has serious implications in the decentralized health system. As outlined in Chapter 4, the household coverage provided by the CHWs was insufficient given the village size, but the complete lack of recognition of the *relais communautaire* as an actor in the health system demonstrates that even the limited coverage provided is not acknowledged. This, combined with the failure of any survey respondents to identify CHWs as sources of information on malaria (Chapter 5), reinforces the gaps between the rhetoric of decentralization and the experiences on the ground.

It is evident from the findings in this chapter that hearing and knowing about malaria is not enough (Obrist *et al.*, 2007). It is the first step towards understanding different issues about malaria: malaria transmission, signs and symptoms, prevention and treatment (Hlongwana *et al.* 2009). Even when there is an awareness of malaria and its causes, accessing prevention and treatment can be obstructed due to costs, distance or social norms around decision-making and mobility. As knowledge does not always translate into practice, a better understanding of the social dynamics influencing access to household resources and decision-making for malaria prevention and treatment is essential.

The fairly high proportions seeking treatment for malaria across the three villages, men and women, and poverty categories is an encouraging sign. Also encouraging is the fact that more women are seeking modern medicines as treatment for malaria commensurate with the fact that they more than men visit the health centres to seek treatment, in contrast to men, who resort to traditional medicine. Itinerant medicine traders are a crucial source of treatment for significant proportions of the respondents, in particular for women and the poorest respondents reflecting both cost issues and physical accessibility. The fact that they seem more recognizable, not necessarily as health agents, but as providers of treatment is an opportunity to harness for malaria information as well as prevention and treatment. This could result in effective awareness-sharing among the different health agents within a village at any given time.

While preventive measures were used by over half the sample, the use of bed-nets in particular was very low, with more poor respondents using bed-nets and many more men than women using them. This clearly needs to improve, particularly where national figures claim that over two thirds of households in Mali own at least one bed-net, with 82% in Mopti region owning one (CPS/MS, 2007). Knowledge around bed-net use is clearly one explanation for low levels of utilization (Chapter 5), but access to bed-nets also needs to be addressed. The fact that more men than women are using bed-nets raises the question of how effective the national health policy is in focusing on expectant women in the distribution of ITNs at health centres, if it is men that are then the end users of these ITNs. The fact that fewer of the poorest use bed-nets reflects the lack of ability to purchase a bed-net.

The findings presented in this chapter, thus, are important in reflecting on how and why communities are not visiting the health centres and seeking appropriate and timely treatment. Clearly, the poverty context is an important one, but this is compounded with decision-making factors of gender and culture (Chapter 2), access to health care becomes a more complex and nuanced maze to negotiate, particularly for women. However, where women have some economic power, this enables them to be key decision-makers as well as the men, particularly when they are able to pay for treatment themselves.

The findings in this chapter suggest that despite the rhetoric of the government being more responsive to rural populations through a decentralized health system, consideration should be given to these broader structural determinants, including cultural norms of decision-making, that influence access to prevention and treatment of malaria. This is important in the planning and management of health services as addressing these factors would facilitate access to health care for rural communities.

This thesis then concludes with the following chapter summing up the thesis and discussing wider policy implications for health and prevention and treatment of malaria in the decentralized health system of Mali.

Chapter 7

Conclusions

Introduction

This thesis has sought to understand the reality of decentralization and participation in relation to malaria management in three rural villages in the Mopti region. The case study research within a rural region of Mali is placed within the context of international calls for participation in primary health care and in malaria management more specifically, with the overarching goal of poverty reduction as espoused in the MDGs (Chapter 1). Within this broader context, the thesis sits at the intersections of malaria control, decentralization and participation. In particular, the study examined the ways in which decentralized health services enable or hinder access to health care by vulnerable and marginalized rural communities. The study also investigated how wider structures of poverty, gender and local hierarchies remain key barriers to knowledge-seeking, prevention-seeking and treatment-seeking behaviours.

This concluding chapter brings together the different threads that have run throughout the thesis, in order to provide an overview of the research findings, to highlight the ways in which this work contributes to furthering academic knowledge and to suggest possible directions for future research. The chapter synthesizes the major findings and contributions of the research in a thematic manner. It deals with how the research methods answered the research questions, by highlighting the implications of the research design and proposes policy recommendations from the study.

In embarking on this research, I sought to answer the following questions (see Chapter 1):

1. How does the decentralized health system affect access to prevention and treatment of malaria in rural Mali?

- 1.1 What are the sources and levels of knowledge of malaria in the three villages?
- 1.2 What preventive measures are used against malaria?
- 1.3 What treatment is sought for malaria?
- 1.4 How do community health workers facilitate access to prevention and treatment of malaria at village level?

2. How do gender, poverty and location affect access to health care, prevention and treatment of malaria?

2.1 How and why do levels and sources of knowledge of malaria vary?
2.2 How and why do preventive measures vary?
2.3 How and why do treatment practices vary?

Major empirical findings and contributions of the research

Decentralization: are you really closer to the people?

One of the aims of the thesis was to find how and why decentralization worked in rural Mali, in terms of improving participation and more particularly in the prevention and treatment of malaria. While the thesis is not an assessment of the impact of decentralization on health in rural Mopti, what the study has shown is that decentralization's purported aim of being closer to the people is not borne out by the reality on the ground of the three villages in this study. Prevailing social hierarchies within the villages ensure that the existing power relations continue, favouring the already advantaged in the community, corroborating Griffin's thesis of elite capture (Chapter 2). There is also a perpetuation of the dependency on external agents for village and health development: the sentiment that development should come from 'above' is voiced eloquently by established power-holders in the villages (Chapter 4).

Decentralization needs to take into account cultural and structural dimensions, particularly gender and poverty. Wider participation mechanisms are required at rural level, which would increase the inclusion of more marginalized groups.

These findings indicate a need for further in-depth research in this area of how to enable decentralized structures to go further and incorporate rural realities more closely in local development planning with the needs of the people more to the fore than has been the case up to now. My study is novel in that it analyzes how and why decentralization works and does not work in these contexts and throws light on how participation is played out in these realities. It also examines the barriers to higher levels of participation. In particular, the study reveals the minimal levels of community participation within prevention and

treatment-seeking behaviours for malaria, for which there is still a significant reliance on external actors. However, there have been some positive outcomes of decentralization. These include the community health outreach programmes which take place periodically in rural areas (Chapter 4). Women have a higher degree of representation at the *commune* level than before increasing their voice in public fora. However, given the patriarchy is still prevalent even in public fora, women's concerns are not always given a platform (Chapter 4).

There are no real mechanisms of receiving and being responsive to community needs which are not outside of the formal hierarchies. There is marginalization of more vulnerable residents on the basis of lack of financial resources and therefore they are excluded from consultation and decision-making processes. In this regard, decentralization has little if any bearing on knowledge acquisition and access to prevention and treatment. In particular the purported goals of being more responsive to community needs, in this case, that of malaria prevention and treatment is not exemplified.

Furthermore, the decentralized governance structures are another step in the bureaucratization process which has its own layers of administration. Purportedly closer to the people, it reinforces existing power relations within the social and political spheres. An important caution is that existing solidarity and community traditions should not be ignored with the pretext of decentralization, but should be used to increase awareness of the seriousness of malaria. In this respect, the study finds that there is a considerable reliance on social and kin networks for mutual aid and this can be further maximized for health awareness and malaria control. Decentralization as an impetus to increasing participation at the local level is to be questioned in light of the findings from this research and through observations. It is an area that needs further analysis and evaluation at the *commune* and *cercle* level.

A key question that has been raised is whether participation would necessarily lead to a reduction in the malaria burden in rural communities where there is little or difficult access to health care. More effort is required to enhance community participation in practice and not just in policy. A certain level of economic ease is required before participation can be considered. As is amply evident from the empirical study, poverty creates barriers for

participation, access to health care and perpetuates exclusion from decision-making processes (Chapter 6). One is alerted however to the fact that there may be obstacles to this wider inclusion, on the part of *relais communautaires* who may be reluctant to involve lay people in the health promotion and particularly in malaria management in the villages (Freyens *et al.*, 1993). Reasons may include lack of capacity and knowledge, inadequate resources, lack of guidance and training and a desire to keep decision-making for health cadres only (Freyens *et al.*, 1993).

Community health workers

This thesis makes a valuable contribution to literature on CHWs in primary health care, by demonstrating the constraints and enablers of their function in the context of rural Mali. It also reinforces many findings regarding the challenges faced by CHWs internationally (Chapter 4).

A finding that emerges starkly in this study is that none of the respondents actually mentioned the *relais communuataire* as a source of information regarding malaria. This contradicts findings in other studies where CHWs were a source of information on malaria (Chapter 2). This demonstrates that even at village level, communication between village leadership, responsible for announcing *relais communautaires* appointments, CHWs and residents is strongly missing as a key element of health awareness and dissemination of good health practices. This is paramount for successful malaria control given the heavy reliance by the decentralized health system on *relais communautaires* as conduits between health services and village populations. Moreover, the lack of clearly defined roles in addition to the lack of regular supervision, remuneration and incentives inhibit their effectiveness and lead to unsustained performance levels of the CHWs. Training does not suffice as an incentive, and there are long gaps between training. Furthermore, there is no standardization across the diverse training providers resulting in varying levels of knowledge and quality of health training. The effectiveness of the *relais communuataire* as health agents in the community is therefore questioned in the decentralized health context.

The study revealed that there is a disproportionate reliance on one or two village members who serve as *relais communautaires* on behalf of the health system. This is coupled with a very

low level of awareness of the existence of the *relais communautaire* in the villages (Chapter 4). The study found that there are individuals other than the *relais communautaires* who have a basic knowledge of malaria and an awareness of the importance of preventing it, for example the school-teacher in Nantaka (Chapter 5). However, there is no discernible collaboration between different cadres at village level providing health education.

Community knowledge and access to prevention and treatment of malaria

The research findings reinforce the fact that many more improvements are required vis-à-vis imparting health messages. Indeed, the household survey revealed a much lower level of knowledge of the cause of malaria compared to other research in SSA (Chapter 2), particularly East Africa. Only a quarter of my sample attributed malaria to mosquitoes compared to other research. Malaria is attributed to multiple causes, including dietary and environmental factors, corroborating previous research carried out in SSA (Chapter 2). Furthermore, a significant proportion did not know what causes malaria. These may be due to different cultural understandings of malaria causation.

While knowledge of the signs and symptoms of malaria are similar to those found in other studies (Chapter 5), the prevalence of malaria prevention practices is lower. In particular, the use of bed-nets in the three villages (Chapter 6) is very low compared to other countries in SSA (Chapter 2). While poverty is the most likely explanation for low bed-net utilization, social and cultural norms such as gender and decision-making processes within households, and social hierarchies add to the challenges of malaria prevention and treatment (Chapter 2). This adds to the urgency of a more sustained effort in disseminating awareness of malaria and devising ways of increasing access to prevention and treatment, both through formal and informal health providers and alternative avenues.

The study also shows the sources of information the respondents draw on vis-à-vis malaria knowledge, an aspect that is infrequently reported in malaria studies. The findings suggest that media remains the principal sources of knowledge (Chapter 5). Of those who had heard of *paludisme*, nearly 27% had heard it on the radio or television. This was in various languages, and therefore radio was a key source of malaria education. The government department responsible for designing health messages plays an important role in this.

Further the overall culture in Mali in which music is a significant vehicle in relaying social messages, demonstrates that this medium remains a vital force in the fight against malaria. Findings in my study reinforce the fact that media and social networks play a greater role as providers of information and knowledge than do health staff and training, which are accessed by fewer people. This corroborates international findings of social and kinship networks as vital sources of knowledge transmission (Chapter 2). Social networks, thus, can be harnessed to ensure a more sustained effort to enhance knowledge sharing in more culturally appropriate and cost-effective ways as sources of information on malaria. This is a positive finding that comes out of the study as it suggests that knowledge transmission can occur within informal networks and not only, when it happens, through formal channels.

Structural dimensions

The study examined the structural factors affecting knowledge and access to health care, in particular prevention and treatment of malaria in the three rural locations. This was in recognition of the need to examine community diversity even within seemingly homogenous populations. It addressed location, gender and poverty as the basis of analysis for the research (Chapter 1).

Gender

The thesis corroborates findings in other studies (Manderson *et al.*, 1996; Vlassoff & García-Moreno, 2002) that women's access to knowledge and treatment of malaria is influenced by gender disparity, including limited access to education for women. The study found that women are less aware of the cause of malaria than men, which corroborates international research in this area (Chapter 2). Men do not always impart information on malaria to women, either because they do not think knowledge about malaria is important or that it is not important for women to know about it. This reinforces existing research on the lower levels of access to knowledge of health matters more widely and in my study this was revealed through some men not wanting their wives to acquire training, either literacy or health awareness (Chapter 4). In addition household decision-making for access to treatment is largely male dominated (Chapters 2 and 6).

The often scarce household financial resources impinge heavily on the decision-making power of both men and women for accessing prevention and treatment of malaria. This is exacerbated by low levels of decision-making power for women at household level to seek prevention and treatment for malaria. Furthermore, decision-making is heavily influenced by the prevailing cultural understandings about gender norms. These reflect constraints of mobility given the women's multiple domestic responsibilities, which impinge on the extent to which women can access health care. Management structures of rural health are not widely inclusive of diverse members and, in particular, women's inclusion in these structures is largely absent.

Cost of malaria treatment was felt more by women than men (Chapter 6). This adds to the already heavily burdened women who, aside from their daily responsibilities, have to find ways of treating malaria for themselves or for their children. Meeting the cost of treatment was clearly linked to access to resources within the household (Castle, 1992) and their decision-making autonomy. My findings that women with economic independence pay for their own treatment resonate with Tolhurst *et al.* (2008) (Chapter 6). As Jones & Williams (2004) explain, men may have the capacity to seek treatment quickly in order to maintain their bread-winning role in the family. In contrast, women are often expected to continue in their role as care givers, do not have their own resources to make unilateral treatment-seeking decisions and are dependent not only on their husbands, but also on the extended family (Chapter 2). Unavailability of these resources meant that they had to seek other remunerative activities to fund treatment.

Poverty

Poverty was found clearly to be a key barrier to knowledge acquisition of malaria reinforcing the relationship between socio-economic status and malaria (Worrall *et al.*, 2003). Poverty seemed to be a factor in the knowledge of malaria, its signs and symptoms, cause of malaria and knowledge of preventive measures, with the poor faring better overall than either the poorer or poorest respondents in the sample. Poverty levels further inhibit residents from visiting health centres due lack of respect by health staff towards them (Chapter 6) and a general "attitudinal failing of health staff" (Brieger, 1996: 97). That poverty still constitutes a

significant barrier to purchasing an ITN was eloquently expressed 'with all the knowledge in the world, we still cannot afford a bed-net'.

In particular, where there was knowledge on preventive measures against malaria, the use of bed-nets was very low. This reinforces that poverty is the main consideration for not using bed-nets, whether insecticide-treated or not. It may also suggest that there is a reliance on the expectant women of the household to provide the ITNs for the household from the ante-natal sessions (Chapters 1 and 4).

The financial burden of malaria treatment was felt more by women than men (Chapter 6). This adds to the already heavily burdened women who, aside from their daily responsibilities, have to find ways of treating malaria for themselves or for their children. My findings that women with economic independence pay for their own treatment resonate with Tolhurst *et al.* (2008) (Chapter 6).

Implications of research design

A period of reflection on the research process provides valuable lessons for future studies. This section considers how far the methodology was successful and to see to what extent the data is generalizable across rural Mali, given that it was a case study, discussed extensively in Chapter 3. The implications of the limitations highlighted in Chapter 3 are also discussed here.

The study site selection was limited to three villages in one region of Mali, which, given the nature of the study design, does not allow for wider generalizability to the rest of rural Mali, or even with other villages in other districts of the same region. A bigger and more systematic sample would increase the likelihood of generalizability of the data generated. Clearly, given the limited resources available for this study, this study then focuses on the case study design of these three villages.

The survey was invaluable in acquiring a picture of the levels of awareness of malaria in the three rural locations. In this way, the study contributes to providing primary data on three

rural locations in a country with a high burden of malaria. In particular, the survey gave a quantitative framework to the study and provided valuable socio-economic data. An attempt was made to discern the types of participation in the villages, drawing on existing research designs on social capital and participation (Grootaert *et al.,* 2004). While it gave some indication of the kinds of participation that respondents were involved in in their particular villages, this area would perhaps been better drawn out using diverse participatory methods. Given the limitations of the study (Chapter 3) this is an area that would require further research. Similarly, the approach to the ranking of households through more participatory methods, would reflect a diversity of respondents' own understandings of poverty. The limitation in approach to SES has already been discussed extensively in Chapter 3. The fact that the question on the source of information on malaria was included at a later stage in the research process means that this data pertains to two of the three villages. In this respect, however, given that these two villages had a higher proportion of poorer respondents (Chapter 3) the study still provides a valuable insight into what these sources of information are. In particular, the fact that the qualitative methods used in this study did not include a wider representation of the communities, such a wider inclusion would ensure more robustness of the data.

Interviews were helpful in drawing out the major themes of debate within this thesis. Specifically, the understandings of decentralization and its effect on health services were effectively gleaned from the interviews. Interviews were better at the broader theoretical aspects of the study. They were particularly useful in examining the policy context of decentralization among government authorities, NGOs and international organizations. Interviews with individuals at the rural level were also valuable in gaining insights into the challenges of access to health care and prevention and treatment of malaria in particular.

As I highlighted in Chapter 3, there were a number of challenges with conducting focus groups among the research participants. While I did commence the focus groups with broad focus group guides, these were adapted during the course of the focus group discussions to take on a more relaxed conversational style of discussion. A difference in the responses between women and men could be discerned, whereby men were quite formal and women more receptive to group discussion. However, this method did yield valuable grounded

evidence, particularly in relation to access to health care for the prevention and treatment of malaria.

Participant observation, while valuable, was not sufficient to answer the research questions on its own. This would be more valuable if the study also specifically addressed prevention practice, specifically the use of bed-nets within households, bed-net treatment sessions, IRS campaigns and health education by external agents. It did provide some data on prevention methods, primarily at the schools, where environmental management was carried out by the pupils (Chapter 5).

Policy recommendations

There is a clear need to harness and build on factors that lead to success with community-based malaria management at village level. In particular, social networks can encourage residents to record occurrences of malaria to track episodes over time (a village book recording all malaria cases, males and females, and children under five, each week/month) in order to convey idea of ownership and responsibility over monitoring and mitigating malaria. There is a need to increase incentives by advocating the importance of monitoring, and improved health, for the benefit of the individual, family, household, community and village. Diaries could be encouraged, for young school-children keeping records of malaria cases in their neighbourhood. This would be a useful working tool for them to learn the importance of recording cases and following up with treatment (Delacollette *et al.*, 1996). It would also reinforce their sense of responsibility. It may prove a cost-effective way of monitoring households as well for the PFEs (Chapter 4).

They could be harnessed to join forces with existing cadres of the health worker at the village level, but qualitative data (Chapter 4) indicates that even this approach would require sufficient incentives for it to take hold. One way of addressing this would be to encourage the establishment of a village health committee or health management teams including more members from the community. While not new concepts in themselves, these can reinforce the role of the *relais communautaires*, who can also share in the tasks assigned to them and thus relieve some of the unrealistic expectations that are made of them. However, this in itself

can raise questions of motivation and performance as has been discussed in-depth in Chapter 4. Furthermore, the lack of collaboration among existing health cadres at village level, discussed above, makes it more challenging to initiate joint efforts for improving community health.

The establishment of 'participation agents' could contribute to motivating and enhancing community level engagement in promoting better health practices and behaviour change. If these are drawn from younger residents of the villages, such as school-children, they could serve as multipliers as suggested by one CHW in Doucombo (Chapter 4). They could also 'shadow' the *relais communautaires* in their activities of monitoring PFEs and encouraging good health practices and behaviour change (Chapter 4). Some factors to consider would be how to reward the new cadres and how to sustain their enthusiasm and motivation, themes which have been extensively examined in Chapter 4. Furthermore, socio-cultural norms of deferring to elder members of the community may inhibit young people from playing such a role. However, they could serve as peer educators, a model that has been adopted in other areas of SSA, particularly in relation to education on HIV/AIDS.

Culturally sensitive materials and language would be an invaluable way of spreading preventive and treatment messages which are also in tune with local understandings of malaria causation and illness more broadly. Clearly, any health intervention strategy would entail time and costs, and these would have to be taken into consideration.

There is a need to have more inclusive representation in both the formal health structure and the community level, and not appointing just friends and family, as was the case in one village where two of the *relais communautaires* were related to the village chief. Therefore, there is a need to be more stringent in recruitment processes in sending out a wider call for selection. To increase participation in health, there is a need to include more members of the community in health care and dissemination of health messages and not rely just on the *relais communautaire* as the main source of health education. There is a need to have all cadres sharing power and responsibility (N'Diaye *et al.,* n.d.) as well as having more CHWs. However, the issues of literacy and availability to perform this function are key criteria that are not always available within rural settings. This is a key factor that hinders the

recruitment of women CHWs. The incorporation of non-professionals within the health system may lead to constraints, given that there is a real divide among the different cadres in terms of knowledge sharing and imparting information and training (Chapter 6). This reinforces the argument that non-professionals are somehow not worthy of imparting knowledge to and thus perpetuating the 'bureaucratization of power' (Woelk, 1992).

Particularly in relation to malaria management, special focus on the role of the CHWs as well as new 'entrants' in the malaria awareness arena within communities should be carried out. A more consistent effort in case recording within villages would enable monitoring of the malaria environment at village level. Clearly, there are issues with case detection (Chapter 4), and malaria diagnosis within a low resource health service environment. However, raising an awareness within villages of the importance of fighting this preventable disease can address some of the challenges of malaria control. A wider inclusion at the local level needs to be carried out, rather than an almost exclusive reliance on the *relais communautaire*. Delegation of responsibility of health to the *commune* level should be matched by the necessary resources and know-how to the local population and material incentives need to be provided.

Furthermore, representation in community health structures is often subject to a lack of transparency. A caution is presented here as issues of membership of multiple committees can be problematic in the running of health centres (Chapter 4). These, as well as wider inclusion, may echo in health committees at village level as well, with concomitant challenges of managing existing power relations of gender, social hierarchy and cultural norms. More stringent accountability measures would then have to be established to ensure good governance of such mechanisms of participation in community health services.

The call for much higher use of ITNs needs to be matched by a more affordable option of the basic bed-net, supplemented by community-based treatment sessions. Bed-net treatment sessions are not widespread and their frequency levels are not determined. More efforts need to be made at both village level in terms of communication between leadership and health workers and leadership and residents on the importance of carrying out bed-net treatment.

A lack of integrated approach to malaria control leads to lack of success. Therefore there is a need to address the key actors in malaria control, that is, the community residents themselves, without whom, there is no programme. This requires a shift away from vertical and top-down to a more horizontal and inclusive programme, which would take local needs into account. While decentralization has aimed to do this, there is no concerted effort at the rural level to encompass more members in the health planning process. Indeed, it is argued that there may still be room for top-down vertically driven health programmes and malaria is an area that lends itself to this approach. Proponents of the top-down approach argue that such an approach "may well do a better job of bringing about positive change in deprived communities" (Golooba-Mutebi, 2005b: 955). It may still give grounds for the argument that top-down or vertical approaches to malaria control and disease control more widely may be more beneficial in the short term.

The complexity of participation is not always evident in the initial enthusiasm of health programmes or interventions, and such challenges need to be considered in the broader health arena. However, as I argued in Chapter 2, getting to a stage where malaria is no longer a public health problem, in terms of reduced morbidity and mortality, with instrumental participation of communities, is then more likely to open up discursive spaces for participation as an end in itself (Chapter 2). Thus, the potential for empowerment may automatically follow and open up further opportunities for positive health actions and generation of further momentum. While the theoretical benefits of participation are laudable in themselves, they often disregard the wider structures of poverty, leadership and social and gender norms. With poverty being a key social determinant in malaria prevention and treatment-seeking behaviours, poverty reduction strategies within rural contexts need to be established in order to enhance well-being. This needs to tie in closely with political will and political commitment at all levels of the health sector. It is not enough to have all manner of participation and participatory activities in a stand-alone fashion, without consideration of the appropriateness of these activities in any given context.

Directions for future research

So where does this leave us with participation in malaria management? What future is there for participation in malaria control, considering that malaria control is still largely centralized

with technically-driven solutions? While vertical programmes and top-down approaches need not be a bad thing, if there are genuine participation agents from above as well, "community participation remains a guiding principle in malaria control, whose success is dependent on sustained and continuous collaboration between external agencies, governments and communities" (Espino *et al.*, 2004: 39) in order to make achieving the MDGs realistic. The "continuing vitality of the idea of participation" (Ghai, 1994: x) can see us break out of the malaria burden in Mali, regionally and globally. In particular, within the decentralized health system, more avenues and opportunities for participation in the prevention and treatment of malaria can present themselves.

A fuller evaluation of the impact of media campaigns on the increase in prevention behaviours was beyond the scope of the present thesis, but could be the basis of future research. An in-depth analysis of the social networks in place, and the importance of particular individuals within these networks for malaria knowledge is also an area of possible further investigation. A wider representation through diverse qualitative approaches would throw light on how to tailor malaria awareness prevention and treatment messages to different groups within communities and in more study sites, which may help towards building generalizability of findings in order to develop effective prevention and treatment strategies for malaria. This could also benefit from a wider examination of which particular channels of communication for malaria awareness are more effective in reaching audiences through multiple research methods.

Conclusion

My study is a unique contribution towards an understanding of the local picture of malaria in rural Mali, through an empirical enquiry in three villages in the Mopti region, where there was previously a lack of knowledge on the levels of awareness and understanding of malaria. Furthermore, the holistic approach to goal-setting of MDGs beyond 2015 is a welcome proposition (Waage *et al.*, 2010) which would encourage the inclusion of the major themes of debate examined in this thesis. Moreover, the examination of socio-cultural influences on health behaviours, that social scientists have long advocated (Chapter 1), can thus be a central dimension within wider policy frameworks at national and international levels. In particular, the call for "establishing processes for improved participation in collective public

discussions and decision-making concerning not only aspects of learning and health provision, but also all areas that affect people's well-being…related to the principles of ownership and obligation" (Waage *et al.*, 2010: 23) seems finally to be getting the attention it deserves. It remains to be seen to what extent this call is given the platform it merits in international policy-making.

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APPENDIX I

Participation Communautaire dans la Gestion du Paludisme
Enquête de Base
Questionnaire

Date: / /2007

Entretien: Debut: hrs min Fin: hrs min

1. Region: _____
2. Cercle: _____
3. Commune: _____
4: Village: _____
5: Nom du répondant: _____

6. Est-t'il/elle chef du ménage? Oui: ☐ Non: ☐

7. Partie du village: _____ 8.Groupe ethnique:_____

9. Age: ☐☐ 10. Sexe: M☐ F☐

11. Si 6=non, relation au chef du ménage: _____

Membres du ménage

12 : Nombre des femmes: ☐☐

13 : Nombre d'enfants de moins de 15 ans : ☐☐

14 : Nombre d'enfants de moins de 5 ans : ☐☐

15 : Nombre d'enfants de moins de 1 ans : ☐☐

16 : Nombre total d'enfants dans le ménage: ☐☐

PROFIL SOCIO- ECONOMIQUE

17 : Quel est votre niveau de scolarisation?

Première cycle: ☐ Deuxième cycle: ☐ Secondaire: ☐

Superior : ☐4 Sans niveau : ☐5

18. Etes-vous alphabétisé? Oui ☐ Non ☐

19. Si oui, dans quel langue? _____

20. De quel matériel est construit votre maison? _____
(confirmer par observation)

21. D'ou prenez-vous votre eau potable?

1. Puit traditionelle ☐1 2. Puit aménagé ☐2 3. Fleuve ou rivière ☐3

4. Fontaine publique ☐4 5. Forage ☐5 6. Robinet privé ☐6

7. Autres ☐7_____

22. Quel type de toilette?

1. Latrine privé ☐1 2. Latrine commune ☐2 3. Nature ☐3

23. Nombre de pièces (exclu la salle de bain et toilette)? ☐☐

24. Propriétés foncières :

01 Propriétaire avec titre foncier
02 Propriétaire sans titre foncier
03 Locataire - privé
04 Location vente
05 Co-propriétaire/familiale
06 Logé gratuitement

25. Y a-t'il a une poste radio dans votre ménage? Oui ☐1 Non ☐2

26. Y a t'il un poste téléviseur dans votre ménage? Oui ☐1 Non ☐2

27. Y a-t'il un moyen de déplacement dans votre ménage? Oui ☐1 Non ☐2
Si oui, préciser_____

28. Combien de personnes dorment dans votre ménage habituellement? ☐☐

29. Combien de personnes ont dormi dans votre ménage hier soir? ☐☐

30. Combien de naissances il y a-t-il dans ce ménage au cours de l'année passée?

☐☐

31. Combien de déces d'enfant au moins d'un an y a-t-il dans ce ménage au cours de l'année passée ? ☐☐

OCCUPATION

32. Quel travail fait le chef du ménage pour gagner?
    - 01 agriculture-élevage-pêche-esploitation forestière
    - 02 commercant ambulant
    - 03 commercant dans le marché
    - 04 artisan
    - 05 employé dans le secteur privé
    - 06 employé dans le secteur public
    - 07 autre, à préciser _____

33. Est-ce que d'autres membres du ménage travaillent-eux? Oui ☐1 Non ☐2

34. Est-ce que l'argent est suffisant pour toute la semaine? Oui ☐1 Non ☐2

35. Si non, comment faîtes-vous? _____

SERVICES DE SANTE

36. Y-a-t'il un service de santé de base dans ce village? Oui ☐1 Non ☐2

37. Si oui, quel type de service est il ? _____

38. Le service de santé est à quel distance de chez vous? _____(km)

39. Quel moyen de déplacement employez-vous pour aller au service de santé?

_____

40. Au cours de dernier mois, combien de fois êtes-vous tombé malade? ☐☐

41. Y-a-t'il un guérisseur traditionnelle dans le village? Oui ☐1 Non ☐2

42. Si oui, combien de guérisseurs traditionnelle y a t'il dans le village? ☐☐

43. Quels sont les maladies les plus fréquent dans la communauté? Explorer/probe

_____

44. Y-a-t'il un personnel de santé dans ce village? Oui ☐1 Non ☐2

45. Si oui, quel service dont-il/elle?_____

PALUDISME

46. Avez-vous entendu parler de paludisme? Oui ☐1 Non ☐2

46 a) d'où avez-vous entendu ça ?

47. Avez-vous entendu parler de "boubal/jonde/sumaya/yeii "? Oui ☐1 Non ☐2

47 a) d'où avez-vous entendu ça ?

48. Pouvez-vous me décrire les signes ou symptômes principales de cette maladie?

_____

49. Comment qu'on contracte cette maladie ("boubal/jonde/sumaya/yeii")?

_____

50. Quelle est la meilleure façon de prevenir le "boubal/jonde/sumaya/yeii" ?

_____

51. Au cours de moins précédent, avez-vous contracté la fiévre ou le paludisme ?

Oui ☐1 Non ☐2

TRAITEMENT

52. Quand vous-avez eu le paludisme, avez-vous faîtes un traitement pour ça?

Oui ☐1 Non ☐2

Si non, allez a Q57

53. D'où avez-vous obtenu ce traitement? _____

54. Quel-est le dernier traitement qu'on vous a donné? _____

55. Combien avez-vous payez pour ce traitement? __ __ CFA

56. Q'avez-vous payez pour le déplacement pour obtenir le traitement? __ __CFA

57. Quand vous-avez eu le paludisme, avez-vous travaillez ? Oui ☐1 Non ☐2

58. Si non, avez-vous perdu de salaire? Oui ☐1 Non ☐2

59. Est-ce que vous cherché toujours le traitement pour le paludisme/?

Oui ☐1 Non ☐2

60. Au cours de l'année passée, combien de fois avez-vous contracté le paludisme/boubal/jonde/sumaya/yeii? ☐☐

61. Au course de mois dernier, combien de personnes dans votre ménages ont eu le paludisme/boubal/jonde/sumaya/yeii? ☐☐

62. Vous personellement, faisiez-vous quelque chose pour éviter le paludisme/ boubal/jonde/sumaya/yeii? Oui ☐1 Non ☐2

63. Quelle est la chose la plus important que vous-faîtes pour éviter le paludisme/ boubal/jonde/sumaya/yeii?

_____

PARTICIPATION COMMUNAUTAIRE

64. Etes-vous ou quelqu'un dans votre ménage est membre de quelques association ou organisme quelconque? Oui ☐1 Non ☐2

Si oui, laquelle?_____

65. Combien de fois au course de l'année passée a quelqu'un participié dans les activités de cette association ou organisme? ☐☐

66. Quel somme ou biens en nature avez-vous contribué a cette association au cours de l'année passée? ☐☐

67. Combien des jours avez-vous consacré aux activités de cette association au cours de l'année passée? ☐☐

68. Quels sont les benefices/avantages de l'adhesion a cette groupe?

_____

69. Quels sont les benefices/avantages que vous avez tirée de cette association?

_____

70. Quand il faut prendre une decision dans le groupe, qu'est-ce qu'il ce passe?

_____

71. Comment sont choisi les leaders de ce groupe?

_____

72. Dans l'ensemble, comment jugé-vous est l'efficacité du leadership du groupe?

_____

73. Est-ce que ce groupe a interaction avec autres groupes qui ont objectifs similaire dans le village? Oui ☐1 Non ☐2

74. Est-ce que ce groupe travaille avec ou a des relations avec des organisations au dehors du village? Oui ☐1 Non ☐2

75. Au cours de l'année passée, avez-vous faîtes un travail communautaire dans votre villages pour le benefice de votre village? Oui ☐1 Non ☐2

76. Quels étaient vos activités au cours de l'année passée dans cette association?

_____

77. La participation étais volontaire ou exigé? volontaire ☐1 exigé ☐2

APPENDIX II

Community Participation in malaria management
Household Survey
Questionnaire

Date: / /2007

Interview: Start: hrs min End: hrs min

1. Region: _____
2. Cercle: _____
3. Commune: _____
4: Village: _____
5: Name of respondent :_____

6. Is he/she head of household? Yes: ☐ No: ☐

7. Location in village : _____ 8.Ethnic group:_____

9. Age: ☐☐ 10. Sex: M☐ F☐

11. If 6=no, relationship to head of household: _____

Household members

12 : Number of wives: ☐☐

13 : Number of children under 15 years of age: ☐☐

14 : Number of children under 5 years of age: ☐☐

15 : Number of children under one year of age: ☐☐

16 : Total number of children in the household: ☐☐

SOCIO-ECONOMIC PROFILE

17 : What is your level of education?

First cycle: ☐ Second cycle: ☐ Secondary: ☐

Superior : ☐4 No level of education : ☐5

18. Are you literate? Oui ☐ Non ☐

19. If yes, in which language?_____

20. What construction material is your house? _____
(confirm by observation)

21. What is your drinking water source?

1. Traditional well ☐1 2. Managed well ☐2 3. River or stream ☐3

4. Public fountain ☐4 5. Tubewell ☐5 6. Private tap ☐6

7. Other ☐7_____

22. What type of sanitation do you have?

1. Private latrine ☐1 2. Communal latrine ☐2 3. Nature ☐3

23. How many rooms (excluding toilet)? ☐☐

24. Land tenure:

01 Owner with title
02 Owner without title
03 Private tenant
04 Sub-let
05 Co-owner/family home
06 Rent-free

25. Do you have a radio in your household? Oui ☐1 Non ☐2

26. Do you have a television in your household? Oui ☐1 Non ☐2

27. Do you have a mode of transport in your household ? Oui ☐1 Non ☐2
If yes, specify,_____

28. How many people sleep in your household normally? ☐☐

29. How many people slept in your household last night? ☐☐

30. How many births were there in the household during the last year?

☐☐

31. How many deaths were there in the household during the last year?

☐☐

OCCUPATION

32. What is the occupation of the head of household?
    - 01 agriculture-cattle-breeding-fisheries-forestry
    - 02 itinerant trader
    - 03 market trader
    - 04 artisan
    - 05 private sector employee
    - 06 public sector employee
    - 07 other, specify _____

33. Do other members of the household work? Yes ☐1 No ☐2

34. Is the income sufficient for the week? Yes ☐1 No ☐2

35. If not, how do you manage? _____

HEALTH SERVICES

36. Is there a health service in this village? Yes ☐1 No ☐2

37. If yes, what type of service is it? _____

38. How far is the health service from you? _____(km)

39. How do you travel to the health service?

_____

40. During the last month, how many times have you fallen ill? ☐☐

41. Is there a traditional healer in the village? Yes ☐1 No ☐2

42. If yes, how many traditional healers are there in the village? ☐☐

43. What are the most frequent diseases in the community? Explore/probe

_____

44. Is there a health worker in this village? Yes ☐1 No ☐2

45. If yes, what service does he/she provide?_____

MALARIA

46. Have you heard of malaria? Yes ☐1 No ☐2

46 a) Where did you hear this?

47. Have you heard of "boubal/jonde/sumaya/yeii"? Yes ☐1 No ☐2

47 a) Where did you hear this?

48. Can you describe the main signs and symptoms of this disease?

_____

49. What causes malaria? ("boubal/jonde/sumaya/yeii")?

_____

50. What is the best way of preventing "boubal/jonde/sumaya/yeii" ?

_____

51. In the course of the last month, did you get fever or malaria?

Yes ☐1 No ☐2

TREATMENT

52. When you had malaria, did you seek treatment for it?

Yes ☐1 No ☐2

If not, go to Q57

53. Where did you obtain this treatment? _____

54. What is the last treatment you had? _____

55. How much did you pay for this treatment? __ __ CFA

56. How much did you pay to travel for treatment? __ __CFA

57. When you had malaria, did you work? Yes ☐1 No ☐2

58. If not, did you lose income? Yes ☐1 No ☐2

59. Do you always seek treatment for malaria?

Yes ☐1 No ☐2

60. During the last year, how many times did you have malaria/boubal/jonte/sumaya/yeii? ☐☐

61. During the last year, how many people in your household had malaria/boubal/jonte/sumaya/yeii? ☐☐

62. Do you personally do something to prevent malaria/ boubal/jonte/sumaya/yeii? Yes ☐1 No ☐2

63. What is the most important thing you do to prevent malaria/ boubal/jonte/sumaya/yeii?

_____

COMMUNITY PARTICIPATION

64. Are you or anyone in your household a member of any association or organization? Yes ☐1 No ☐2

If yes, which one?_____

65. During the last year, how many times did someone take part in the activities of this association or organization? ☐☐

66. How much did you contribute to this association, in money or in kind, during the last year? ☐☐

67. How many days did you contribute to the activities of this association, during the last year? ☐☐

68. What are the benefits/advantages of being a member of this group?

_____

69. What are the benefits/advantages that you have had by being a member of this association?

_____

70. How are decisions taken in this group?

_____

71. How are the leaders chosen in this group?

_____

72. On the whole, how effective is the leadership of the group?

_____

73. Does this group have interactions with other groups with similar objectives in the village? Yes ☐1 No ☐2

74. Does this group work or have interactions with organizations outside the village? Yes ☐1 No ☐2

75. During the last year, have you been involved in community work for the benefit of your village? Yes ☐1 No ☐2

76. What were your activities during the last year in this association?

_____

77. Was participation voluntary or obligatory? voluntary ☐1 obligatory ☐2

APPENDIX IIIa

Interview Schedule (Français)

1. S'il vous plait, pouvez-vous me decrire le processus de decentralization au Mali, en particulier les influences historique de la period coloniale sur le processus actuel de decentralization ?

2. Quels sont les effects de la decentralization sur la santé de la population, positif et negatif ?

3. Les communes gerent les villages, n'est-ce pas ? Est-ce que les communes sont representatif des villageois ?

4. Est-ce que la decentralization a realment arrive jusqu'à le villageois ? Si oui, de quel façon ?

5. Dans votre experience, quels ont etaient les avantages de la decentralization et les obstacles dans le processus ? En particulier, comment ont les populations rurales participié dans le processus de decentralization ?

6. Pouvez vous mes décrire les problematiques du pouvoir, reste avec le chef du village, le system actuel de la chefferie, les influences historique.

APPENDIX IIIb

Interview Schedule (English)

1. Can you describe the process of decentralization in Mali, in particular the historical influences of the colonial period on these processes?

2. What are the effects of decentralization on the health of the population, be they positive or negative?

3. I understand that the *communes* manage the villages. Are the *communes* representative of the villages?

4. Has decentralization reached the villages? If yes, in what way?

5. In your experience, what have been the advantages of decentralization and the obstacles in its process? In particular, how have rural populations participated in this process?

6. Can you tell me more about the issues of power in the village leadership system and the historical influences on these?

APPENDIX IV

Number of interviews

Type	Number
Government officials	29
NGOs	17
Health centre staff	15
International organizations	12
Independent consultants	9
Village interviews	15
TOTAL	**97**

Interviews with government officials

	Name	Organization	Location
1	Dr A.K. Sangaré	Director, DRS	Sevaré
2	Mr A. Sangaré	Director, DSSPA	Sevaré
3	Mr A. Barry	DRS	Sevaré
4	Dr K. Traoré	Chargé de Planification, DRS	Sevaré
5	Mr M. Camarra	DSSPA	Sevaré
6	Mr M. Touré	Expert in mobilization, DSSPA	Sevaré
7	Mr. Soungalo Bouaré	Director, Cabinet Office, *Governorat*	Mopti
8	Mr. S. Coulibaly	*Le Prefet*	Mopti
9	Mr H.C. Ba	Director, DRPSIAP	Mopti
10	Mr. H. Diallo	Secretary General*, La Mairie*	Madiama
11	Mr M. B. Dembelé	*Le Prefet*	Djenné
12	Mr. J. Sissoko	Dev Sociale et Economie Solidaire	Djenné
13	Mr M. Samaké	Historian, *Mission Culturelle*	Djenné
14	*Le Maire*	*La Mairie*	Bandiagara
15	Mr D. Tembele	Secretary General*, La Mairie*	Doucombo
16	Mr. Almassoudou Diallo	Chef du Service, DSSPA	Bandiagara
17	Mr M. M. Touré	*Le Prefet Adjoint*	Bandiagara
18	Dr A. Sanguisso	CPS/Ministry of Health	Bamako
19	Prof. M. Kiré	Geographer, Institut National de Formation des Travailleurs Sociaux	Bamako
20	Dr. M. Traoré	Ecole Nationale Medicine & Pharmacie du Mali, Hôpital, Point G.	Bamako
21	Prof. Famagan	Head of Geography Department, University of Bamako	Bamako
22	Mr C. Sanogo	CSLP, Ministry of Economics & Finance	Bamako
23	Dr. S. Dramé	PNLP (NMCP), Ministry of Health	Bamako
24	Dr Y. Konaté	Director, CNIECS, Ministry of Health	Bamako
25	Dr D.L. Traoré	ODHD	Bamako
26	Mr L. Keita	Vérificateur, Bureau Vérificateur du Mali	Bamako
27	Mr M.D. Traoré	Vérificateur, Bureau Vérificateur du Mali	Bamako
28	Mr M. Cissé	Chef de Mission, Bureau Vérificateur du Mali	Bamako
29	Mr A. R. Maiga	Vérificateur Assistant, Bureau Vérificateur du Mali	Bamako

Interviews with health centre staff

	Name	Organization	Location
1	Mr El Hadji A. T. Traoré	CSREF	Mopti
2	Ms Penda Diallo	CSREF	Mopti
3	Dr. V. Frades-García	Cuban regional team leader, CSREF	Mopti
4	Dr H. Dicko, Dr Jamila	Chief Medical officer, CSREF	Djenné
5	Mr O. Keita	Laboratory Chief, CSREF	Djenné
6	Dr I. Abreu-Cordero	Cuban doctor, CSREF	Djenné
7	Ms J. Keita	Chef du Poste, CSCOM	Madiama
8	Dr Mamadou Cissé	Chef du Poste, CSREF	Bandiagara
9	Dr I. K. Diakité	Chef du Poste, CSCOM	Bandiagara
10	Dr Ando Guindo	BMP/CSREF	Bandiagara
11	Mr I. Guindo	President of FELASCOM	Bandiagara
12	Mr Y. Konaré	President of FENASCOM	Bamako
13	Mr. B. A. Boucoum	President of FERASCOM	Bamako
14	Dr M. Maiga	ASACOBA	Bamako
15	Mr S. Traoré	Trainer with FEMATH	Bamako

Interviews with Independent Consultants

	Name	Organization	Location
1	Ms. S. Sarin	*Djenné Djenno*	Djenné
2	Mr Husseini Cissé	CCC	Bandiagara
3	Cedric Touquet	Sociologist	Bandiagara
4	Ester Esnault	Sociologist	Bandiagara
5	Dr. Sarah Castle	Consultant	Bamako
6	Mrs Violet Diallo	Consultant	Bamako
7	Mr M. Mara	Social commentator and author	Bamako
8	Mr. M Koné	Lawyer	Bamako
9	Ms D. Simaga	Anthropologist	Bamako

Interviews with International Organizations

	Name	Organization	Location
1	Dr F. Togola	UNICEF	Sevaré
2	Dr B. Maiga Nassar	UNICEF	Sevaré
3	Ms G. Riedle	DED/GTZ	Bandiagara
4	Mr Sixte Zigirumugabe	USAID	Bamako
5	Mr S. Lutterback	PSI	Bamako
6	Mr B. Maiga	PSI	Bamako
7	Dr T. Marek	World Bank	Bamako
8	Dr. O. Diadié	World Bank	Bamako
9	Ms. Ouassa Sanogo	Canadian-Mali Co-operation	Bamako
10	Mr E. Eberhard	DED Chief	Bamako
11	Ms H. Wegat	DED	Bamako
12	Dr. G. Guindo	Guineaworm eradication programme, WHO	Bamako

Interviews with NGOs

	Name	Organization	Location
1	Mr A. Pakuy	PACR	Sevaré
2	Mr Boubacar Traoré	Amprode Sahel	Sevaré
3	Mr A.K. Maiga	Coordinator, Action Mopti	Mopti
4	Mr Fadouba Konaté	Djenné Malaria Group	Djenné
5	Dr Sekou Traoré	Kineya Ciwara, CARE Mali	Bandiagara
6	Dr M. Thera	Bandiagara Malaria Project	Bandiagara
7	Mr. L. Doumbia	*Animateur,* Kineya Ciwara	Bandiagara
8	Mr M. Guindo	PDCo	Bandiagara
9	Mr A. Kanambaye	Coordinator, Molibemo	Bandiagara
10	Mr Nouhoum Coulibaly	Gaas Mali, DED/GTZ	Bandiagara
11	Dr Y. Koné	Aga Khan Development Network	Bamako
12	Dr Nouhoum Koita	CARE Mali	Bamako
13	Mr O. Kouressy	Voix du Mali	Bamako
14	Mr S. Coulibaly	Santé Sud	Bamako
15	Dr A. Diakité	Groupe Pivot Santé	Bamako
16	Mr S. Dolo	Groupe Pivot Santé	Bamako
17	Mr N. Samaké	Director, Presse Cmmunautaire	Bamako

Village interviews

	Name	Organization	Location
1	Diallo	Village chief	Nantaka
2	Isa	Translator	Promani
3	Diallo	School director	Nantaka
4	Salif	Teacher	Nantaka
5	Ali	Traditional healer	Nantaka
6	Adda	Traditional healer	Nantaka
7	Nouhoum	Village counsellor	Promani
8	Nana	Women's association	Promani
9	Habi	CHW	Nantaka
10	Mariam	CHW	Promani
11	Adama	CHW	Promani
12	Gorou	CHW	Promani
13	Aliou	CHW	Promani
14	Bouba	CHW	Doucombo
15	Gausso	CHW	Doucombo

APPENDIX V

Summary of focus groups

Participants	Number of focus groups
Teachers	1
Traditional healers	3
Women	3
Men	2
Marabouts	1
Youth group	1
Health agents	1
Shopkeepers	1
Village counsellors	1
TOTAL	**14**

Focus group	Type	Location	Number of participants
1	Shopkeepers	Nantaka	5 (all men)
2	Teachers	Nantaka	7 (3 women, 4 men)
3	Marabouts	Nantaka	9 (all men)
4	Traditional healers	Promani	6 (all men)
5	Women's group	Promani	25
6	Traditional healers	Doucombo	5 (all men)
7	Women	Doucombo	9
8	Women	Doucombo	9
9	Men	Doucombo	5
10	Health agents	Doucombo	2 (1 man, 1 woman)
11	Men	Doucombo	5
12	Counsellors	Nantaka	2 (both men)
13	Translators	Nantaka	2 (both men)
14	Youth group	Doucombo	5 (1 woman, 4 men)