IMPACT OF NATIONAL HEALTH INSURANCE ON HEALTH SEEKING BEHAVIOR IN THE KASSENA-NANKANA DISTRICT OF NORTHERN GHANA.

By

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DECLARATION

I, Maxwell Ayindenaba Dalaba, hereby declare that the work on which this dissertation is based is the original work (except where acknowledgements indicate otherwise) and that neither the whole work nor any part of it has been, is being, or is to be submitted for another degree in this or any other university.

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DEDICATION

With much respect, I dedicate this work to Dr. Patricia Akweongo for all the guidance and support and to my family for their relentless prayers and support, and to my wife Justina Aneh and my daughter Minerva Dalaba for their love and care.

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ABSTRACT

The National Health Insurance Scheme (NHIS) was introduced in Ghana in 2003 with the aim of mobilizing additional funds for health care, promoting equal access to reasonable health care, pool health risks, prevent impoverishment, and improve the efficiency and quality of health care. The success of the NHIS in improving access to health care since its implementation and the extent to which it has impacted on health seeking behaviour has not been extensively investigated. This study examines health-seeking behaviours of insured and uninsured households on the mutual health insurance scheme on health care access in the Kassena-Nankana District (KND) of northern Ghana and to determine the factors that influence household decision to enrol into the NHIS.

The study is a cross sectional survey of 422 household heads randomly selected to represent rural, peri-urban and urban zones of KND. Data was analysed using STATA version 8.0. A binary logit model was used to determine factors that predict household enrolment into the NHIS. The choice of a particular type of provider with multiple outcomes was analysed using a multinomial logit model.

Results showed that 72% of household heads were males and the average age was 51 years. Out of the 422 respondents, 64% were insured. Household heads of age 40 years and above, being a female household head, being married, and economic wealth positively influenced enrolment into the national health insurance scheme.

Seventy four percent (74%) of the ill among the insured and 48% among uninsured sought care from public facilities while 14% among the insured and 8% among uninsured sought care from private facility. Also, self treatment among the insured was 13% and 44% among uninsured households. Results also showed that being a member of NHIS and being moderately or severely ill were associated with public health facility utilization. Household heads of 60 years or older was negatively associated with use of public health facilities. Similarly, a household that was insured, being a Muslim and the severity of illness of household member were positively associated with the use of private health care.

The findings showed that the insured were more likely to use formal care providers than the uninsured. This implies that the NHI in the KND has improved the health seeking behaviour from the hitherto use of informal providers and self treatment to preferred use of formal providers.

ACRONYMS/ABBREVIATIONS

CBHIS	Community-Based Health Insurance Schemes
CBPS	Community-Based Prepayment Schemes
CDD	Centre for Democratic Development
CHOs	Community Health Officers
CHPS	Community-based Health Planning and Services
DCE	District Chief Executive
DHMT	District Health Management Team
DMHIS	District Mutual Health Insurance Schemes
DSS	Demographic Surveillance System
EU	Expected Utility
GDP	Gross Domestic Product
HSB	Health Seeking Behaviour
IMF	International Monetary Fund
IRB	Institutional Review Board
KND	Kassena-Nankana District
KNDMHIS	Kassena-Nankana District Mutual Health Insurance Scheme
LPM	Linear Probability Model
MHI	Mutual Health Insurance
MHOs	Mutual Health Organizations
MLE	Maximum Likelihood Estimation
MNLM	Multinomial Logit Model
MOH	Ministry of Health
NDSS	Navrongo Demographic Surveillance System
NHI	National Health Insurance
NHIC	National Health Insurance Council
NHIS	National Health Insurance Scheme
NHRC	Navrongo Health Research Centre
NIHF	National Health Insurance Fund
OLS	Ordinary Least Squares
PCA	Principal Component Analysis
SSNIT	Social Security and National Insurance Trust

TABLE OF CONTENTS

List of figures

List of tables

CHAPTER ONE

This chapter presents the background, the research problem, justification and aim of the study. It also presents an overview of the study country.

1.1 Background

In the 1980s, many developing countries experienced economic difficulties which affected health care resources for the provision of health services. In an effort to increase health care resources to supplement health care financing, most of the countries that where formerly operating a free health care system started the implementation of user fees[1] in mid 1980s (Newbrander et al, 2000).

There have been concerns about the impact of user fees at primary health facilities in most developing countries. Empirical evidence shows that user fees prevent low-income households from seeking care until illness is severe (Akazili et al, 2004; and Ndiaye et al, 2005). Also, user fees created problems of inaccessibility and inequity in health care (Osei-Akoto, 2003). User fees altered health seeking behaviours and reduced the demand for formal health services, thus shifting care to the informal and often unregulated providers (Osei-Akoto, 2003).

Though user fees may represent an important source of funding for health services in Ghana (Nyonator and Kutzin,1999), the literature has shown that it has negative implications for health care utilization especially among the poor (Arhin-Tenkorang,2000; Wagstaff and van Doorslaer, 2003).

In Ghana, hospital fee regulation was introduced in 1985 and the user fee popularly called "Cash and Carry" was introduced in 1992. Under this policy, patients paid partly for consultations and diagnostic procedures, and fully for medicines supplied.

[1] User fee is a fee charged at the place and time of service used within a public health facility and paid on out-of-pocket basis (McIntyre, 2007).

The introduction of the user fees in the public sector decreased the utilization of public services, increased the use of other treatment sources such as the private health facilities, drug stores and traditional healers (Arhin-Tenkorang, 2001).

In 2002, it was observed that about 80% of the Ghanaian population who needed health care at any point in time could not afford it (Ministry of Health, 2002). Health cost increased without a corresponding increase in the country's per capita Gross Domestic Product (GDP) on health. This led to a clarion call for the government to consider other ways of financing health care. Health insurance, which is one of the ways of financing health care, was considered due to its potential to raise additional revenue for health care, whilst protecting or possibly increasing access to services amongst low-income households (Jowett et al, 2003).

From 1992, a number of pilot schemes were established by the government to test the viability and feasibility of this alternative health care financing. The pilot schemes showed an increase in utilization and access to health care and promoted equity and efficiency in the piloted communities. By 2003, the number of voluntary health insurance schemes in the country had increased to 168. (Atim et al, 2001; Baltusan et al, 2006; Agyepong and Adjei, 2008).

The success stories of these pilot schemes prompted the government of Ghana to develop a national policy of financing health care that would increase access to health services for her citizenry. In the light of this, the National Health Insurance was introduced as a strategy to improve financial access to quality health care services. The Government of Ghana passed the NHI Act in 2003, and it became operational in 2004. The existing CBHIS stopped operation and members joined the district mutual health insurance scheme (Sulzbach et al, 2005).

The success of the NHIS in improving access to health services has not been extensively investigated especially in small geographical areas .This study therefore examines the impact of the National health insurance scheme on health seeking behaviour in the Kassena-Nankana District (KND) of northern Ghana.

1.2 Research Problem

Before Ghana's independence in 1957, health care had been financed through taxation, user fees and donor support. After independence, health services continued to be financed through general tax and donor support. Complying with the World Bank and the International Monetary Fund (IMF) recommendation in 1985, the Ministry of Health (MOH) introduced user fees at points-of-service in public health facilities. The aim was to recover at least 15% of recurrent operating costs.

This policy of user fees (cash and carry) led to a significant reduction in the use of health services in Ghana especially in the rural poor areas (Gyapong et al, 2007). Reports from annual panel surveys conducted in the KND revealed that hospital attendance was 50 % in 2000, fell to 46% in 2001 and slightly increased to 48% in 2002. (Akazili et al, 2002).

The introduction of the national health insurance scheme was therefore aimed to replace out-of-pocket payments for health care at the point of service in order to improve access to formal health care.

The NHIS is operated as a decentralized national health insurance system embracing district mutual health schemes in all the districts in Ghana.

The introduction of the NHIS is expected to change attitudes and behaviour of households/individuals in seeking health care especially among different socio-economic groups. However, since the inception of the NHIS, there has not been any systematic documentation and evaluation of NHIS on health seeking behaviour in KND which would allow the monitoring of the goals and outcomes of the NHIS. Factors affecting household decision to participate or not to participate in the scheme and treatment seeking after four years of implementation have not been explored.
This study aims to investigate the effect of the NHIS on the health seeking behaviour in the KND.

1.3 Justification of study

Health Insurance schemes are supposed to reduce unforeseeable or unaffordable health care cost through calculated and regular paid premiums. Given the uncertainty with which ill health affects households, risk sharing is both an equitable and an effective way of financing health care. Health insurance schemes are to improve access to care and to reduce individual spending at the time of use, which is particularly important for the poor and vulnerable. Consequently, the National health insurance in Ghana is expected to change health treatment seeking patterns from the use of informal providers or self treatment to the use of formal providers.

A study carried out in Ghana on the effects of Mutual Health Organizations (MHO)/NHIS on health seeking patterns was conducted at the inception of the NHI when few districts had rolled out the scheme (Sulzbach et al, 2005). Results indicated that the insured respondents were more likely than uninsured to seek treatment.

After four years of nationwide implementation of the NHIs and an increase in enrolment, current understanding of health seeking behaviour, the patterns and levels of enrolment related to the scheme need to be explored to inform decision making.

The findings of this study would add to the limited literature on the effect of the national health insurance scheme on access to health care using household level data. Results of the study will inform policy makers on the predictors of enrolment into the NHIS, whether the scheme includes the poor and also whether insured households are more likely to seek treatment from formal providers than their uninsured counterparts. The findings of the study would also provide relevant information on variables that have to be considered when re-designing and assessing the NHI to improve its effectiveness.

1.4 Aim and Objectives of the Study

1.4.1 Aim

The aim of the study is to examine health-seeking behaviours of households that are insured and those that are not insured in order to determine the effect of the mutual health insurance scheme on health care access in the KND.

1.4.2 Specific objectives

1. To determine which household characteristics predict enrolment into the NHIS.

2. To determine the type of health care providers used by insured and uninsured households (public, private, self treatment).

3. To determine differences in socio-economic characteristics of insured and uninsured households.

4. To provide recommendation on improving the NHI in the KND.

1.5 Overview of Country

Geography

Ghana is an Anglophone country located on the West coast of Africa, about 750km north of the equator on the Gulf of Guinea. The capital city is Accra, located on the Greenwich meridian. The country has a total land area of 239,000 km² and shares boundaries with Burkina Faso to the North, Cote d'Ivoire to the west and Togo on the east. Ghana's population was estimated at 18,845,265 (March 2000 census) and 22.1 million (2005 UN estimate).

Political and administrative organization

Ghana was the first country in sub-Saharan Africa to win independence (i.e. 1957) from the British council rule. Since independence, Ghana has experienced a turbulent political history, with quite a number of coups d'états. However in recent times, the country has experience relative political stability and has had regular parliamentary and presidential elections. Ghana has now an elected Government with a President, a Cabinet, a Parliament and an independent judiciary. The country is divided into 10 regions and 138 decentralised districts. The districts are administered by the District Assemblies and headed by a District Chief Executive (DCE), who is nominated by the President and endorsed by the district elected Representatives.

Climate

Ghana has a tropical climate, characterized most of the year by moderate temperatures, generally 21-32°C (70-90°F), constant breezes and sunshine (Ghana Statistical Service, 2005).There are two rainy seasons, from March to July and from September to October, separated by a short dry season in August and a relatively long dry season in the south from mid-October to March. Annual rainfall in the south averages 2,030mm but varies greatly throughout the country, with the heaviest rainfall in the Western Region and the lowest in the northern Regions.

The Macro-Economy

Ghana is classified as a low-income economy. Like most developing countries, Ghana is a producer of primary commodities. Her major exports include cocoa, coffee and palm oil produced mainly in the middle belt and shea-nuts produced in the north. In recent times, Gold has picked up as a substantial contributor to the export trade and it is the biggest source of foreign exchange. The domestic economy continues to spin around subsistence agriculture, which accounts for 35% of GDP and employs 60% of the workforce, mainly small landholders[2].The GDP as at 2005, was US$400 and the economic growth rate for 2002 was 3.7% which has increased

[2] http://www.ghanaweb.com/GhanaHomePage/economy/statistics.php (Accessed on the 14/05/09)

to 7.3% in 2008[3]. There is mass unemployment and underemployment and widening of the gap between the rich and the poor. About 20% of the poorest enjoy only 8.4% of the national income, whilst the richest 20% enjoyed as much as 41.7% (Gyapong et al, 2007).

Disease Burden

The pattern of diseases in the population has not shown any significant changes. Malaria still tops the list of diseases managed at the outpatient departments of clinics and hospitals (44%), followed by upper respiratory tract infections (6.8%), diseases of the skin (4.3%) and diarrhoeal diseases (4.2%). Hypertension, a non-communicable disease commonly found in adults, also falls within the top 10 causes of outpatient visits in Ghana (2.8 %).The high prevalence of hypertensive diseases and other chronic conditions is reflected in the aging population (Ghana Statistical Service, 2005).

The non-communicable diseases are increasing with lifestyle changes. Hypertension, diabetes, chronic renal diseases, cancer and mental diseases are increasing and there is a rise in alcohol and tobacco use, and substance abuse. Road traffic accidents are now responsible for approximately 1,300 deaths and 10,000 injuries per year (Gyapong et al, 2007).

According to HIV sentinel survey data, the national median prevalence has declined for a second time from 3.1% in 2004 to 2.7% in 2005 (Gyapong et al, 2007).

1.6 Organization of the dissertation

The dissertation is divided into five chapters. Chapter one gives an introduction of the study which include background, the research problem, justification and aim of the study. It also presents an overview of the study country. Chapter two consist of a

[3] http://www.ghanaweb.com/GhanaHomePage/NewsArchive/artikel.php?ID=162010 (Accessed on the 13/05/09)

literature review involving principles and types of health insurances; basic concepts of need, access and equity to health care; national health insurance in Ghana; factors that determine enrolment in health insurance; and health insurance and health seeking behaviour and conceptual framework.

Chapter three describes the methodology used in the study and the limitations of the study. The results of the study are presented in chapter four .In chapter five, discussion of the study results are presented whiles conclusions and recommendations for policy and further research are presented in chapter six.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

This chapter is divided into 7 sections. Section 2.1 presents the basic principles and types of health insurance. Section 2.2 presents the basic concept of need, equity, and access to health care. Section 2.3 presents the overview of the national health insurance in Ghana. Section 2.4 looks at the factors that determine enrolment into health insurance whiles 2.5 looks at health insurance and its effects on utilization patterns. Section 2.6 presents the gaps of the literature review whiles section 2.7 describes the conceptual framework.

2.1 Principles and types of health insurance

2.1.1 Principles of health insurance

There are several descriptions and definitions of health insurance but the commonality in these definitions is in the fact that health insurance is a risk sharing or pooling concept and allows financial access in the event of illness.

The Organization for Economic Cooperation and Development (2004) for example defined health insurance as "a way to distribute the financial risk associated with the variation of individuals' health care expenditures by pooling costs over time (pre-payment) and over people".

Arhin-Tenkorang (2000) also defined health insurance as a mechanism of spreading risk of incurring health care expenses over a group of individuals or households.

Similarly, health insurance can be defined as a risk-sharing mechanism that lowers the out-of-pocket price for health care at the time of purchase by smoothing health payments across individuals and time (Schneider, 2004).

According to Jowett et al (2004) health insurance offers the potential to raise additional funds for essential public services and through risk sharing, to enhance access amongst poorer sections of the population. Health insurance enables access to care by protecting individuals and families against the high and often unexpected costs of medical care, as well as by connecting them to networks and systems of health care providers (Hoffman and Paradise, 2008).

The common theme in these different definitions and principles points to the fact that health insurance is about uncertainty in ill health, risk pooling, and financial protection. Health insurance assists people to save against uncertainty to be able to meet future health cost. In addition, health insurance promotes risk pooling i.e. sharing risk across a group of people so that unexpected health expenditure does not fall exclusively on an individual or household and that individual and households are protected from catastrophic expenditure[4] (McIntyre, 2007). Health insurance also involves income and risk cross-subsidization, where healthy members cross subsidize the ill and also the rich pay more to cross subsidize the poor. Health insurance not only provides financial protection by reducing out -of –pocket payments, but also a way of ensuring access to quality health care (Nyaman, 1999).

2.1.2 Types of Health Insurance

There are two main categories of health insurance schemes i.e. mandatory and voluntary health insurance.

Mandatory health insurance which is often called Social Health Insurance (SHI) is defined as "an insurance system that the law requires certain population groups or the

[4] Catastrophic expenditure refers to "expenditure at such a high level as to force households to reduce spending on other goods (e.g. food and water), to sell assets or to incur high levels of debt, and ultimately to risk impoverishment". (McIntyre, 2007).

entire population to adhere to" (McIntyre, 2007 p.3). Similar definition was also given by Kutzin (2000); as a system of health care financing through contributions to an insurance fund that functions within a tight framework of government regulations. This type of scheme is usually compulsory for specified individuals like the formal sector employees.

The contributions to the scheme are normally made to a central fund, or to smaller fund that are coordinated at a central point (McIntyre, 2007). Mandatory health insurance schemes are set up on the principle of social solidarity. In such schemes, individuals contribute to the insurance according to their ability to pay and benefit from coverage according to their need for health care.

National Health Insurance (NHI) is a form of mandatory health insurance, but a type of insurance that covers the entire population (universal coverage) and includes individuals who have not personally contributed to the scheme(McIntyre, 2007).That is, if social health insurance covers the entire population, it is often referred to as a National Health Insurance (NHI). Countries practicing Social Health Insurance include Australia, Canada, Japan, Republic of Korea, Singapore, Thailand, Mexico and Ghana.

Voluntary health insurance or private health insurance is one that an individual or group can subscribe without a legal requirement to do so (McIntyre, 2007).

A form of voluntary health insurance that has become widespread in Africa and Asia in recent times is Community-Based Health Insurance Schemes (CBHIS), at times called Mutual Health Insurance (MHI) .CBHIS is generic expression used for large variety of health financing arrangements such as community health funds, mutual health organizations, rural health insurance, revolving drug funds, and community involvement in user-fee management (Dror and Preker, 2002). CBHIS are "autonomous, not- for- profit organizations based on solidarity between members that are democratically accountable to them" (Atim, 2000 p.4). These schemes are largely offered in the informal sector (e.g. the agricultural sector) or to formal sector groups where social insurance is not present (Bennett et al, 1998). The reasons for

setting up CBHIS vary, however it includes both resource mobilization for health care and financial protection (Arhin-Tenkorang, 2001).

In sub-Saharan Africa, CBHIS are more common in West Africa than in Central or East Africa (Jutting, 2001).In some countries such as Cote d'Ivoire and Tanzania, CBHIS are mainly found in urban settings, whiles in other countries (Uganda, Benin and Ghana), they mainly exist in the rural areas (Jutting, 2001).In fact, CBHIS is now part of the national health strategy in Benin, Rwanda, Senegal, Tanzania and Ghana (Chankova et al, 2008).

A private voluntary health insurance on the other hand refers to health insurance that is operated for profit based on market principles (MHO, 2002).In this type of insurance scheme, premiums are based on calculated risks of particular groups and individuals incurring health care costs. For instance, people with chronic conditions or the elderly would pay a greater premium than people likely to require less costly health services.

In summary, in community-based health insurance schemes, contributions are usually community rated, not for profit, uniform benefit package and less discriminatory and are based on the fundamental principle of community solidarity. On the other hand, private voluntary health insurance is risk rated, profit oriented, uneven benefit package and discriminatory. CBMHIS are therefore more desirable in developing countries than private health insurance schemes.

2.2 Health Insurance in Ghana

Ghana is operating a National Health Insurance Scheme (NHIS) which is a combination of voluntary and mandatory health insurance systems. The NHIS is designed to incorporate those in the informal and formal employment sectors in a single insurance system.

The Government of Ghana passed the National Health Insurance Act in 2003, and it became operational in 2004. The act specified that the following types of health insurance schemes may be established and operated:

- District Mutual (Community-based) Health Insurance schemes in all the 138 districts in the country. Membership is opened to all residents of that district.

- Private mutual health insurance schemes. This could be any group or people coming together to form their own mutual health insurance scheme.

- Private commercial health insurance schemes. This could be a private for-profit company and may not be restricted to a particular location in the country. Membership is open to all Ghanaian residents.

In addition, the NHI act mandates the establishment of an independent regulatory body known as the National Health Insurance Council (NHIC) to ensure the implementation of the NHIS programme. The responsibilities of the NHIC include: registering, licensing, and regulating the health insurance schemes; accrediting and monitoring health care providers operating under the scheme; educating the public in relation to health insurance issues; resolving complaints arising from the health insurance schemes; and developing policy proposal on health insurance for submission to the Ministry of Health. The council also has the responsible for managing the National Health Insurance Fund (NIHF).In fact, for any of the health insurance to operate, it has to be registered by the NHIC either as a company limited by guarantee (i.e. for the district mutual or private mutual) or as a limited liability company (i.e. for the private commercial scheme) .

The act affords all Ghanaians the opportunity to join a health insurance scheme of their choice; however, it is compulsory for anyone living in Ghana to belong to a health insurance scheme (Act 650, 2003). Meanwhile, the government of Ghana will support only the District Mutual Health Insurance Schemes (DMHIS) through government subsidies to the DMHIS thus creating a strong incentive for people to join the DMHIS instead of the other schemes.

The vision of the NHIS in Ghana is "to assure equitable universal access for all residents of Ghana to an acceptable quality of a package of essential health services without out-of-pocket payment being required at the point of service use" (Ministry of Health, 2002,p7) .

The goal of the NHIS is that "health insurance will replace out-of-pocket payment for a certain minimum benefit package at point of service use over time" (Ministry of Health, 2002, pg7).

The policy objective of the NHIS is that, "within the next 5 years, every resident of Ghana shall belong to a health insurance scheme that adequately covers him/her against the need to pay out of pocket at the point of service in order to obtain access to a defined package of acceptable, quality health services"(Government of Ghana, 2004).

The NHIS seeks to achieve an equitable access to health care delivery on the basis of need rather than socio economic status. The scheme seeks to achieve coverage of 30-40% of the population by 2010 and 50-60 % by 2015-20 (Government of Ghana, 2004).

2.3.1 Finance of the NHIS

The government sets the minimum benefits package, licenses and regulates the health insurance schemes, certifies the providers, and collects a national insurance levy and uses it to subsidize premiums for the poor.

The NHI fund(NHIF) is financed through a National Insurance Levy of 2.5 % on specific goods and services, 2.5 % payroll deduction for formal sector employees as part of their contribution to the Social Security and National Insurance Trust (SSNIT) fund and government allocations(includes general tax and donor funding).

For those in the informal sector, community health insurance committees will categorize residents into social groups based on economic status, and those identified as poor will be exempt from paying premiums (Government of Ghana, 2004).

The policy stated that informal sector workers would pay between a minimum of GH¢7.20 (7.20 US$)[5] to a maximum of rate of GH¢ 48.00 (48.00 US$) to their district mutual health insurance schemes. Contribution into the scheme in the informal sector is voluntary.

For those employed in the formal sector and are SSNIT contributors, they will have their premium deducted at source from their SSNIT contributions. A spouse of a SSNIT contributor who is not a SSNIT contributor is to pay the premium set for the informal sector .Registration into the scheme is by entire household so as to avoid the risk of adverse selection[6].

The NHIF allocates funds to each DMHIS so as to transfer the contributions of formal sector workers obtained from the SSNIT payroll contributions, partially subsidise contributions of low-income households, fully subsidise contributions for the indigent and serve a risk equalization and reinsurance function. The NHIS policy exempts certain persons from the payment of the premium. However, except the indigents, the rest are required to pay registration fees before they can enrol into the district-wide schemes. The payment of registration fees is per person per annum in the household .The persons exempted from paying premiums are:

- Children less than 18 years of age whose parents or guardians are contributors.
- Children less than 18 years of age whose parents or guardians are proven by the scheme to be single parents.
- Pensioner under the SSNIT Scheme.

[5] Exchange rate as at November 2008 was 1US$= 1GH¢

[6] Adverse selection: the likelihood that a person with high risk of illness and a greater need for frequent health care will be more likely to enrol in a health insurance scheme than a person with a low risk of illness and less need for frequent health care use.

- Persons 70 years or above
- Indigents.

Registered members of the scheme are allowed to access services outside their districts schemes.

2.3.2. Benefit Package of the NHIS

The NHIS covers a minimum benefit package of diseases which every district-wide scheme must cover. This package covers about 95% of diseases prevalent in Ghana.

The minimum benefit package includes: outpatient consultations, essential drugs, inpatient care and shared accommodation, maternity care (normal and caesarean delivery), eye care, dental care, and emergency care. Certain public health services historically provided for free, such as family planning and immunizations, will be covered under the NHIS. District Mutual Health Organizations (MHOs) must adhere to the defined benefit package.

Services that are viewed as either unnecessary or too expensive are excluded from coverage. These include cosmetic surgery, drugs not listed on the NHIS drugs list (including antiretroviral drugs), assisted reproduction, organ transplantation, and private inpatient accommodation.

The general coverage of the NHIS is encouraging and as at December 2007, it was estimated that 55% of the population were registered into the NHIS (Sulzbach et al, 2008).

The design of the schemes at the district levels are the same but the operations and coverage at the district level and between urban and rural areas such as the Kassena-Nankana district may however vary as we look at differences in these small geographic areas.

2.3.3 The Kassena-Nankana District Mutual Health Insurance Scheme (KNDMHIS)

The Kassena-Nankana District Mutual Health Insurance Scheme (KNDMHIS) was set up in 2005 .The KNDMHIS implementation management team for the district includes: the District Scheme Manager, Accountant, Management Information System Manager, Public Relations Officer, Claims Manager and Data entry clerks. It also includes a District Health Committee, registration assistants in the District's 54 electoral areas, and 30 Health Insurance Communities with a five-member committee for each community.

In 2005, the scheme had registered 59, 205 members representing 38.40% of the total population of the district. Enrolment has increased in the district over the past years and as at the end of 2008, membership was 85,976 representing about 50% of the population (KNDMHIS 2008 annual report) slightly lower than the national coverage rates.

A part from the exclusion of expensive services, there is no limit to the number of times services are utilized and the insured can consult any public clinic, health centre or hospital. In addition, the scheme members can also access health services at the private clinic in the district.

2. 4 Factors determining enrolment into Health Insurance

Various theories or models have been used to examine factors that influence individual or household to enrol into a health insurance scheme. Research on determinants of enrolment is increasing in recent times and it is being helpful to policy makers as it helps improve the health needs of people.

Below we present theoretical and empirical factors that influence individual or household enrolment into health insurance scheme.

2.4.1 Theories on decision to enrol in a health insurance programme

In general, insurance demand studies use expected utility (EU) theory to explain individual/household's decision of whether to insure or not to insure. Under this theory, insurance demand is a choice between an uncertain loss that occurs with a probability when not insured and a certain loss such as payment of premium (Schneider, 2004).The theory presumes that people are risk averse and usually make choices between taking a risk that has diverse implications on wealth. During the time of insurance choice, people are uncertain whether they will be ill/injured or not, and of the associated financial consequences. Health insurance lessens this uncertainty. Through health insurance, they can spread out their income over two different states, ill or not ill, which makes the aggregate outcome fairly certain. This certainty makes it possible for the insured to attain a higher utility in an event of illness than those without insurance. In view of that, the insurance demand reflects individuals' risk aversion and demand for certainty, meaning that the more risk averse individuals are, the more insurance coverage they will buy (Begg et al. 2000).

However, Prospects theory challenges the expected utility theory, and stated that, people insure from a gain perspective and not because insurance reduces uncertainty (Schneider, 2004). Under this theory, it is assumed that when a premium level is given, people will first assess their individual health risk level and the deviation from it (for example, my health is bad and it could get worse). They possibly will decide not to insure because of a gain prospect i.e. they anticipate to pay less for their health risk than the deviation from it. This is also a risk, for the deviation may be more than expected and cause a loss. The theory therefore states that, with respect to losses, individuals are risk preferring. Thus, individuals will only insure if the loss will occur with certainty, and not because they are risk averse as suggested by EU theory (Schneider, 2004).

Consumer theory has highlighted the association between wealth /income and health insurance enrolment. The theory assumes that when consumers are perfectly informed, they maximize their utility as a function of consuming a variety of goods, given relative prices, their income and preferences (Schneider, 2004).Therefore

income/household wealth determines how much of different goods rational consumers will buy. In the light of this, health insurance is expected to be a normal good with a positive income elasticity of demand, meaning the poor are less likely to enrol into a health insurance scheme. The more disposable income a person has, the more likely they are to pay and be part of an insurance scheme since they can afford it (King and Mossialos, 2002).

Economic theory also revealed that age is an important variable that influences the decision to insure or not. The theory predicts that as an individual advances in age, their inherited health stock depreciates at an increasing rate as a result of the biological effects of ageing, thus tending to increase investments in health including health insurance (King and Mossialos, 2002; and Kirigia et al, 2005). In other words, a positive relationship is expected between age and enrolment into health insurance scheme, since those who are elderly are more likely to be of ill health and require readily available medical coverage.

The theories, particularly theory of expected utility have not provided sufficient guidance on the variables that might affect enrolment into health insurance. It is therefore necessary to look at empirical evidence to aid in the model specification of the present study.

2.4.2 Empirical review on decision to enrol in a health insurance programme

There is limited literature relating to factors that determine membership into health insurance schemes. The few studies conducted around this topic have identified various factors that increase or decrease the propensity to enrol into a health insurance programmes. Most of the analysis of the determinants of enrolment into health insurance scheme used binary discrete choice models using either the logit or probit forms of the probability function.

Some of the factors revealed by various studies that predict enrolment into health insurance scheme include demographic, economic and social factors, where the actors are individual, households and community.

Below we present how the household head, household and community characteristics might influence enrolment into health insurance.

Household head Characteristics

The variables frequently used as household head characteristics that influence enrolment into health insurance are age, gender, marital status, education and occupation.

Age and gender are both biological variables that have been identified to influence decision to either insure or not to insure in a health insurance programme. These variables are significantly related to health insurance enrolment as it is closely associated with morbidity. On the average, women live longer than men but experience more illness. On the other hand, men experience fairly little illness but die more quickly when illness occurs. These differences in health between men and women according to Fan (2003) are attributed to factors such as risk taking, use of health care and biology.

Studies have shown that increase in age and being a female are positively related to enrolling into a health insurance scheme. In order words, older household heads and female headed households are more likely to join community based health insurance schemes than younger and male headed household heads (Diop, 2005; Sulzbach et al, 2005). However, some studies did not find age and gender to be significantly associated with enrolment into a health insurance scheme (Supakankunti, 2000; Jutting, 2003).Attitudes to health care might vary between settings. For instance in the KND (the site of this study) cultural beliefs and gender roles may influence health care, and consequently would influence enrolment into health programmes such as the NHIS.

Marital status is a variable that has not been given much consideration in many studies conducted on factors that influence household's decision to enrol into health insurance. However, it has long been observed that married people live longer than

the unmarried. In a study conducted in Thailand, it was found that never married, divorced and widowed men are at greater risk of mortality than married men (Fan, 2003). Following this, one would expect that the never married, divorced and widowed persons to be more likely to insure than the married. Nevertheless, in a study conducted by Kirigia et al (2005) on the determinants of private health insurance ownership among South African women, married persons were more likely to have insurance cover than those who are single, separated or divorced. This results may be due to the need to protect their children, higher combined income, and being more averse to the risk of catastrophic health expenditures than the other unmarried groups. Therefore, there is limited evidence in the association between household head marital status and insurance enrolment.

Educational level is inter-related to attainment of employment and level of income. That is to say, people who are educated or attained higher levels of education are likely to be employed (e.g. formal employment) and build up income/wealth. Educational level increase stock of knowledge about health and influences whether to participate in an insurance programme or not. Studies have revealed that enrolment into health insurance is strongly associated with educational level and employment. For example, findings from Diop (2005) and Franco et al (2008) found that individuals from households headed by people who have secondary or higher education and were employed (agriculture/commerce) were more likely to enrol in a voluntary health insurance scheme than households headed by people with no education and no occupation.

Household Characteristics

Household characteristics such as wealth, religion and household size influence the decision to enrol into a health insurance programme.

Given that enrolling into health insurance programme involves paying premium, of course the decision to enrol or not would be influenced by wealth. Evidence has shown that income or household wealth is an important economic factor that

determines enrolment into health insurance (Bennett et al, 1998; Jutting, 2001; Ranson et al, 2005; De Allegri et al, 2006; and Franco et al, 2008).

However, higher income or households in higher wealth quintiles does not necessarily mean that they would enrol. For instance, in the study conducted by Sulzbach et al (2005) the regression analysis on the determinants of household enrolment among Nkoranza households did not find wealth as a significant predictor. Similar results were obtained by Gumber (2001); and Schneider and Diop (2001) showing that wealth was not a significant predictor of enrolment.

Cultural beliefs or religious affiliations of individuals or households have not been used in many studies as the determinants of enrolment into health insurance. Beliefs and attitudes to health may affect people's decision to participate in a health insurance programme. It has been observed in other settings that putting money aside for health care is perceived to be attracting diseases (De Allegri et al, 2005). This tends to have an effect on health insurance participation.

Furthermore, health care and hence health insurance enrolment may be influenced by ethnicity. Some ethnic groups are more receptive of new initiatives whiles others are not. In a study in Burkina Faso by De Allegri et al (2006), it was found that the "Bwaba" an ethnic minority, were more likely to enrol in a community health insurance than the other groups. It was revealed that the Bwaba had different risk perceptions concerning diseases and showed greater openness towards new initiatives than the other ethnic groups.

Though the KND is close to Burkina Faso, there is a vast difference in beliefs and ethnic groupings between the two settings which are likely to affect enrolment and the direction of the effect could be positive or negative.

Household size is an important variable that has been given much consideration on health insurance enrolment studies. Naturally, households with many members are expected to be less likely to enrol into health insurance than households with fewer

members. All things being equal, an increase in household size will reduce the per capita income of the household hence decreasing the propensity to enrol.

Though studies have consistently revealed household size as predictor of enrolment into MHOs, the association with enrolment is usually mixed i.e. either positive or negative association with enrolment. For instance, in Franco's (2008) results, household size had a significantly positive association, while it had a negative association in Kirigia's (2005) study in South Africa. The negative association could due to the fact that enrolment was based on individual enrolment and not household enrolment. In fact in the study by Schneider et al (2001), it was observed that large households with more than five members had a greater probability of enrolment in CBMHIS than the others. However what needs to be noted is that, in that scheme, contributions were flat irrespective of household size (up to 7 members).This implies that the average contribution per household member for larger households will be lesser than smaller households, thus encouraging enrolment. This is contrary to the KNDMHIS were each person (except the exempt group), is expected to pay the appropriate premium regardless of number of members of the household.

Community Characteristics

Community characteristics such as area of residence may determine household enrolment into health insurance. Households located in urban, rural or peri-urban may influence decision to enrol. Area of residence is linked with quality of care. Urban areas have more and better quality health facilities than the rural or peri-urban areas (Franco et al 2008). Household location or distance to health facility has been found to influence enrolment into health insurance scheme (Carrin, 2003; and De Allegri et al, 2006).For instance, the study conducted by Schneider and Diop (2001) revealed that, households that were situated within less than 30 minutes distance to a health facility had a much greater likelihood of enrolling in a CBHIS than those who lived far from health facilities.

Other factors that influence enrolment into health insurance programmes include the benefits covered, level of solidarity and quality of care offered where the insured sought care.

The benefit offered can influence peoples' decision to enrol into a health insurance scheme .For instance in the study conducted in India by Devadsan et al 2004, it was revealed that the ACCORD community health insurance scheme had high patronage from the community because of the attractive benefit package. The benefit package includes OPD and inpatient care and it was noted that these packages suited the needs of the people and influenced their membership.

The level of solidarity may also influence membership of community based health insurance scheme. Solidarity is the expression of empathy with the more disadvantaged without expectation of direct reciprocal obligation from the recipient at the time of giving. However the giver is assured of reciprocity in the future if he/she also becomes disadvantaged or is in need (Atim, 2000). Thus, community members may decide to join a community-based health insurance scheme or a NHIS so as to pool resources into a common fund to help each other when in need of health care. For instance, the success of the Nkoranza community based health insurance scheme in Ghana was attributed to the level of solidarity in the community (Atim et al,2001).

Quality of care offered through the scheme may also influence the decision to enrol into a health insurance programme. A study by De Allegri, Sanon and Sauerborn (2006) on the factors that influence demand for health insurance in rural West Africa revealed that poor quality of care has negative influence on enrolment. The results showed that 16 out of the 32 household heads interviewed expressed dissatisfaction with the quality of care at the contracted health facilities. Issues raised included long waiting times, excessive prescribing and differential treatment of patients. Similarly, results of the study on declining subscriptions to the Maliando Mutual Health Organisation in Guinea revealed that the poor quality of care offered at the contracted health facilities resulted in a drop in enrolment from 8% in 1998 to 6 % in 1999 (Criel and Wealkens, 2003).

2.5 Health insurance and Health seeking behaviour or Utilization

There is extensive literature on health seeking behaviour (HSB) in general but few studies on HSB in relation to health insurance. Health seeking behaviour refers to the activities that are embarked on by individuals or households in response to symptom experience (Jain et al, 2006). Health behaviour includes all those behaviours associated with establishing and retaining a healthy state, in addition to aspects of dealing with any departure from that state (Hausmann-Muela et al, 2003). HSB aims to explain how individuals or households use or get access to different types of health services when taken ill.

Various models have been used in HSB studies which include: the Health Belief Model, the Theory of Reasoned Action and the Theory of Planned Behaviour, Health Care Utilization Model, the "four As" and Pathway models. The final behaviours of individuals include: home remedies (homeopathic, pharmaceuticals), seeking advice from the pharmacist, over the counter drugs from shops, traditional healers, faith healers, private medical facilities, and public health services.

These models identified various factors that influence individual or household HSB and these factors include health insurance, socio-economic, demographic and cultural factors.

The review below focuses on studies that are carried out to primarily determine the effect of health insurance on HSB. In the review, utilization would be used interchangeable to demote health seeking HSB.

2.5.1 Empirical review of the effect of Health insurance on Health Seeking Behaviour (HSB)

Health insurance whether social or commercial health insurance scheme has the potential to increase access to health care. Health insurance reduces the financial barriers to health care and hence it is expected that the insured will utilize care more than the uninsured.

For instance, in the Rand health insurance experiment conducted in USA, they used a randomized study design to investigate the effect of cost sharing on health care use. The study found that cost sharing prevents the poor from seeking care. Even far lower cost sharing creates financial barriers to care that are difficult for the poor to overcome. The consumption of health services in the population increased as the level of out-of-pocket expenditures declined (Jowett et al, 2004).

Waters (1999) in his study in Ecuador used probit estimation techniques to study the effect of health insurance on utilization of curative and preventive care. The findings showed that insurance has a positive effect on the utilization of curative care but, only a small effect on preventive care. Also, the study showed that not being insured is associated with lower usage of public health facilities, and that though access to health care increases under the insurance, it exacerbates income related inequalities in service utilization across the whole society.

Similar result was obtained in a more recent study by Franco et al (2008) using a case control study design. The logit regression analysis controlled for individual, household and community characteristics. Results showed that, compared with non-members and lapsed members, up-to-date MHO members were 1.7 times more likely to seek treatment for fever in a modern health facility; 3 times more likely to seek modern and /or oral rehydration therapy for diarrhoea in their children less than 5 years; 2 times as likely to make at least 4 prenatal visits during pregnancy. Other studies using cross sectional study designs also confirmed increase in access to health care due to insurance (Supakankunti, 2000; Jutting, 2001, 2003; Jowett et al, 2004).

However, it cannot be concluded that health insurance will automatically increase utilization to health care in all settings. For instance, in a study in Ghana by Hatt et al (2009), results showed that the NHIS did not increase the likelihood of using maternal health services (prenatal care, skilled attendance at delivery, facility-based births, or C- sections).

Though several studies showed increases in utilization of formal health care due to health insurance, an issue of concern is moral hazard[7].The insured might abuse health services because of the perception that they have paid to be members and must use the services even though not sick.

In Vietnam, Jowett et al (2004) carried out a study on voluntary health insurance and treatment seeking behaviours. Decision regarding type of provider sought and type of care received were analysed using a multinomial logit model. Results showed evidence of moral hazard, as poorer insured individuals tended to use inpatient facilities and public providers to a far greater extent than the poorer uninsured individuals, a difference that is not found at higher income levels.

In Ghana, the exempt group is large and with the low current premium, moral hazard will affect the long term stability of the NHIS. For instance, in 2006, about 72% of the population were exempted (GHS review, 2006).

Aside health insurance, there are other factors such as socio-economic, demographic and cultural factors that could possibly increase or decrease utilization of health care.

An important variable that may influence health seeking behaviour is income or household wealth. Since accessing health care involves cost, income is expected to influence HSB. However the association is not always predictable. A systematic review of the impact of MHO was conducted by Chankova et al (2008), involving Ghana, Senegal and Mali. The studies incorporated insurance status as one of the covariates, in addition to individual characteristics (age, sex, severity of illness) and household characteristics (wealth, education, occupation, area of residence and gender of household head).The results reveal stark contrasts on expected variables. In fact, there was no variable that emerged consistently significant in all the countries, including insurance and wealth. Whiles some variables were positively significant in one or two countries, they are either negatively significant or not significant in the

[7] Moral hazard is referred to as a tendency of entitlement to the benefits of health insurance to act as a strong incentive for people to consume more and better health care and a weak incentive for them to maintain a healthy lifestyle (McIntyre, 2007).

other countries. What need to also be noted is that variables such as religion, marital status and ethnicity were ignored, in these studies.

Cultural beliefs, religious affiliation or ethnicity may influence access to health care or the type of health care to seek. Even though these may appear difficult targets for interventions, it is still important to include them in studies. Cultural factors relates to beliefs about disease causation and efficacy of different types of care. Most often, people may use home remedies and consultations with traditional healers (Nyamongo, 2004). The culture of a particular setting determines which type of care to access. Similarly, traditional or herbal medicines play an important part in the health systems in Ghana, especially in poor rural areas such as the KND (Akazili et al, 2004). It is therefore possible that both insured and uninsured may self treat with herbs than to seek care at formal health facilities. Also, there are certain diseases that it is believed that it can best be treated via traditional remedies than formal treatment.

Marital status has not been given many considerations in most studies around this topic. Marital status relates to child bearing and subsequently reproductive issues hence may influence HSB. In the Ghanaian setting, marital status plays an important part in health seeking. For example, in a study by Buor (2004) on the determinants of utilization of health services by women in rural and urban areas in Ghana, the results showed that married women in Kumasi metropolis (urban) were more likely to seek care from formal health facility than the unmarried.

Educational level of an individual or household head may influence health seeking behaviour. Educational level influences when, how and which type of health service to use. Educated people are perceived to have knowledge about diseases and the need to seek proper care, hence one would expect that individuals with higher educational level would seek care when ill or visit a formal health facility than to self treat. However, it is not always the case as the contrary could prevail. For instance, increase in education will increase knowledge about treatment, especially common illness like malaria, and the educated person would prefer to self treat by buying drugs from the drug stores than wasting time to follow queues to receive treatment at the formal health facility. This practice is very common in Ghana, especially where most of the drugs can be obtained over the counter.

Physical accessibility also has an impact upon the health seeking behaviour of households. Thus where an individual or household is located may determine HSB. According to the United Nations (2001), access to a primary health care facility is projected as a basic social right. The HSB by people living in urban areas might differ from those in the rural areas. Nearness to health facility does not necessarily mean utilization. Studies have found out that while facility influences utilization, there are factors that operate alongside. These factors include quality of care and transportation. There was evidence in Franco's (2008) that distance to the health facility is associated to treatment seeking but it showed a significant negative predictor of treatment seeking for assisted delivery.

2.6 Gaps in literature

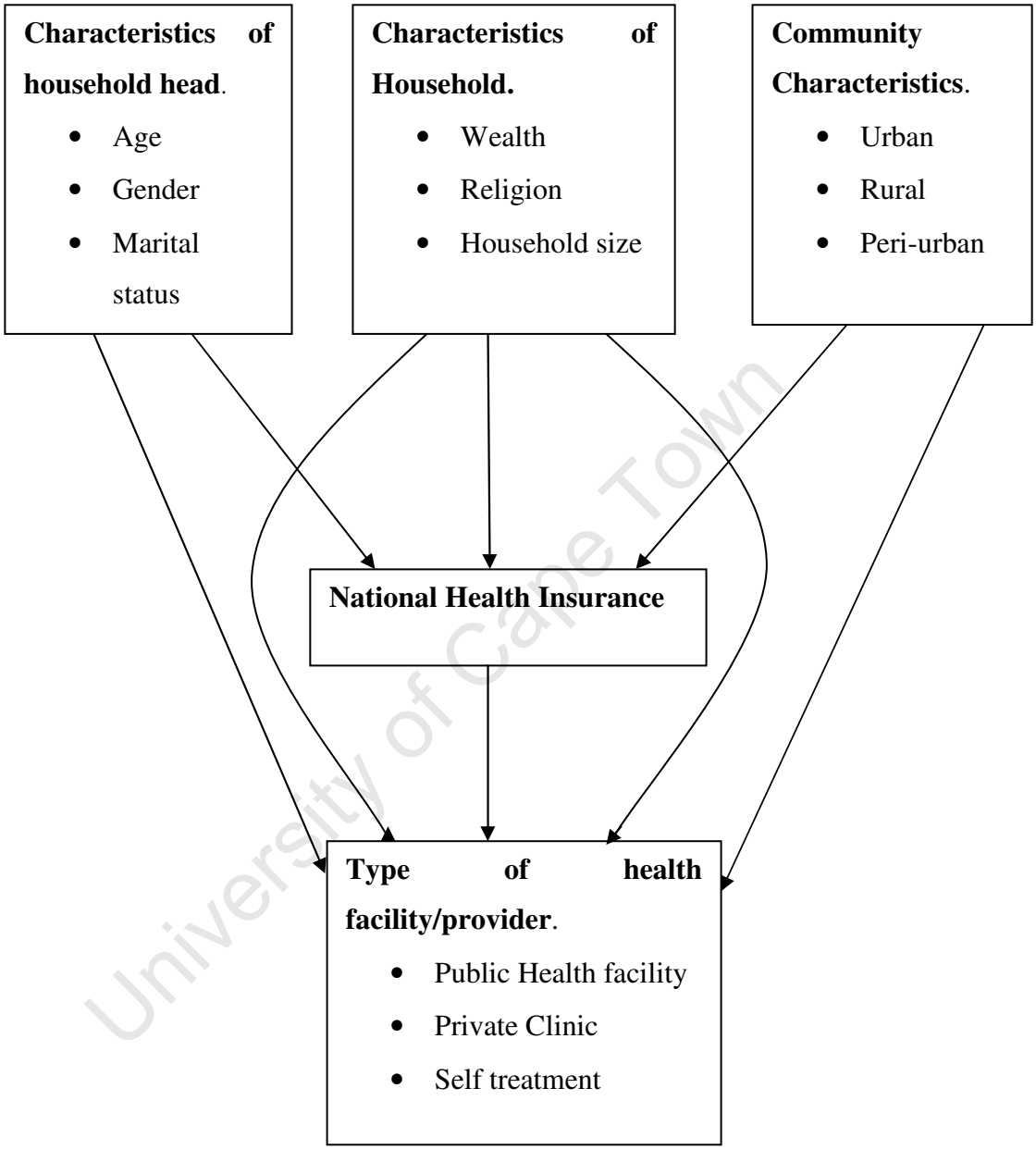
- Internationally, the literature on the impact of health insurance of health seeking behaviour is limited. The concept of NHIS is new and not widely spread in Africa. This may account for the relatively fewer researches on the impact of national health insurance on HSB in Africa. Most of the studies are on MHOs and commercial health insurance schemes.
- There is limited published research on the impact of NHIS on HSB in Ghana and non in the KND.
- Also the effect of health insurance on pattern of health care utilization is not consistent.
- Factors that influence individual or household decision to enrol into health insurance are not consistent among studies.
- Factors such as religion, marital status and ethnicity have not been given much consideration.

Against this background, this research is expected to contribute to filling some of these gaps. Factors that determine enrolment and subsequently HSB would be examined. The findings of the study will therefore address some key gaps identified and recommendations would be made to policy makers both at the district and national levels to improve enrolment and access to health care.

2.7 Conceptual Framework

The literature review highlighted factors that influence enrolment into health insurance scheme and factors that influence health seeking behaviour. This study postulates that enrolling into the NHIS will depend on the decision of the head of the household based on a number of socio-economic variables. As shown in Figure 1 below, three dimensions have been identified to influence household enrolment into the NHI scheme .The framework hypothesizes that membership into the NHIS and health seeking behaviour will depend on the individual household head characteristics (age, gender, marital status, education and occupation), the household characteristics (wealth, religion and household size) and the community characteristics (area of residence i.e. north, east and central zone).Furthermore, these dimensions (individual, household and community factors) in addition to health insurance cover, would influence the type of health care provider a household member will consult when ill/injured.

Figure 1: Conceptual Framework used to determined factors that influence household enrolment into National Health Insurance Scheme and the impact on Health Seeking Behaviour.



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CHAPTER THREE

METHODOLOGY

3.0 Introduction

This chapter gives a detailed description of the methodology used in the study. It presents a description of the study area, the study design, study population, sample size, unit of analysis, sampling strategy, and the content of survey instrument and data collection techniques. The chapter also explains how data was stored and managed electronically, the quality checks that were implemented and how the data were analysed. It concludes with the limitations of the study and ethical considerations.

3.1 Study Area: The Kassena-Nankana District (KND)

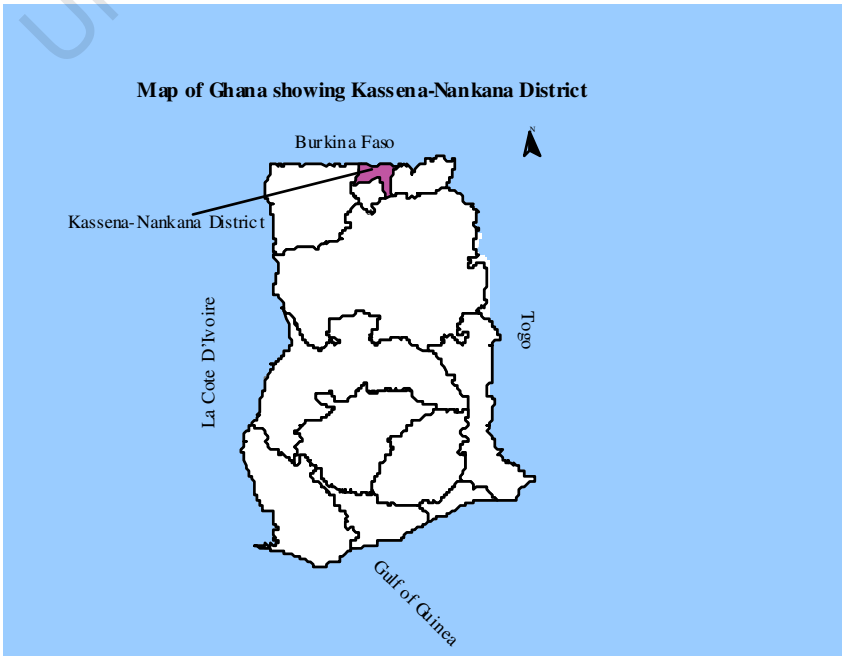
The study was carried out in the Kassena-Nankana district (KND), which is one of the 138 districts of Ghana. It is located in the north-eastern part of Ghana and shares borders with Burkina Faso in the north. KND lies between latitude 10° 30′ and 11°00′ north and longitude 0°50′ and 1°30′ west of the zero Meridian. It measures roughly 55 km × 50 km^2 and has an altitude of 200–400 m above sea level The district covers an area of about 1675 km^2 and has an estimated population of approximately 147,000 (NDSS, 2008).

Located in the Guinea Savannah belt, the area is characterized mainly by semi-arid conditions with the vegetation consisting of vast grassland interspersed with short trees. The area has two main seasons, a short wet season with an average annual rainfall of 950mm to 1,100mm from June to August and a prolonged dry season from October to May with little or no rainfall. Monthly temperatures range from 20° to 40°C, with the mean minimum and maximum monthly temperatures estimated at 22.8° and 34.4°C, respectively (Binka et al, 1999).

The district is typical of many rural areas in sub-Saharan Africa in that agriculture is predominantly the main stay of the local economy, with about 90% of the people being farmers (Binka et al 1999). Due to the seasonal and erratic nature of the rainfall coupled with deteriorating soil quality, harvests are often poor resulting in shortage of basic foodstuff and high levels of poverty in the district. Consequently, out-migration (especially of the youth) to the southern parts of the country is common.

There are two main ethnic groups: the Kassena who form about 49% of the district's population and the Nankana who constitute about 46% of the population. The remaining 5% is made up of minority tribes, mainly Builsa and migrants belonging to other ethnic groups. Despite the linguistic differences, the population is, in many respects, homogenous, with a common culture (Debpuur et al, 2002).

Figure 2: Map showing the study site



The KND has 10 traditional paramount chiefdoms and has traditional forms of village organization, leadership, and governance. At both the village level and the family level, communities have a strong traditional social structure, which influences economic and social behaviour.

Social infrastructure in the district has improved over the years. The district has 134 primary schools, 50 junior high schools, 8 senior high schools, 1 teachers training college, 1 nursing training school, 2 vocational institutions and a faculty of the University for Development Studies.

Health facilities in the district are poor relative to many parts of the country. The district has a district hospital located in Navrongo (administrative capital) that serves as a referral point for the Kassena-Nankana district, the Builsa district and neighbouring towns in Burkina Faso. There are seven health centres, and two community clinics jointly run by the Catholic Diocesan Development Office and the District Health Administration that provide services to the communities. There is one private clinic and 27 functional Community-based Health Planning and Services (CHPS) compounds with resident Community Health Officers (CHOs) offering doorstep services (DHMT, 2007).The District is also a centre of intense research activities carried out by the Navrongo Health Research Centre (NHRC).

3.2 Study Design

The study design is a cross sectional. Primary data was collected using a structured questionnaire which was administered to randomly selected households.

3.2.1 Study Population

All households in the KND (whether insured or non-insured) were eligible to be sampled in to the study.

3.2.2 Sample Size

The Kassena-Nankana district has a population of 147,000 of which 50% are insured (KNDMHIS, 2008). Given an error margin of 5% and using a 95% confidence interval, the sample size was calculated using the formulae below.

$$n = \frac{p\,(1-p)\,z^2}{d^2}$$

Where:

n = sample size

p = anticipated population proportion (i.e. 50% or 0.5 of the population were anticipated to be insured).

d = the acceptable margin of error (the degree of acceptable difference between the estimated sample and the true population value. The level was set at 5% (0.05).

z = cut off value of the normal distribution (1.96 was used).

$$n = \frac{0.5\,(1-0.5)(1.96)^2}{(0.05)^2}$$

n = 384 respondents

The estimated sample was 384 respondents and 10% non-response rate was calculated to yield a total sample size of 422 respondents.

3.2.3 Unit of analysis

The household was used as the unit of analysis in this study. A household is defined as a person or a group of persons who live together in the same house or compound and eat from a common pot .Compounds are made up of a number of households and there is an average of 4 households in a compound in the KND (NDSS, 2008). Due

to the patrilineal system in the Kassena-Nankana district, traditionally, households are headed mainly by male adults. However, with the demise of the male adults, his wife becomes the household head. The household owns the resources and the household head or next person responsible for household affairs is the final decision maker for its members and therefore plays an important role in health seeking behaviour for the household members. Hence the respondent was the household head. In this study, the insurance status of the head of the household served as the proxy for whether or not a household is considered enrolled in the NHIS or not.

3.2.4 Sampling Strategy

The Navrongo Health Research Centre operates a Demographic Surveillance System (DSS) in the Kassena-Nankana district. The Navrongo DSS (NDSS) has divided the district into five zones (north, south, east, west and central) which are further sub-divided into 17 sub-zones. Each sub zone is sub divided into clusters (of not more than 100 compounds) and further into compounds and households. Currently, there are about 247 clusters and 28,500 households. Members in each household are given unique identity for easy identification, and information on births, deaths, pregnancies and other vital demographic events are collected and updated every 120 days (NDSS report, 2008).

A representative sample of 422 respondents (household heads) was drawn from the entire population using the NDSS database. A simple multistage random sampling technique was used to select respondents.

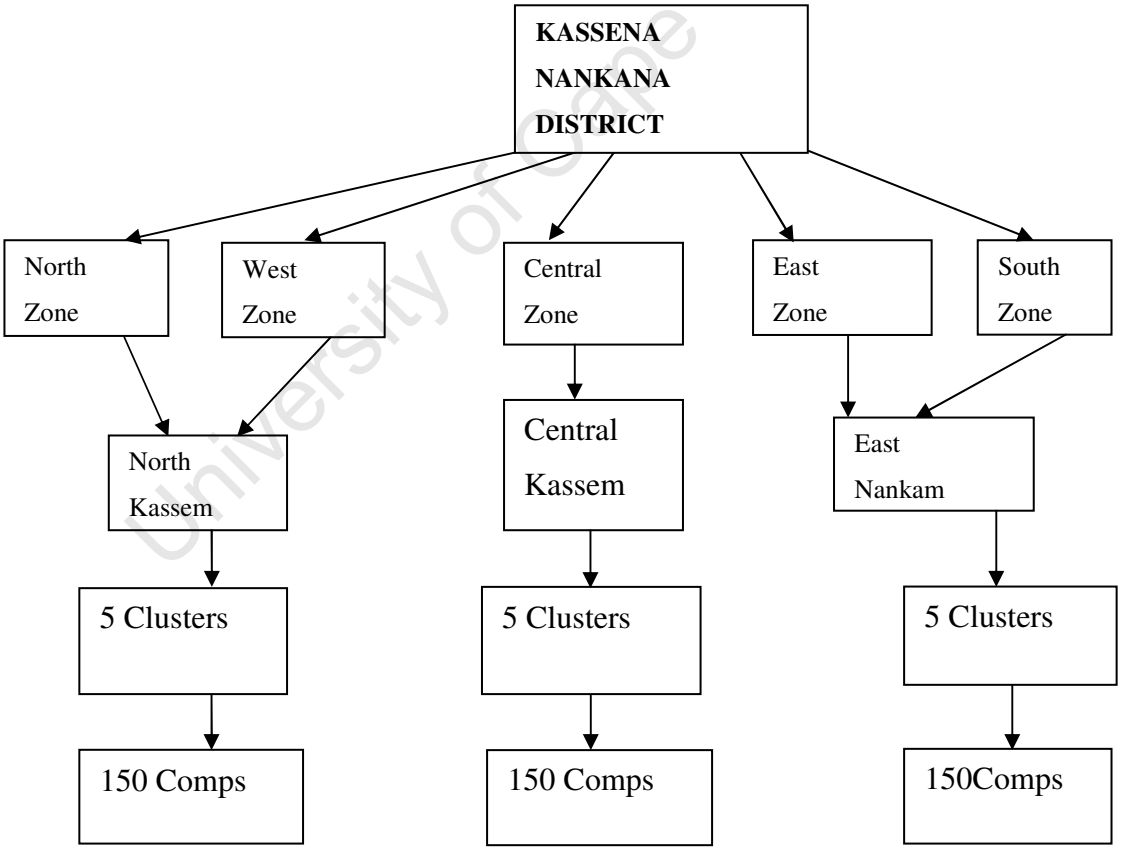
First of all, a simple random selection was used to select the north zone to represent a peri-urban area. Similarly, the east zone was selected to represent rural area. The central zone was included *a priori* since it was the only urban area. Secondly, a

[1] The Navrongo DSS uses a longitudinal household-registration system (HRS), set up in July 1993 by the Navrongo Health Research Centre (NHRC) to support research on the determinants of morbidity, mortality, and fertility.

sampling frame of all clusters in the three selected zones (East, North and Central zones) was generated from the NDSS database. A random sample of 5 clusters from each zone was selected .Thirdly, a list of all compounds in the selected clusters was generated. A random sample of 150 compounds was then selected from each zone from the list of compounds generated.

In the fourth stage, compounds were randomly selected using a simple random method and printed out for the fieldworkers to fellow the list. The field workers only administered the questionnaires to households that had episodes of illness/injury within a one month recall period for out-patients and 12 month recall for in patients.

Figure 3: Sampling Strategy



Because there are an average of two households in a compound, field workers were asked to interview a maximum of 2 household heads per compound. Each field worker was assigned one zone to work.

3.2.5 The Survey Instrument

The survey instrument (Appendix 2) was designed in English and translated into Kassem and Nankam dialects. The structured questionnaire had the following sections:

Socio-economic and demographic characteristics of respondent: age, ethnicity, marital status, educational background, occupation, religion, household size and area of residence.

Information concerning illness/injury of household members during the recall period was collected.

Household possessions and assets questions centred on the possession of bikes, bicycles, fridge, sewing machines, beds, electric lamps, cows, housing characteristics etc.

The questionnaire was administered by three (3) data collectors to the head of the household or to the one who is in-charge of decision making in the house (respondent). The respondent provided all the information on the questionnaire including the information on the use of health care by the sick household member on the same interview sheet. Each interview lasted about 20 minutes.

3.2.6 Training for Data Collection

Three data collectors with Bachelor degrees were recruited to collect the data. They were trained for 5 days. They were first introduced to the background of the study, its aims and objectives and were subsequently taught community entry and interview skills. They were further trained on the details of the questionnaire and how to

administer the questions in English, and afterwards translated them into the two local languages (Kassem and Nankam). Mock interviews were also conducted during the training session. In addition, an experienced field supervisor from the NHRC was recruited to supervise the data collection and to assist the researcher in quality checks.

The survey instruments were first tested by the researcher and data collectors in the west zone. Five (5) interviews were conducted by the researcher and the data collectors conducted 15 interviews in the pilot zone. At the end of the pilot test, some questions were added to the questionnaire (e.g. how many mobiles phones in the household) and other questions were rephrased to make the meaning much clearer.

3.2.7 Data management and quality checks

Completed questionnaires were checked by the field supervisor for errors and inconsistencies. They were checked again by the researcher. Errors and inconsistencies detected were resolved. A data manager at the NHRC developed the screens using Epidata 3.1 for data entry. The questionnaires were independently entered by two different data entry clerks from the NHRC. Range and inconsistency checks were built in the Epidata to control data input. After completion of data entry, the data manager performed validation checks on the two databases for consistency. The data was further cleaned by the researcher by running frequencies and cross tabulations using STATA 8 to identify outliers and checking for consistency among variables.

3.3 Data Analysis

The data was analysed using STATA statistical software version 8.0.

3.3.1 Descriptive analysis

Descriptive analysis was used to describe demographic and social-economic characteristics of respondents, enrolment status and reasons for/not enrolling into the NHIS. Analyses were presented as frequencies, means and percentages.

Cross tabulations were also carried out to determine whether there are differences in socio-economic and demographic characteristics between the insured and the uninsured households. T-test and chi square test were used to determine if there were any significant difference or association between proportions or categories of variables of interest. Treatment patterns of the insured and uninsured households were computed and presented in frequencies and percentages. In addition, the association between hospitalization and average number of formal health facility (private and public) attendance (outpatient and in-patient) in the past one year between the insured and the uninsured households were analysed.

3.3.2 Predictors of Enrolment into NHI Scheme (Model 1)

A binary response model was used to determine the predictors of enrolling into the NHIS.

The outcome of interest (dependent variable) is whether the household is member of the NHI scheme or not. Since this is a categorical variable of "Yes' and 'No' it was transformed into a dummy variable which takes a quantitative form of a "1" if household is a member of the scheme and "0" if household is not a member of the scheme. Thus since the dependent variable is binary, a binary response model was appropriate for this regression analysis.

Analysis of binary response/outcomes may be done using three binary choice models, namely: the Linear Probability Model (LPM), the probit model and the logit model (Long, 1997).

A major weakness of LPM is that, because a straight line is used, predicted values of the regression function lie outside the range 0 to 1. This means that this model can lead to logical inconsistencies, with predicted probabilities outside the logical range zone 0 to 1 (Jones, 2007). A way to avoid this is to use a non-linear function and the popular choices are "S" curves that are bounded to the range 0 to 1. The most common choices of these "S" curves are logit and probit models (Jones, 1997, Chp

3,pg 17). The logit and probit models are developed in terms of the regression of a latent variable (e.g. y*) that determines participation. If y* (individual propensity to participate in a health insurance scheme) is positive (greater than some value) the individual will choose to participate and the observed binary outcome equals 1, otherwise it is 0. Then the latent variable y* is modelled by a linear regression function of the individual/household characteristics x. Since the dependent variable is unobserved, the Ordinary Least Squares (OLS) cannot be used, hence the Maximum Likelihood estimation is used. Assuming the error term has a standard normal distribution gives the probit model and when it has a standard logistic distribution gives the logit model (Jones, 1997; Long 1997). According to Long (1997), the choice between probit and logit model is based on convenience, since results are generally indistinguishable. The logit model was chosen for this study.

3.3.3 Model specification to determine predictors of enrolment

The approach used by Jutting (2004) was adopted in this study to estimate the determinants of membership into the National Health Insurance Scheme. In that approach participation in a MHO is dependent on the rational choice of a household weighting costs and benefits of membership. It is assumed that participation of a household (p) in MHO depends on characteristics of the individual household head (H), household characteristics (W), community characteristics (C) and on the error term μ.

The equation below describes the model used for this study:

$p_i = f(, H_{i,} W_{i,} C, \mu_i)$

A binary logit model was used to determine the probability of enrolling into the NHIS. The equation below describes the model.

$p_i^* = \beta H_i + \alpha Wi + \delta C + \mu_{i.}$

Where

$p_i = 1$ if $p^* > 0$, meaning the household $_i$ is enrolled into the NHIS

$p_i = 0$ otherwise

β, α and δ are estimated coefficients and μ_i is the error term.

Description of Dependent Variable

The dependent variable is enrolment into NHIS. The insurance status of the household head served as the proxy enrolment.

3.3.4 Examining Impact of NHIS (Model 2*)*

A multinomial logit model was used to examine the effect of health insurance on health seeking behaviour. Multinomial models are mostly used in studies that involve discrete dependent variables that can take unordered multinomial outcomes that represent a set of mutually exclusive choices (Jones, 2006). This model was chosen over the Ordinary Least Squares (OLS) model because the dependent variable is categorical and has more than one outcome and these outcomes are not ordered. For an OLS method, a categorical dependent variable would be inappropriate for estimation because the error term is heteroscedastic and not normally distributed and the coefficient of correlation (R^2) is usually low and hence there is a possibility of the estimated *y* to lie outside the range of the dependent variable (Gujarati, 2003) .Thus the estimated standard errors in the categorical dependent variable estimation are biased and the resultant interpretations are inaccurate which would lead to false conclusions.

The multinomial model has been used in a similar study by Jowett et al. (2004) to determine the effect of health insurance on treatment seeking behaviour (i.e. it had three outcomes).

The Multinomial model is also appropriate for this analysis as it uses the Maximum Likelihood Estimation (MLE) method to establish the likelihood that an individual will utilize a given type of health care provider if he/she is sick/injured given a combination of factors which is another method for this type of estimation.

3.3.5 Model specification to determine factors predicting Choice of a Provider

A multinomial logit model was used to determine the factors that influenced the likelihood of an ill/injured household member to consult a given type of health care provider. In doing so, we were able to analyze whether being enrolled has an effect on choice of provider.

The multinomial logit model in which the probability (p) of an individual i to choose an outcome j (e.g. self treatment over public health facility or private health facility/provider) is given below.

$$\Pr(y_i = m/x_i) = \frac{\exp(x_i\,\beta_m)}{1 + \sum_{j=2}^{J} \exp(x_i\,\beta_j)} \qquad \text{for } m > 1$$

Where

βm is the coefficient vector for choice of care

x_i is the vector of covariates for respondent i

J number of choices.

Description of Dependent variable

The dependent variable used was the type of health care provider used i.e. "where the individual sought care as a result of illness suffered in the recall period (Care)". Seven types of health care providers were included in the questionnaire. These were: public health centre/clinic, public hospital, private clinic, traditional healer, drug stores and self treat at home. However, in the analysis, three (3) outcome categories were created. These were: "Public health facility", "Private health facility" and "Self treatment".

All those who used public health centre/clinic, public hospital were grouped into "***Public health facility***" category. Those who utilized a private clinic fell under the "***Private health Facility***" while those who choose to self treat at home, visit the traditional healer or bought drugs from the drug stores without prescription were grouped as "***Self treatment***". The outcome category "Self treatment" was used as the comparison group or the based category and therefore all interpretation was relative to the use of Self treatment.

3.3.6 Description of Independent Variables for both model 1 and 2 and expected signs

Age was collected in completed years. It was categorized into three groups (less than 40, 40-59, and 60 years and above).

We expected that membership of NHI among older household heads (60+ age group) to be higher than younger household heads, since majority of the 60+ years would fall under the exempt category. Following that, we expected more utilization of formal care from the (60+ age group) than the younger counterparts.

The variable sex refers to the sex of the respondent and was collected as 1.Male and 2.Female. In the analysis, it was transformed to a dummy variable were 0 =Female and 1=Male. Due to reproductive health issues such are antenatal care and delivery, we expected more enrolment into the NHIS and more utilization of formal service (especially public) than the males.

The variable marital status refers to respondents' marital status at the time of the survey. This variable was re-categorised into dummy variable: 1= Married and 0= Unmarried (which comprised never married, divorced and separated).We expect that married households are more likely to enrol and utilize formal health care due to pregnancy and child related issues.

Education level refers to the respondent's current level of education. They were collected in four groups: never been to school, primary, JSS, Secondary and Tertiary.

In the regression analysis, this variable was re-categorised into three groups: 0= Never been to school, 1= Primary and JSS and 2= Secondary and Tertiary.

We expected that household heads with higher education level (Secondary/Tertiary) will be members of the scheme and utilize formal health care than less educated members because they have better access to information and able to make an informed decision. Also higher education produces skilled labour and hence the higher earnings of people with higher education will enable them to afford to pay the premiums.

The variable occupation relates to the respondents major job. This variable was re-categorised into three groups: 0= Farmers and traders, 1=Employed in the formal sector, 2=Unemployed (comprised of the retired, students and the unemployed). We expected more enrolment in a household where the head is employed in the formal sector than the informal or unemployed since such households make a compulsory 2% premium contributions to the National Health Insurance Fund and are entitled to access. They are also expected to utilize more formal care than the other groups.

The variable religion refers to the religious affiliation of the respondent. There are three categories: traditional, Christian and Muslim.
We hypothesized that households that are traditional worshippers were less likely to enrol and use formal health care since they mostly ascribe the cause of illness to the spiritual world and hence rely of divination more than orthodox healing.

Household size refers to the number of household members and was measured as a discrete variable. More enrolment and formal health care utilization is expected in relatively small household size since larger households with many members will need more money to pay premium and health care.

The variable zone denotes area that the household is located. The east zone represents the rural setting; north zone represents peri-urban setting and central zone represents the urban setting .We expect more enrolment and formal health facility

utilization in the central zone since it is an urban setting with commercial activities and more income generating opportunities.

Severity of illness was classified as mild, moderate and severe based on the respondents' own assessment of the condition of the ill/injured household member. We expected that household members whose illnesses are perceived to be severe will seek care from a public health facility than to self-treat.

Measuring Household socio-economic status

Wealth of the household was measured in terms of housing characteristics and assets using Principal Component Analysis (PCA). The PCA was invented in 1901 by Karl Pearson and used by others such as Filmer and Pritchett (1998).

The principal component analysis (PCA), which involves a mathematical procedure that transforms a number of correlated variables into a smaller number of uncorrelated variables, thus allows variables that are collinear to be grouped together to form a composite index.

In this approach, scoring factors of each asset are used to form an index for each household (A_j) based on the formula:

$A_j = f_1 * (a_{j1} - a_1) / (s_1) + \ldots + f_N * (a_{jN} - a_N) / s_N$

Where *j* subscripts households

f_1 is the "scoring factor" for the first asset as determined by the procedure.

a_{j1} is the *j*th household's value for the first asset, and

a_1 and s_1 are the mean and standard deviation of the asset variable over all households.

Based on the constructed index households were assigned to five (5) quintiles. These quintiles representing wealth are grouped as: poorest, middle-poor, middle, middle-rich, and richest.

The household characteristics used for the construction of the index were type of material for wall, roofing material, cooking utensils, toilet facility, source of drinking

water and cooking fuel. The household possessions/assets included ownership of functioning bicycle, motorbike, car, radio, bed, sewing machine, tape, TV, DVD, mobile phone, refrigerator, cattle, sheep, goat, pigs and donkeys.

Household wealth is an important determinant on NHI because membership of the scheme involves paying premium, we therefore expect household wealth to positively influence enrolment and utilization of formal health care.

Table 1: Names of variables used for the models and their description

Variables	**Description**
Age of the household head in years	**Continuous variable**
Gender of household head	**Dummy variable:** 0=female; 1=male.
Household head marital status	**Categorical variable with 4 outcomes:** 0 = married 1=never married. 2= divorced. 3= widowed
Ethnic origin of household head	**Dummy variable:** 0 = Nankam 1=Kasem
Educational level of household head	**Categorical variable with 3 outcomes**: 0 = never been to school 1=Primary/JSS 2= Secondary/ Tertiary
Occupation of household head	**Categorical variable with 4 outcomes:** 0 = Farmer/trader 1=Employed formal sector 2= Unemployed
Religion of household head	**Categorical variable with 3 outcomes**: 0 = Traditional 1=Christian 2= Muslim
Household size	discrete
Quintiles of household assets	**Categorical variable with 5 outcomes** 0=poorest 1= middle -poor 2=middle 3=middle-rich 4=richest Index was generated by principal components analysis from a list of assets: Dwelling, water source, energy source, toilet facility, telephone, car, radio, animals etc.
Whether household head in enrolled in the	**Dummy variable:**

Variables	Description
MHIS	1 = household head insured 0 = household head not insured
Zone/area	1= central zone (urban) 2= east (rural) 3= north (peri-urban)

3.4 Study Limitation

A possible limitation is recall bias. Household heads were required to recall information over a period of four weeks or one year. It is possible that not all the heads will accurately remember all the required information, especially as it relates to other members of the household. However hospitalization of a household member and health expenditure that had an impact on household resources are easily not forgotten and coupled with the probing mechanisms built into the study and during the training, it minimized recalled problems and hence likely to reduced biases introduced in this study.

3.5 Ethical Consideration

The protocol was submitted to the Research Ethics Committee of the University of Cape Town as well as the NHRC Institutional Review Board (IRB) for review. Written approval was obtained before the commencement of the study.

Consent was sought at two levels – the community and the household level. At the community level, meetings were held with chiefs and elders at the various communities that were involved in the research to explain the study. The content of this discussion included the purpose of the study, procedures that will be involved, the risks and benefits of participation and the opportunity to withdraw from the study at any point in time. Permission was then sought from the chief and elders to enter the community to carry out the survey.

At household level, all the respondents were administered a written inform consent. The potential risk of the study was the information on the household assets and possessions. People might feel uneasy about revealing their possessions to outsiders, and hence may experience a discomfort. This did not lead to immense violations of their privacy as the questionnaire did not contain names of respondents. Also, the participants were assured that they will not be identified in any report or publication on the study. The consent forms were translated into the relevant local languages and administered in the preferred language of the participant. The consent form (appendix 1) spelt out the purpose of the study, the harms and the benefits of the study, the voluntary nature of the study and this allowed participants to make an informed decision to participate in the study.

CHAPTER FOUR

RESULTS

4.0 Introduction

This chapter presents the results of the study. The first section is the descriptive statistics where demographic and socio-economic characteristics of respondents are described. The next section presents the differences between insured and uninsured households. The third section looks at factors affecting enrolment whiles the last section presents health seeking behaviours of insured and uninsured households.

4.1 Descriptive Statistics

4.1.1 Characteristics of Household Heads

Table 2 presents information on age, sex, marital status and ethnicity and occupation of respondents. A total of 422 household heads were interviewed in the survey, out of which 72% (304) were males. Total number of interviews per zone was about a third each with 33% of households interviewed coming from the central zone (urban), 32% and 35% coming for the north and east zones.

Thirty percent (30%) of the respondents were less than 40 years, 34% were between 40-59 years and 35% were 60 years and above. The mean age of the household head was 51 years (SD: 18).

The predominant occupation was farming/trading (75%), whiles 10% were employed in the formal sector and 15% unemployed.

The average household size was 4.4 members. The range of members in the household was between 1 to 11 members, with a standard deviation of 1.9.

Table 2: Characteristics of respondents

Characteristics of respondents	Frequency (422)	Percent (100%)
Age groups(in years)		
Less than 40	128	30.5
40-59	143	34.1
60 and above	149	35.5
Sex		
Male	304	72.0
Female	118	28.0
Marital Status		
Married	293	69.4
Never married/ Divorced/ Widow	129	30.6
Ethnic origin		
Kassena	255	60.4
Nankana	149	35.3
others	18	4.3
Occupation		
Farmer/Trader	318	75.4
Employed in formal sector	43	10.2
Unemployed	61	14.5

Literacy rate among respondents was low with 56% of respondents reporting no form of schooling at all. About 26% had basic education (primary up to JSS/Middle school), and 18% had secondary education or higher. Also, majority (86%) of respondents with secondary/tertiary education were employed in the formal sector. A greater proportion (63%) of households located in the urban area were employed in the formal sector (Table 3).

Table 3: Household head education and employment status.

	Famer/Trader	Employed in formal Sector	Unemployed	Total
Educational Status				
Never been to school	65.1	4.7	47.5	56.4
Primary/JSS	27.0	9.3	31.2	25.8
Secondary/tertiary	7.9	86.1	21.3	17.8
Area of Residence				
Urban	26.4	62.8	47.54	33.2
Rural	39.3	16.3	3.28	31.8
Peri-urban	34.3	20.9	49.18	35.1

Twenty percent (20%) of the respondents were categorized into the poorest quintile and also about the same percentage (20%) in the richest quintile. About 63% of respondents in the richest quintile were employed in the formal sector (Table 4).

Table 4: Wealth and occupational status of respondents

	Farmer/trader	Employed in formal sector	Unemployed	Total
Wealth quintile				
Poorest	24.8	2.3	8.2	20.1
Poor middle	23.3	2.3	14.8	19.9
middle	20.8	9.3	24.6	20.1
middle rich	17.9	23.3	27.9	19.9
richest	13.2	62.8	24.6	19.9
Total	100	100	100	100

4.2 Differences between the Insured and Uninsured Households

Insurance status of the head of the household in the study serves as the proxy for whether or not a household is considered enrolled in the NHIS or not. As shown in Table 5, there was significant difference in the mean ages between insured household heads and non-insured household heads. The mean age of insured household heads was 52 years while it was 49 years for the uninsured household heads ($P< 0.05$).

Sixty seven percent (67%) of insured respondents were males whiles 33% were females. Similarly, 81% of the uninsured were males and 18% were females.

With regards to community characteristics, there were significant differences in insurance status across the three zones. High proportions (44%) of households were insured in the central zone (urban) compared to those in the eastern zone (27%), considered being rural and the northern zone (29%) which is also considered a peri-urban area.

Table 5: Socio-demographic characteristics of insured and uninsured households

Household Characteristics	Insured households (n= 268)	Uninsured households (n= 154)	Total (422)
Age of household heads (years)			
less than 40	28.6	33.8	30.5
40-59	33.5	35.1	34.1
60 +	38.0	31.2	35.5
Mean household head age **	52.3	48.7	51.0
Sex **			
Male	66.8	81.1	72.0
Female	33.2	18.3	27.0
Marital Status			
Married	67.9	72.0	69.4
Never Married/ Divorced/ Widow	32.1	27.9	30.5
Educational status***			
Never been to school	48.9	69.4	56.4
Primary/JSS	27.9	22.0	25.8
Secondary/Tertiary	23.1	8.4	17.7
Ethnic origin **			
Kasem	63.4	55.1	60.4
Nankam	30.9	42.8	35.3
Others	5.6	1.9	4.2
Occupation***			
Farmer/ Trader	68.7	87.0	75.3
Employed in the formal sector	14.1	3.2	10.1
Unemployed	17.1	9.7	14.4
Household Characteristics			
Religion ***			
Traditional	34.3	62.3	44.5
Christian	53.7	29.8	45.0
Muslim	11.9	7.7	10.4
Household wealth quintile***			
Poorest	12.3	33.7	20.1
Poor-middle	16.0	26.6	19.9

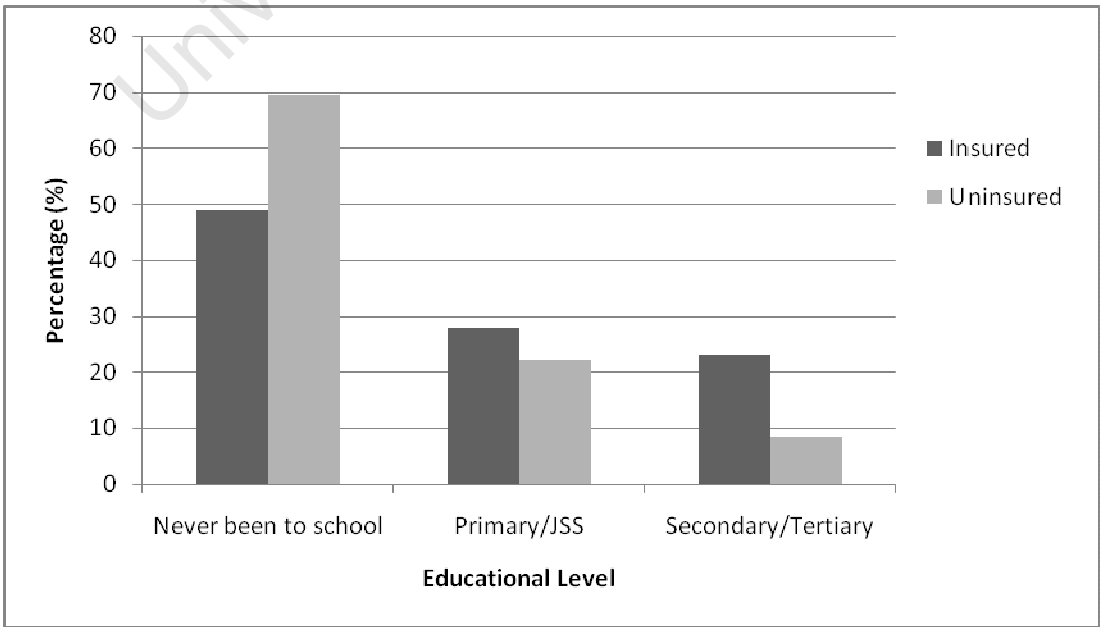
Household Characteristics	Insured households (n= 268)	Uninsured households (n= 154)	Total (422)
Middle	19.7	20.7	20.1
Middle-rich	25.0	11.0	19.9
Richest	26.8	7.7	19.9
Community Characteristics ***			
Urban	44.0	14.2	33.1
Rural	27.2	39.6	31.7
Peri-urban	28.7	46.1	35.0

***p < 0.10(10 % level of Significance); **p < 0.05 (5 % level of Significance); ***p < 0.01 (1% level of Significance).**

4.2.1 Educational level of insured and uninsured household heads

As shown in Table 5 and Figure 4, there was significant difference in educational levels between the insured and the uninsured households (P< 0.01). Insured household heads had much higher secondary/tertiary education (23%) than their uninsured counterparts (8%). Also, a higher proportion of the insured had Primary/JSS education (28%) than the uninsured households (22%). Forty nine percent (49%) of the insured household heads never had any formal education compared to a higher percentage (69%) for the uninsured.

Figure 4 : Educational level of insured and uninsured household heads



4.2.2 Occupational Status of Insured and Uninsured Household Heads

As seen in table 5 and Figure 5, there was significant difference in the occupational status of the insured and the uninsured household heads (P< 0.01). Fourteen percent (14%) of the insured household heads were employed in the formal sector whereas only 3% for the uninsured were in formal employment. The unemployed included the retired and students and were 17 % for the insured household heads compared with 10% for the uninsured household heads. Significant proportions of uninsured household heads were farmers/traders (87%) compared to the insured (69%).

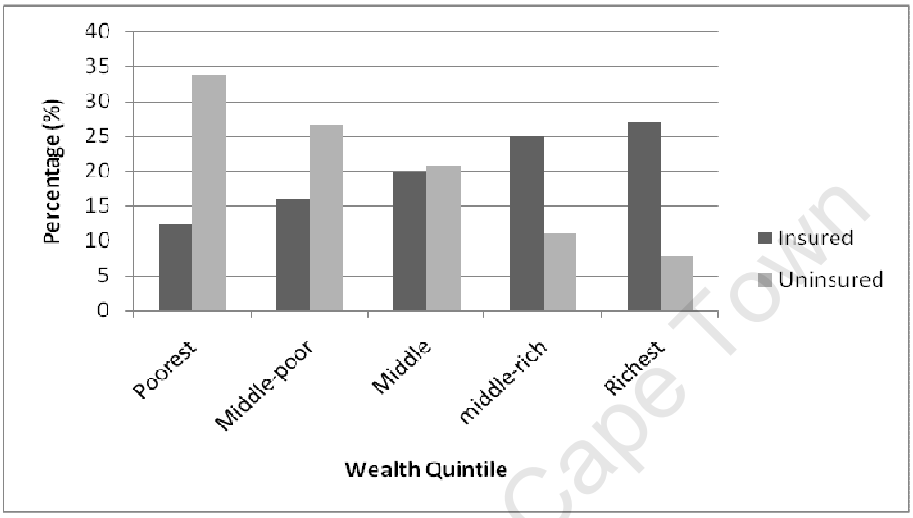
Figure 5: Occupational status of insured and uninsured household heads.

4.2.3 Health insurance status of households by wealth quintile

Figure 6 shows the wealth of insured and uninsured households. There was a significant difference between wealth of the insured and uninsured households (P< 0.01). Wealth is a predictor of insurance enrolment and the results revealed that the richest households are more likely to be members of the scheme than the poorest

households. Most of the insured households were in the least poor quintile (27%) whereas only 12% of insured were in the poorest quintile. On the other hand, majority of the uninsured (34%) were in the poorest quintile and only 8% were in the richest quintile.

Figure 6: Health insurance status of households by wealth quintile



4.3 Factors affecting enrolment into NHIS

Table 6 shows household enrolment and reason for/ not enrolling into the NHIS. Out of the 422 household heads interviewed, nearly 64% were enrolled into the NHIS.

Among the household that were insured, the main reason for enrolling into the scheme was the fact that the NHI is assessed as a good scheme (69%), followed by exemption (27%). For the uninsured household heads, the major reason for not enrolling was because the premium was expensive for them (77%). Only 18% of the uninsured mentioned they were not around at the time of registration. Also 5% of the uninsured households reported no trust in the NHI scheme and a reason for not enrolling.

Table 6: Household enrolment and reason for/ not enrolling into the NHIS

Is household head enrolled into the scheme?	Frequency	Percent (%)
YES	268	63.5
NO	154	36.4
Reasons why household head is enrolled into scheme		
Mandatory	10	3.7
Good system	184	69.1
Exempted	72	27.0
Reasons why household head is not enrolled into scheme		
No trust in system	8	5.1
Expensive premium	119	77.2
Not around during registration	27	17.5

4.3.1 Determinants of household enrolment in the NHIS

The decision of household heads to enrol into the health insurance scheme is usually influenced by some variables. A logit regression analysis was used to determine the factors that influence enrolment in the NHIS. The regression analysis included individual household head, household and community characteristics. Table 7 shows the results of the logit regression.

Result showed that age, sex, marital status, and wealth were significantly associated with enrolment at 5% level whiles religion and household size were significant at 10% level.

The age group of 40-59 years (P=0.041) and 60 years and above (P=0.001) were positively significant relative to the less than 40 years. This shows that older

household heads (above 40 years) were more likely to enrol into the NHIS than younger household heads. Gender of the household head was significant at 5% level (P=0.010) with a negative coefficient, which means that, male headed households were less likely to enrol into the scheme than female headed households.

Another important variable identified that influences enrolment into the NHIS was marital status of the household head. It was significant at 5% level (P=0.030) with a positive coefficient. Married household heads were more likely to be members of the scheme than the others (single/divorce/widow).

Wealth of the household was positively associated with enrolment into the scheme at 5% significant level. Households in the richest quintile (least poor) were more likely to be enrolled into the NHIS than households in the poorest quintile (P=0.002). In fact, enrolment in each of the four (4) quintiles is higher than in the poorest quintile

Religion emerged significant at 10% level. It showed that Christian households were more likely to enrol into the NHI scheme than households in the other religions (P=0.061). Also, household size emerged significant at 10% level (P=0.062) with a positive coefficient. This means as household size increases, they were more likely to enrol in the NHIS.

The results also showed that households in the north zone (peri-urban) are less likely to enrol in the scheme than households in the central zone (P=0.092).

Table 7: Determinants of household enrolment in the NHIS

Characteristics of household head	Coefficient	Standard Error	P-Value
Age(years)			
Less than 40 (B)			
40-59	0.658**	0.321	0.041
60 and above	1.697***	0.382	0.000
Sex			
Female (B)			
Male	-1.140**	0.441	0.010
Marital status (1=married, 0=others)	0.885 **	0.406	0.030
Educational level			
Never been to school (B)			
Primary/JSS	0.491	0.353	0.164
Secondary/Tertiary	0.463	0.528	0.380
Occupation			
Famer/trader(B)			
Employed formal sect	0.895	0.590	0.129
Unemployed	0.224	0.403	0.578
Religion			
Traditional(B)			
Christian	0.622*	0.332	0.061
Muslim	0.515	0.500	0.304
Household Characteristics			
household size	0.131*	0.070	0.062
Ethnicity			
Kassena (B)			
Nankana	-0.646	0.511	0.206
Others	0.305	0.752	0.685
Wealth			
Poorest(B)			
Very Poor	0.703**	0.356	0.049
Poor	1.178***	0.411	0.004
Less Poor	1.811***	0.515	0.000
Least Poor	1.88***	0.616	0.002
Community Characteristics			
Central zone(urban) B			
East zone (rural)	0.647528	0.623	0.299
North (peri- urban)	-0.66775*	0.395	0.092
NHIS(1=Insured;0=uninsured)			

***p < 0.1 (10 % level of significance); **p < 0.05 (5 % level of significance);**

*****p < 0.01(1% level of significance). B represents the base category.**

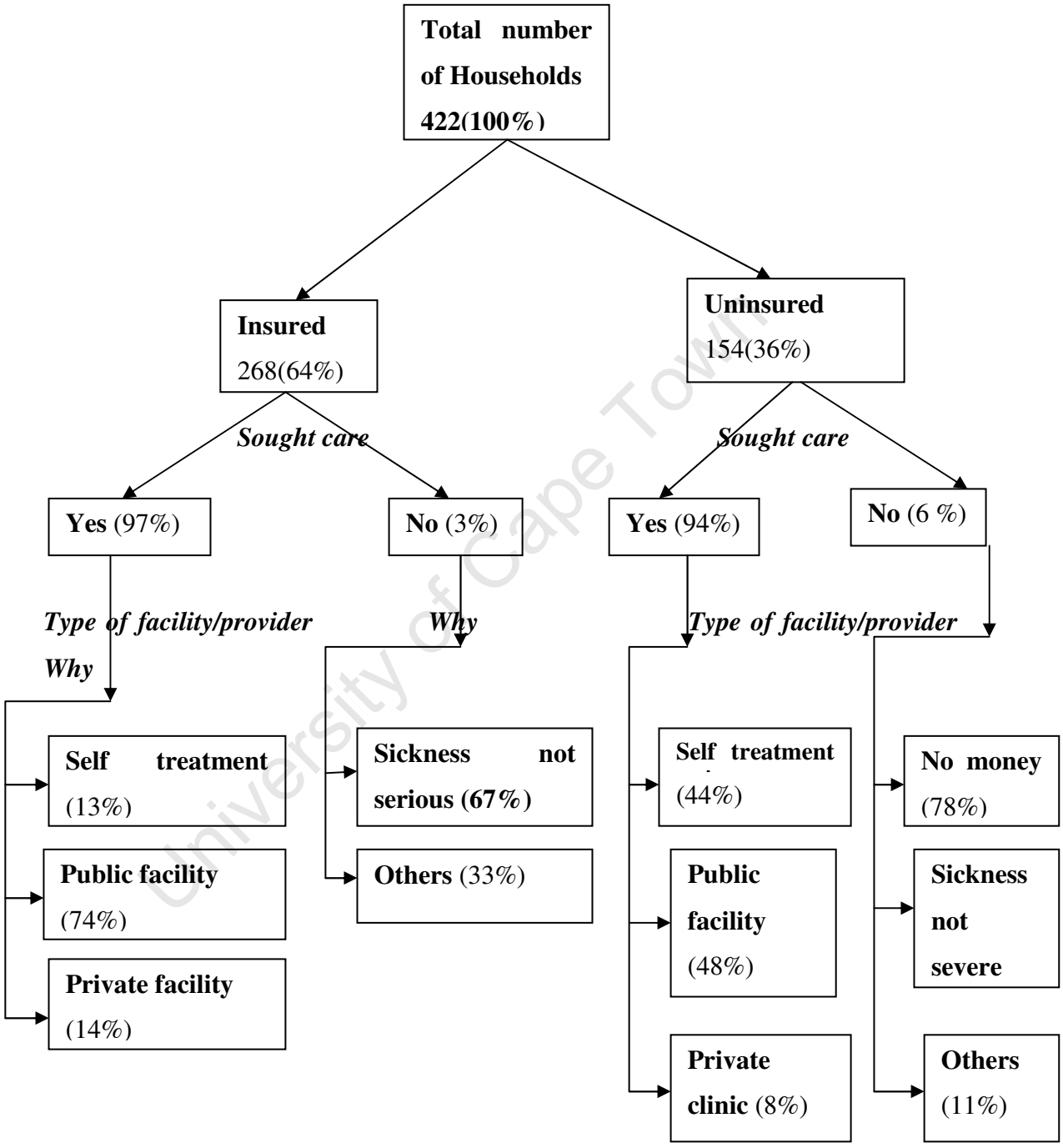
4.4. Health seeking behaviour of insured and uninsured household members

4.4.1 Choice of health care

The predominant illness mentioned by respondents for both insured (43%) and uninsured (49%) households was malaria. Figure 7 presents treatment-seeking patterns of sick/injured household members. A higher proportion (97%) of the ill/injured in insured households sought care than those in the uninsured households (94%).

There are significant differences (P <0.001) in the choice of care between the insured and the uninsured households. There was higher proportion of use of public health facilities for care by insured households (74%) than the uninsured households (48%). Private clinic usage was also higher in the insured households (14%) than the uninsured households (8%).Expectedly, self treatment (visiting the traditional healer, treatment at home and buying from the drugs stores) were higher in the uninsured households (44%) than the insured households (13%).

Figure 7: Treatment seeking behaviour of insured and uninsured households.



4.4.2 Hospitalization and outpatient visits

Table 8 presents results on hospitalization by household insurance status. There was significant difference in hospitalization between insured and uninsured households (P <0.05). Twenty four percent (24%) of the sick/injured from insured households were hospitalized whereas 12% were hospitalized in the uninsured households. The average number of formal health facility (private and public) attendance (outpatient and inpatient) in the past one year was significantly (P <0.001) higher for the insured households (2.5) than for the uninsured households (1.3).

Table 8: Hospitalization in insured and uninsured households

Variables		Insured households	Uninsured households	Total
Hospitalization (Percentage %) ***				
	YES	23.9	12.3	19.7
	NO	76.1	87.7	80.3
Average number of visits to health facility per month (mean)***		2.5	1.3	2.1

***p < 0.1 (10 % level of Significance); **p < 0.05 (5 % level of Significance);**
*****p < 0.01(1% level of Significance).**

4.5 Regression analysis on the type of health care Providers/Facilities

This section presents results of a multinomial logit model that aims to explain the relationship between the dependent variable (where the sick/injured sought care i.e. Public health facility, Private Health Facility or Self treatment) and the independent variables (insurance, age, sex, marital status, ethnicity, educational level, occupation, religion, and wealth of the household and area of residence of respondents). The base category/comparison group is "Self treatment" and therefore all interpretations were

relative to Self treatment. The coefficients, standard errors and P-values of the multinomial logit results are shown in table 9.

4.5.1 The choice between use of public health facilities and self treatment.

The multinomial regression results in Table 9 indicate that with regards to utilization of public health facilities, membership into the NHIS is strongly statistically significant at 1 % level (P=0.000) relative to self treatment. The coefficient is positive, meaning that holding all the other variables constant, households that are enrolled into the NHIS are more likely to seek health care at public health facilities than to self treat at home.

Also the age group of "60 years and above" emerged significant at 5% level (P=0.037). The coefficient is negative, implying that all things being equal, an ill/injured person from a house that is headed by 60 years and above person are less likely to seek care at a public health facility than to self treat at home.

Secondary/tertiary education was significant at 10 % level (P=0.096) with a positive coefficient. This means that households with heads attaining secondary/tertiary education are more likely to seek care from the public health facilities than to self treat.

The wealth of the households was positively significant at 10% level (P=0.087) only in the "poor" group. This means that holding all the other variables constant, households in the "poor" group are more likely to seek care from the public health facilities than to self treat at home.

Self assessed severity of illness/injury emerged positively significant at 10% level (P=0.068) for moderate and 1% level (P=0.001) for severe illness in the utilization of care from the public health facilities relative to self treatment. Households who reported moderate or severe illness/injury were more likely to seek care from the public health facilities, compared with those who reported mild illness/injury.

Table 9: multinomial logit regression of choice of health care provider

	Public health facility			Private Clinic		
Independent variables	**Coefficient**	**Standard Error**	**P-Value**	**Coefficient**	**Standard**	**P-Value**
Nhis(1 = insured; 0= not insured)	1.743 ***	0.317	0.000	1.738 ***	0.465	0.000
Age of household						
Less than 40 (B)						
40 - 59	-0.253	0.393	0.520	-0.680	0.543	0.211
60 and above	-0.914 **	0.438	0.037	-0.971	0.609	0.111
Sex						
Female(B)						
Male	-0.531	0.518	0.305	-0.688	0.695	0.322
Marital status						
Marital status(1=married;0=others)	0.292	0.469	0.532	0.104	0.654	0.873
Educational Level						
Never been to school(B)						
Primary/JSS	0.514	0.438	0.241	0.353	0.595	0.552
Secondary/ Tertiary	1.183*	0.710	0.096	1.209	0.880	0.170
Occupation						
Famer/trader(B)						
Employed formal sect	0.700	0.838	0.403	-0.050	1.081	0.963
Unemployed	0.330	0.453	0.467	0.592	0.577	0.305
Ethnicity						
Kassena (B)						
Nankana	0.680	0.607	0.263	0.779	0.836	0.352
Others	-0.689	0.806	0.393	-0.343	0.986	0.728
Household size	0.118	0.083	0.158	0.152	0.113	0.179
Religion						
Traditional(B)						
Christian	-0.371	0.410	0.364	0.743	0.589	0.208
Muslim	-0.302	0.587	0.607	1.561**	0.772	0.043
Wealth						
Poorest(B)						
Middle Poor	0.261	0.411	0.525	0.235	0.665	0.724
Middle	0.860*	0.503	0.087	0.295	0.764	0.699
Middle-rich	0.723	0.611	0.237	-0.127	0.894	0.887
Richest	0.083	0.727	0.908	-1.311	1.042	0.209
Area/zone						
Central-urban (B)						
East zone(rural)	0.130	0.752	0.862	-0.670	1.068	0.531
North (peri-urban)	-0.376	0.478	0.431	-0.579	0.612	0.344
Severity of illness						
Mild						
Moderate	0.861*	0.471	0.068	1.731**	0.859	0.044
Severe	1.683***	0.480	0.001	2.073**	0.873	0.018

B is the base category; Public health facility is the comparison group; *p < 0.1 (10 % level of Significance) ; **p < 0.05 (5 % level of Significance);*p < 0.01(1% level of Significance)**

4.5.2 The choice between use of private health facilities and self treatment.

The multinomial regression results in table 9 shows that, health insurance, religion and self assessed severity of illness/injury were the variables that were statistically significant in the choice between private health facilities and self treatment.

Health insurance cover was significant at 1% level (P=0.000) with a positive coefficient. This shows that health insurance plays an important role in health seeking. The positive coefficient implies that, all things being equal, insured households were more likely to seek care from the public facilities than to self treat.

Religion also emerged positively significant at 5% level (P= 0.043). This suggests that Muslims (relative to other religions) were more likely to seek care from the private health facility than to self treat.

The results also revealed that self assessed severity of Illness/injury is a determinant of seeking care from the private health facility relative to self treat. This variable is significant at 5% level (P=0.044) for moderate illness and severe illness (P=0.018) with both having positive coefficients. Households with episode of either moderate or severe illness/injury were more likely to seek care from the private health facility (relative to self treat) than those with mild illness/injury.

CHAPTER FIVE

DISCUSSION

5.0 Introduction

This chapter discusses the results of the study and it involves an assessment of the extent to which the study objectives have been met.

The main aim of the study was to examine the effect of the NHIS on health-seeking behaviours, by determining the factors that influence enrolment into the scheme and the type of health care providers used by insured and uninsured households.

5.1 Socio-Economic Differences between Insured and Uninsured Households

The results from the descriptive analysis showed that there is significant difference in socio-economic characteristics between insured and uninsured households. The age, gender, educational status, ethnicity, religion, area of residence and wealth of insured and uninsured households were significantly different.

The insured households had much higher education, formal employment and wealth than the uninsured. The higher educational level will increase the probability of better jobs and employment into the formal sector which will result into membership into the NHI scheme.The finding corroborates with Supakankunti's (2000) findings were health care purchase group had significantly higher educational level, higher number of employed members, and higher household income per year than the non-purchase group.

There were however no differences in marital status and household size between the insured and uninsured households.

Generally, the results suggest an unequal distribution of socio-economic characteristics between insured and uninsured households.

5.2 Enrolment into the National Health Insurance Scheme (NHIS)

Improving health among the poor and vulnerable is currently a major priority in many developing countries. In Ghana, the NHIS was introduced as a strategy to ensure universal access for all citizens to an acceptable quality of essential health services (Ministry of Health, 2002). This study has shown that, the target set by the government of Ghana is achievable as about 64% of respondents in this study were insured into the Kassena-Nankana District Mutual Health Insurance Scheme (KNDMHIS) within five years of implementation of NHIS. In contrast to Costa Rica, only 45% of the population were covered within 10 years of operation of their Social Health Insurance (Carrin and James, 2004). This high coverage could be due to the trust members of the scheme have on the services provided as 69% of respondents stated that the NHIS is a good system. The results also corroborates with a study conducted before the inception of the KNDMHIS that revealed that 93% of respondents expressed interest in the NHIS and were willing to contribute to the scheme (Akazili et al,2004).

In order to ensure universal coverage by 2015, the amount of the current insurance premium/registration fee need to be re-examined as most of those who were not insured in this study attributed the price of premium (GH¢9.50 = $9.5 per annum) as a reason for not enrolling. Majority of the respondents who reported that they were not enrolled were within the poorest wealth quintile. Similar results were found by Jakab et al. (2001) and Sulzbach et al (2005) where higher proportion of individuals from the richest quintile were insured in a CBHIS than the others and the most cited reason for not insuring in the scheme was the inability to pay the premium.

The current fixed rate in the informal sector is contrary to the design of the NHIS. The district scheme was supposed to categorize the population into socioeconomic groups (such as the very rich, rich, middle, poor, very poor and core poor) and fix the premium accordingly. The present situation where everybody pays GH¢9.50 per annum regardless of his/her socio-economic status is therefore at variance with the design of the scheme. The design is intended to ensure equity in the contributions based on ability to pay. The current flat rate across board is regressive, as on the average, poor households pay proportionally more than rich households. This could negatively influence enrolment as has been corroborated in other studies (De Allegri et al, 2006).

When individual household head characteristics, household level characteristics and community characteristics were examined via regression analysis to determine the predictors of enrolment into the KNMHIS, factors such as older ages above 40, being a female, marital status and wealth were significant predictors of enrolment into the scheme. Other factors such as religion, household size and area of residence were weak predictors of enrolment.

The study revealed that older household heads were more likely to enrol into the scheme than younger ones. This is consistent with the findings of Sulzbach et al, (2005), Diop 2005; and Franco et al (2008) that showed that households headed by adults over 50 years were more likely to enrol in a MHO than households headed by younger adults. Our study results could be attributed to the fact that the scheme exempts people who are 60 years and above from paying the premium.

Also, female headed households were more likely to enrol into the scheme than male headed households. Most caregivers in Ghana are women and hence they have the responsibility of taking care of young children as well as reproductive health issues related to pregnancy and child bearing thus, women would enrol more into the scheme. Also the scheme makes exemption for pregnant women and children from paying premium and thus could explain why more women were likely to register.

The results also showed that marital status of the household head is an important factor that determines NHIS membership. As expected, married households are more stable and have more combined income/wealth compared to those who are single, divorced or widow, and are therefore likely to have a higher income and demand for health insurance. This finding is consistent with results reported in studies by Lui and Chen (2002) and Kirigia et al (2005) where married women were more likely to have health insurance than the unmarried ones.

The results also showed that Christian households were more likely to enrol into the NHIS than households in other religions. This finding is consistent with that of Jutting (2001) where there was higher participation of Christians than the non Christians. Also the finding corroborate with a baseline study in this setting where the study found out that Christians were more willing to enrol than other religions (Akazili et al. 2004). This may be attributed to the fact that Christians in this setting are more associated with orthodox medication than the other religions.

As expected, the wealth of the household positively influenced enrolment into the NHIS. Households in the 5th quintile (richest) were more likely to be members of the scheme than households in the 1st (poorest) quintile. Similar findings were found in other studies (Jutting, 2001; Ekman, 2004; and De Allegri et al 2006) but contradict with Sulzbach's (2005) findings that did not find wealth as a significant predictor of enrolment among Nkoranza households in Ghana. In this present study, membership of NHIS in each of the four quintiles was higher than that in the poorest quintile.

This finding is also consistent with the consumer theory that points out that health insurance is expected to be a normal good with positive income elasticity of demand, implying the poor are less likely to insure (Schneider, 2004) .

The results also suggests that the poorest were less represented in the scheme which therefore has equity implications on access to health care .Hence, in order to improve access to health care for the poor, the mechanisms for the identification of the poor to exempt the them from paying premium needs to be improved.

Also, the results showed that as household size increases, the likelihood of enrolment increases. This is consistent with studies by Franco (2008) and Schneider et al., (2001) were households with more than five members had a greater probability of enrolling into a CBMHIS than the others .However, one would expect that since the design of the NHI is based on entire household registration, households with large families especially those with members above 18 years would have problems paying and therefore would have fewer members enrolling. Notwithstanding that, a possible reason for this outcome could be that households with many members fear the risk of impoverishment given their size and available income. In the Ghanaian setting, by age 18, most people are still in school and do not earn income to be able to meet unforeseen contingencies. In most cases, there is a single family member who is the bread winner and who in an attempt to avoid catastrophic health expenditure would choose to insure all who depend on him/her.

Finally, there was a relationship between one's location and the likelihood to enrol on the scheme. Households in the peri-urban area were less likely to insure than households in the urban areas. The study by Franco (2008) reported similar findings. There are usually better health facilities in the urban areas than in the peri-urban areas and the health costs associated with those facilities are high. Urban dwellers will therefore more rationally enrol on the scheme to avoid huge bills when they visit the health facilities. Also, people have better jobs in urban areas and because those in urban areas are more in formal employment they are likely to be covered by the compulsory deductions and be part of the scheme.

5.3 Health seeking behaviour of insured and uninsured households

The predominant sickness reported by respondents was malaria which is in conformity with the district annual health reports that puts malaria as the topmost health problem in the district (DHMT Annual Report, 2008). The high prevalence of malaria in the district is not surprising, since the major occupation in the district is farming with many sparsely located dams which facilitate mosquito breeding and hence malaria. The Tono irrigation dam sited in the district for agricultural purposes

is one big breeding ground for mosquitoes as in many agriculture farming communities.

In general, the study found that a greater proportion (97%) of insured households sought care than their uninsured counterparts (94%). This is consistent with expectation since the insured will not have financial barriers to care. This finding corroborates with other studies (Schneider and Diop, 2001; Lui et al, 2002; Trujillo, 2002; Jutting 2003) where the insured sought care at formal facilities than the uninsured.

Among the uninsured, not having money (78%) was frequently cited as a reason for not seeking care. This corroborates with the literature reviewed by Jakab and Krishnan (2001) on CBHIS that found that most uninsured attributed their status to the affordability of the premium.

There were significant differences in the choice of care between the insured and the uninsured households. As expected, a higher proportion of insured households reported the use of formal health providers such as public health care services (74%,) than 48% uninsured households who accessed public health services and slightly lower percentage (44%) that resorted to self treatment.

Regression analysis further showed that insured households were more likely to seek care either from the public or private facilities relative to self treatment than their uninsured counterparts. This is an expected result since the NHIS tends to remove financial barriers to accessing formal care. The uninsured on the other hand have to pay out-of-pocket to receive care from formal health care providers. Since they cannot meet this cost they resort to low cost medications by self treating with the use of herbs or buying drugs from the drug stores. Studies carried out elsewhere (Jutting 2001; Jowett et al 2004; Sulzbach et al, 2005; Franco et al 2008) suggests that insured households have better access to health care services than their uninsured counterparts. These findings were not different from findings from this study.

Insurance, age and severity of illness were the only variables that significantly influenced health seeking behaviour.

Households headed by older persons (60 years an above) were less likely to seek care from the public health facility .Since the elderly were more likely to enrol into the scheme because of exemption one would expect them to be more likely to seek care either from public or private facilities than to self treat. Notwithstanding that, in a typical Ghanaian setting, older people often seek traditional treatment relative to modern treatment. This corroborates with other studies conducted in Ghana that found that the aged were more likely to use herbs than younger people (Akazili et al, 2004) .Hence, educational programmes on the importance of seeking care from the formal facilities should be directed to that age category since they are likely to have exemption and may not access care even though they are insured.

Another important factor that influences health seeking is perceived seriousness of illness/injury. Findings showed that those who perceived their illness/injury as moderate or severe were more likely either seek care at the public health facility or private clinic than to self treat at home. This finding is consistent with other studies (Diop 2005; Sulzbach et al, 2005; and Franco et al 2008).

The findings highlight that households with heads attaining secondary/ tertiary education were more likely to seek care from a public health facility than to self treat. This is an expected finding since most of the households with secondary/tertiary education were insured and also with their stock of knowledge about the advantages of seeking proper care, one would expect them to seek care from the public or formal facilities than opt for self treatment. Also since most household heads with secondary/tertiary educational level were employed in the formal sector, they will automatically be members of the NHI scheme and the chance of self treatment will be less compared to formal treatment.

CHAPTER SIX

CONCLUSION AND RECOMMENDATION

6.0 Introduction

This section addresses the fourth objective of the study. That is, to provide recommendation to specifically improve the Kassena-Nankana District Mutual Health Insurance Scheme (KNDMHIS) and the National Health Insurance Scheme (NHIS) in general.

6.1 Conclusion

The determining factor for utilisation of health care by households and individuals under the National Health Insurance Scheme is socio-economic status and the poor are the least covered in this setting. Thus the NHIS on the aggregate may show high coverage which masks coverage in small geographical areas where the poorest of the poor live. Improving utilisation in small geographical areas such as Kassena-Nankana district would be feasible if the Ghana Health Service and National Health Insurance schemes focus on utilisation among the poor than overall aggregate of utilisation and NHIS coverage.

6.2 Recommendations

- The current criteria for exempting the poor in a geographical area like KND should be improved by routinely reviewing the enrolment and utilisation of the whole population. With the demographic surveillance system in place in the Kassena-Nankana district, a database of the total population could be linked with the Health insurance enrolment database to enable households that are poor to be identified and offered exemption under the national health insurance scheme.

- Communities members through a participatory approach should be engaged to enable them develop a list of the poor based on a participatory poverty identification criteria to enable the system provide cover for the poor.

6.3 Future of the NHIS and Further Research

The National Health Insurance is likely to face the issue of sustainability due to rising cost of health care given the current levels of utilization due to rising chronic morbidity and high levels of exemptions. Also, adverse selection and moral hazard behaviours are also important issues that need to address to sustain the NHIS. Increase utilization is also likely to affect the quality of care at the health facilities and consequently enrolment decision. In the light of this, further research is needed to address some of these issues.

- There is the need for studies on perception of quality of care in the health facilities with the inception of the district National Health Insurance Scheme (NHIS) in the KND.

- The likelihood of moral hazard among the insured exists, but further research is needed to ascertain modes through which moral hazards occur and how to address such behaviours.

- There is the need for further research on the Impact of the NHI on out-of-pocket spending on health care in the district.

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APPENDICES

APPENDIX 1 :(CONSENT FORM)

TOPIC: <u>Impact of National Health Insurance on Health Seeking Behavior in the Kassena-Nankana District of Northern Ghana</u>.

<u>Purpose of Study</u>:

We are inviting you to partake in a study, which is being conducted by the Department of Public Health and Primary Health Care of the University of Cape Town, South Africa and the Navrongo Health Research Centre. The purpose of the study is to assess the impact of the National Health Insurance on health seeking behaviour in the district. A random sample of people in this community was drawn and you happened to be one of those selected to participate in the survey. We hope that the results of this study will be used to inform the district directorate of health and the Kassena Nankana Mutual health Insurance scheme on the impact of the mutual Health Insurance scheme on people's health seeking behaviours.

<u>Procedures</u>: If you agree to take part in this study, one of our trained staff will interview you. The interview will be about one hour long and you will be asked questions on socioeconomic characteristics of households, health care and household assets information. You can choose not to answer any question you do not want to answer.

<u>Risks and discomforts</u>: You will not be exposed to any physical danger when you take part in this study. If at any time you do not want to answer questions you are obliged to do so.

<u>Benefits</u>: Your participation in this study will help inform the district directorate and the NHI scheme on the impact of the NHI on health seeking behaviour .Even though

the study will not benefit you directly, it may benefit the whole community and other communities in the future.

Confidentiality: The questionnaires will be destroyed after we have worked with them. Your name will not be mentioned in any written document. Nobody will be able to trace anything we discuss back to you.

Right to refuse or withdraw: Before being interviewed or participating in the study, please understand that your participation is voluntary. You do not need to answer questions or to participate in the research if you do not want to. If you decide not to be part of this study, your decision will not affect your relationship with the interviewers and the NHRC in anyway. You will also not lose any benefits that you would have otherwise been entitled to.

If at any time following this interview you have any questions or would like to speak to someone involved in this study, please feel free to contact

The Chair of NHRC IRB
Dr. John Awoonor-Williams
Regional Health Directorate
Bolgatanga
Tel:07222335/0244564120

The Director
NHRC
Box 114,
Navrongo
Tel: 0742 222310

Mr. Maxwell Ayindenaba Dalaba
NHRC,
Box 114,Navrongo
Tel: 024 4843904

Statement of consent

I have read or have had the above read to me and I have asked questions and received answers and I am willing to participate in this study. I will not have waived any of my rights by signing/thumb printing this cons

Do you agree to participate in the study? Yes No

Certification of individual seeking consent

I, the undersigned, have explained to the participant in a language she/he understands the procedures to be followed in the study and the risks and benefits involved.

Name: of individual obtaining consent_____

Signature_____

Date_____

APPENDIX 2 (SURVEY INSTRUMENT)

IMPACT OF NATIONAL HEALTH INSURANCE ON HEALTH SEEKING BEHAVIOR IN THE KASSENA-NANKANI DISTRICT OF GHANA

(INCLUSION CRITERIA)

ASK THIS QUESTION FIRST BEFORE YOU PROCEED WITH THE INTERVIEW

When was the last time any member of the household was sick/injured?

If illness/injury is within 4 weeks period, continue interview.

If illness/ injury exceeds 4 weeks and its inpatient (i.e. if the person was hospitalised), continue interview.

If illness/ injury exceed 4 weeks and not inpatient, discontinue interview.

If inpatient illness/ injury exceeds 1 year, discontinue interview.

SECTION 1: IDENTIFICATION

DATE OF INTERVIEW		DINT
COMPOUND NAME/ID		COMPNAM
HOUSEHOLD NAME/ID		HHNAME
CODE OF FIELDWORKER		FW
CODE OF FIELD SUPERVISOR		FS
NAME OF COMMUNITY		COMTYNAM

SECTION 2: Socio-economic and demographic characteristics of respondent

	For the household head	Coding Categories	Codes
1	How old is the household head? (Age in completed years)		Q1HHAGE
2	Sex of household head	Male……1 Female……2	Q2HHSEX
3	Marital status of household head	Married……1 Never married……2 Divorced……3 Widow……4 Other (specify)……5	Q3HHMAR
4	Ethnic origin of household head	Kassem……1 Nankam……2 Buli……3 Other(specify)……4	Q4HETHIC
5	What is educational level of the household head?	Never been to school……1 Primary……2 JSS……3 Secondary……4 Tertiary……5	Q5HEDUC
6	What is the occupation of the household head	Farmer……1 Trader……2 Employed in the formal sector…3 Retired/Pensioner……4 Student……5 Unemployed……6 Artisan……7	Q6HOCCUP
7	What is the religion of the household head?	Traditional……1 Christian……2 Muslim……3 Other(specify)……4	Q7HRELIG
8a	How many people live in this household?	☐☐	Q8HHSIZ
8b	Write down sex, age and education of each household member		

Household member	Age	Sex Male…..1 Female...2	Educational level Never been to school……..1 Primary.....2 JSS.....3 Secondary..... ..4 Tertiary.....5	
Person 1				PERS1ASE
Person 2				PERS2ASE
Person 3				PERS3ASE
Person 4				PERS4ASE
Person 5				PERS5ASE
Person 6				PERS6ASE
Person 7				PERS7ASE
Person 8				PERS8ASE
Person 9				PERS9ASE
Person 10				PERS10ASE

	For the sick/injured household member		
9	How old is the sick/injured household member?		Q9AGE
10	What is the Sex of the sick/injured household member?	Male……..…….....1 Female…….....2	Q10SEX
11	What is the Educational level of the sick/injured household member?	Never been to school……1 Primary……..…….....2 JSS…….....3 Secondary……..….....….4 Tertiary……..….....5	Q11EDC
12	What is the ethnic origin of the sick/injured household member?	Kassem……..….....…1 Nankam…….....….2 Buli…….....3 Other(specify)……..….....4	Q12ETHIC

13	What is the religion of the sick/injured household member??	Traditional…….................……1 Christian……………................2 Muslim……………...................3 Other(specify)…....................…4	Q13RELIG
14	What is the marital status of the sick/injured household member?	Married……….................……1 Never married………..............…2 Divorced…………..…...............3 Widow….……………..…............4 Other (specify)..………...............5	Q14MAR
15	What is the occupation of the sick/injured household member?	Farmer….…………......……......…1 Trader…………..…………….......2 Employed in the formal sector….3 Retired/Pensioner………..….....4 Student………………………......…5 Dependent.................................... 6 Unemployed....……..…........…7 Artisan…………………………8	Q15OCCUP
16	On average, how much is the monthly expenditure of the household?	Less than ¢100,000………...……1 Between 100,000 and 200,000….2 Between 200,000 and 300,000….3 Between 300,000 and 400,000….4 Between 400,000 and 500,000….5 Between 500,000 and 600,000...6 Between 600,000 and 700,000….7 Between 700,000 and 800,000….8 Between 900,000 and 1,00,000..9 Above 1,000,000……………..10	Q16EXP

SECTION 3: LAST ILLNESS AND HEALTH CARE INFORMATION

17	What did you or sick/injured household member suffer from? (Circle all mentioned)	Malaria/Fever.....……..............…1 Diarrhoea/cholera…...................…2 Coughing……………................3 Vomiting…………..…...........…4 Catarrh…………………………...5 Headache ……………………......6 Piles ………………...…………...…7 Stomach pains……………..…......8 CSM……………………...………9 TB……………………..…………...10 AIDS…………………………...11	Q17ILTYP

		Hernia……..12 Eye problem……13 Chest Pains…….14 Diabetes……..15 Rashes…….16 Injury_____17 (Specify) Others (specify)……...18	
18	Were you or the sick/injured household member hospitalized?	Yes…….....…1 No → SKIPQ20 …….....…2	Q18HOSP
19	If yes, for how many days were you or sick/injured household member hospitalized?	☐☐ Na…….....88	Q19DYSHP
20	How would you rate the illness/injury	Mild……..1 Moderate….....…2 Severe…….....…3	Q20RATIL
21	Did you or sick/injured household member seek care?	Yes…….....1 No…….....2 → SKIP23	Q21SEKCA
22	If yes, where did you or sick/injured household member seek care?	Public Health Centre/clinic.....…1 Public Hospital……..….….....2 Traditional healer…….....3 Private Clinic...…….…….....4 Drug stores……..……..….....5 Self treatment at home. ……...6 Other ,Specify…..…..……...7 Na…….....…88	Q22YESCAR
23	If no, why did you or sick/injured household member not seek care?	No money…….……1 Not insured ……..……....2 Distance…….……....3 Service Providers Attitude……4 Sickness not severe……...5 Other_____6 Na…….....88	Q23NOCAR
24	Why did you or sick/injured household member use the provider/facility you have	Proximity…….…….....…1 Staff attitude…….....2 Availability of drugs…….....3	Q24WHYPR

	mentioned? (Circle all that apply)	Moderate fees…….....4 Lab services…….....…5 Credit facility……..…….....….6 Availability of Doctors…….....7 Availability of Nurses…….....…8 Insured (NHI)…...…….....…9 Referred by a doctor/nurse.....10 Suggested by family.....11 Other, specify…….....12 NA……..13	
25	Who attended to you or sick/injured household member at the health facility/Drug store?	Doctor…….....1 Medical Assistant……...…2 Nurse/CHO……...3 Drug store seller……4 Traditional healer……5 Others, specify……...6 NA……7	Q25WHOAT
26	What type of services did you or the sick/injured household member receive from the service provider? (Circle all that apply)	Consultation…….....1 Laboratory Test……...…2 X-ray…….....…3 Surgery…….....4 Drugs…….5 Herbs…….6 Others, specify…….....7 NA…….8	Q26TYPSE
27	How did you or sick/injured household member get to the service provider?	Walked…….....…1 Bicycle……2 Motorbike…….....3 Public transport.....4 Private vehicle/transport.....….5 Treated at home…….6 Others…….....7 NA…….8	Q27HOWFA
28	How long did it take you or sick/injured household member to get to this service provider?	Less than 30 minutes…….....1 Between 30 minutes and 1 hour...2 More than 1 hour…….....…3 NA…….4	Q28TIMFA
29	Did you or sick/injured household member pay for care?	Yes…….....1 No…….....2 NA……..3	Q29PAYCA → SKIP Q31

30	If yes, how much was spent on the following	Consultation fee Transport cost… Cost of drugs… Cost of surgery Cost of herbs No cost due to NHI Others specify… Na…….....88	Q30YSAMT
31	If no, why did you or sick/injured household member not pay for the care?	Free services……...…….....1 Have NHI……..…….....2 Know the service provider.....3 Others (specify).....4 Na…….....…88	Q31NOPYT
32	How long did you or sick/injured household member have to wait to see the service provider?	Immediately……..1 Less than 30 minutes……....2 Between 30 minutes and 1 hour...3 More than 1 hour…….……..4 NA…….5	Q32WAITI
33	How was the attitude of the service provider who attended to you or sick/injured household member?	Very good…….....1 Good…….....2 Bad…….....…3 Very bad…….....…4	Q33ATITD

		NA……..5	
34	Were you satisfied with the services of the service provider?	Very satisfied…….....1 Somewhat satisfied……....2 Not satisfied……..3 NA…….4	Q34QLTY
35	How will you describe your or sick/injured household member's current health status after receiving treatment?	Very good…….....1 Good…….....2 Bad…….....…3 Very bad…….....…4 NA……..5	Q35CURHL
36	How many times have you or sick/injured household member attended **hospital/health facility** last year (2008-2009?	☐☐	Q36HMHV
	Health insurance Information		
37	Is the household head enrolled in the MHI scheme?	Yes…….....1 No…….....2	Q37HMHI → SKIPQ39
38	If yes, why	Mandatory (formal worker)…....1 It's a Good system…….....2 Exempted (poor)…….....3 Exempted (>60 yrs)…….....…4 Exempted (0-17 years).....5 Others…….....6 Na…….....…88	Q38YSHMH
39	If No, why have you not enrolled in the MHI	Poor quality of care…….....1 No facility close by…….....2 No trust in the system…….....…3 Expensive…….....…4 Other…….....5 Na…….....88	Q39NOHMH
40	Is the sick/injured household member enrolled into the scheme?	Yes…….....1 No…….....2	Q40ILMHI → SKIPQ42
41	If Yes, why is he/she enrolled in the MHI	Mandatory…….....1 Good……..….....2 Exempted (poor)…….....3 Exempted (<18 yrs)…….....4	Q41YSMHI

		Others…….....…5 Na…….....88	
42	If No, why is the sick/injured household member not enrolled in the MHI?	Poor quality of care…….....1 No facility close by…….....2 No trust in the system…….....3 Expensive……..….....4 Exempted…….....5 Other…….....6 Na…….....88	Q42NOMHI
43	How many members of your household are enrolled in the KNDMHIS?		Q43HHMHI
44	How much did you pay for enrolling all the members in the scheme?		Q44AMTEN

SECTION 4: BASELINE HOUSEHOLD ASSETS INFORMATION

HOUSING			
45	What is the **main** material for the wall?	Concrete……1 Mud…….....2 Bricks……3	Q45MODD
46	Type of **main** roofing material (excluding animal compounds)?	Zinc……...1 Concrete……2 Mud……...3 Thatch……...4 Concrete tiles……5 Other……..6	Q46WLMAT
47	What are the **most** frequently used cooking utensils in your household?	Earth bowls…….……1 Aluminium pans…….……...…2 Earth/aluminium…….……...…3 Aluminium/ Plastic pans……...…4 Others……5	Q47UTSIL
48	What are the toilet facilities in your household?	Free range…….…….1 Pit latrine……..2 KVIP…….....3 Pan latrine……4 WC.....…….....5	Q48TOLET

		Others……..…..6	
49	What is the **main** source of drinking water does your household have?	Pipe borne water…….……...…1 Borehole…….……..….2 Stream…….....3 Well……..……4 Other…….5	Q49WATER
OTHER POSSESSIONS			
50	How many functioning bicycles do members in your household own?	None…….1 One……2 Two……...3 Three…….4 More than three……5	Q50BIKE
51	How many functioning motor bikes do members in your household own?	None…….1 One……2 Two……...3 Three…….4 More than three……5	Q51MOTOR
52	How many functioning cars/vehicles are owned by household members?	None……..1 One……2 Two……...3 Three…….4 More than three……5	Q52VEHIC
53	How many functioning tractors are owned by household members?	None……..1 One……2 Two……...3 Three…….4 More than three……5	Q53TRATR
54	How many wooden/iron beds are in your household?	None……..1 One……2 Two……...3 Three…….4 More than three……5	Q54BEDS
55	How many functioning radio sets are in your household?	None……..1 One……2 Two……...3 Three…….4 More than three……5	Q55RADIO

56	How many functioning tapes are in your household?	None……..1 One……2 Two……...3 Three……4 More than three……5	Q56TAPE
57	How many functioning TV sets are in your household?	None…….1 One……2 Two……...3 Three……4 More than three……5	Q57TV
58	How many functioning dvd/vcds are in your household?	None…….1 One……2 Two……...3 Three……4 More than three……5	Q58DVD
59	How many functioning mobile phones are in your household?	None…….1 One……2 Two……...3 Three……4 More than three……5	Q59MOBIL
60	How many functioning sewing machines are in your household?	None…….1 One……2 Two……...3 Three……4 More than three……5	Q60SEW
61	How many electrical lamps (bulbs) and lanterns are in your household?	None…….1 One……2 Two……...3 Three……4 More than three……5	Q61BULBS
62	How many functioning coal pots are in your household?	None…….1 One……...2 Two……..3 Three……4 More than three……5	Q62CPOT
63	How many functioning kerosene stoves are in your household?	None……..1 One……2 Two……...3	Q63KSTOV

		Three……4 More than three……5	
64	How many functioning electric or gas cookers are in your household?	None……..1 One……2 Two……...3 Three……4 More than three……5	Q64GASCK
65	How many functioning refrigerators/deep freezers are in your household?	None……1 One……2 Two……...3 Three……..…4 More than three……5	Q65FRZER
66	What is the **main** type of cooking fuel used in your household?	Gas……1 Electricity...…… 2 Wood……3 Charcoal……4 Stalks……..……...5 Other……6	Q66CFUE
67	How many cattle do you have in your household?	None……..1 One……2 Two……...3 Three……4 More than three……5	Q67CATLE
68	How many sheep do you have in your household?	None……1 One……2 Two……...3 Three……4 More than three……5	Q68SHEEP
69	How many goats do you have in your household?	None……..1 One……2 Two……...3 Three……4 More than three……5	Q69GOAT
70	How many pigs do you have in your household?	None……..1 One……....2 Two……...…3	Q70PIGS

		Three……4 More than three……5	
71	How many donkeys do you have in your household?	None……1 One……2 Two……...3 Three……4 More than three……5	Q71DONKY