

**UTILIZATION OF HEALTH CARE BY
INSURED AND NON-INSURED PERSONS
IN ELDORET MUNICIPALITY, KENYA.**

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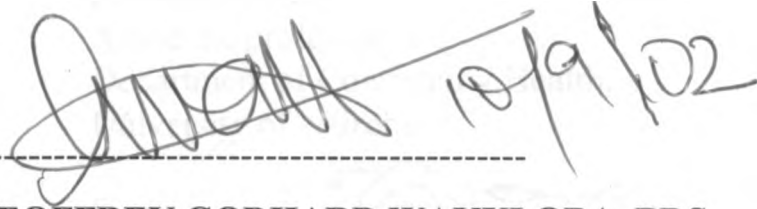
**A THESIS SUBMITTED IN PART FULFILMENT FOR THE
REQUIREMENTS OF THE DEGREE OF MASTER OF PUBLIC
HEALTH OF THE UNIVERSITY OF NAIROBI**



DECLARATION

I, Dr. Geoffrey Godhard Wakuloba, declare that this thesis is my original work and that it has not been presented to any other institution for purposes of obtaining a degree.

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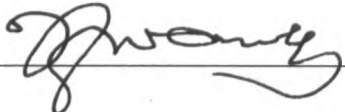
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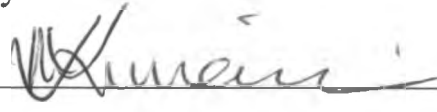
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DEDICATION

To my children Harry Kituyi, Caren Nafula and Edmund Waswa.

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LIST OF ABBREVIATIONS

AAR	-----	African Air Rescue Health Services
AHS	-----	Avenue Health Services
ALICO	-----	American Life Insurance Company
AMREF	- -----	African Medical Research Foundation
CBS	-----	Central Bureau of Statistics
DCO	-----	District Clinical Officer
DMOH	-----	District Medical Officer Health
DMS	-----	Director of Medical Services
DPHN	-----	District Public Health Nurse
IGA	-----	Income Generating Activities
KDHS	-----	Kenya Demographic Health Survey
MCH / FP	-----	Maternal Child Health and Family Planning
MOH	-----	Ministry of Health
MTRH	-----	Moi Teaching and Referral Hospital
NGOs	-----	Non- Governmental Organizations
NGOK	-----	Non-Government of Kenya
NHIF	-----	National Health Insurance Fund
SPSS	-----	Software Program for Statistical Solutions
UNICEF	-----	United Nations Children Fund
WHO	-----	World Health Organization

DEFINITIONS OF INSURANCE CONCEPTS USED IN THE TEXT

Adverse selection

This is the tendency of a person to take a health insurance cover because he or she has a high probability of consuming more health services. Since insurance pools many risks together, persons with very high risks will become a big burden to the insurance company. As a result many insurance companies exclude such persons. They will prefer persons with very low risk.

Moral Hazard

This is tendency of persons with health insurance cover to use more services because they are insured. In other words, by virtue of the fact that a person is insured, visiting a health provider at any time for whatever illness is the rule rather than a choice. This leads to over utilization of health services.

Insurance underwriting

This is the evaluation of persons before registration with an insurance company. Insurance companies basically evaluate the risk of the person taking insurance. When the risk is very high the person may be left out or pay high premiums.

Tiered rating

This is the practice of pricing insurance premiums based on individual health status. Persons with excessively high risk will pay high premium compared to those with lower risk. When age is considered and the risk increases, premiums may be increased annually. This is called durational rating.

Deductible

This is the initial fee paid by the insured before the insurance company pays the remaining cost of health care for the person. It may be paid as a deposit before admission in health facility.

Coinsurance

This is normally a fraction of the total cost of health care that the insured person pays.

Copayment

This is the fee paid to the provider by insured person during each visit or consultation to a provider.

Capitation

This refers to the fee paid directly to the preferred health provider per year in a health maintenance organization.

Gatekeepers. This refers to primary care physicians serving as patients initial contacts for medical care and referrals (to manage the care and authorize referrals).

ABSTRACT

One of the agenda for health reforms in Kenya as outlined in the Health policy framework paper of 1994, is generation of increased levels of financial resources, for the provision of cost-effective services through widely accepted cost sharing and alternative health financing initiatives. The alternative financing initiatives alluded to include health insurance.

Promoting health insurance in the health care market can affect both the demand and supply of health services. In this case demand for health care will increase because insurance tends to reduce the fee paid by insured persons to providers. However, the increase may also be due to the behaviour of the insured prompted by adverse selection and moral hazard.

Although health insurance coverage is not wide in Kenya, there is a significant proportion of Kenyans who have drawn it from the various organizations that provide health insurance.

This study investigated the socio-demographic characteristics of insured and non-insured persons and the way they utilise health care. It was carried out in Eldoret Municipality, Rift Valley Province between December 2000 and March 2001. Sampling was done in two stages. First, the estates were sampled by multistage cluster sampling method. Then the specific households were sampled by simple random sampling. Data were collected by use of a

semi-structured questionnaire written in English. A total of 377 respondents aged between 18 and 70 years were interviewed. About 88% of them were married. There were about 47% males and 53% females. About 50% were employed and 40.2% had attained secondary school education.

54.6% of the respondents were insured. The insurance organisation with the highest membership was the NHIF (67.3 %). 58.5% of the non-insured persons were unwilling to take health insurance cover mainly due to lack of money to pay premiums (52.1%). Nevertheless, those who were willing and able to join could afford to pay a mean monthly premium of Kshs. 900.

64.2% of the respondents did not consult a health provider over a period of three months prior to the interview. Of those who consulted, 60.7% were insured. Moreover, 51% of the insured tended to seek care from private doctor's clinics and hospitals. On the other hand, the non-insured consulted providers mainly in government or municipal health facilities. None of the insured respondents had been admitted for chronic illnesses though some of the non-insured had been hospitalised for these types of illnesses.

In conclusion, the study found that insured and non-insured persons do not use health care the same way. The insured people consult providers in private health facilities but the non-insured seek care from public hospitals. Furthermore, the study found significant relationships between age, level of education, employment, income, household size, insurance status and utilisation of health care ($p > 0.05$). Therefore, the practice of insurance underwriting where premiums are based on these factors is recommended to continue.

Health insurance organisations also need to improve their marketing strategy so that they reach the non-insured. This may be achieved by use of the print and electronic media. Insurance agents could also be deployed at the level of the location so that they can educate people about health insurance during the chief's barazas. Community insurance schemes and social insurance organisations should be started in the communities.

1.1 INTRODUCTION

Health insurance is a financial mechanism or institution of putting aside financial resources that will help the individual or family to meet their medical costs in future (Vogel 1990). In this definition, insurance is a third party payer. Employer organized prepayment schemes to providers are not considered as insurance. However, health maintenance organizations are considered as insurance because the provider of care is also responsible for the pool of funds.

Health insurance has certain advantages and disadvantages. It's a source of revenue for health care. It improves the health of those workers most vital for a country's growth. Nevertheless, insurance is inequitable in practice, because it benefits a small elite but imposes costs on the rest of the society. It promotes curative high cost care and is often subsidized by taxes, which weigh heavily on the poor people (Lee and Mills 1983).

Usually, individuals or families who have taken health insurance are better off in case of an illness. This is because a large proportion of the cost of health care is paid by the insurance organization. This improved access to health care is prone to over-use by insured persons because, to them health services have already been paid for. Insurance organizations have set up measures to minimize this misuse. They include payment of deductibles, coinsurance, copayments, limiting services covered, exclusion of high-risk individuals, and annual indemnity.

The two studies below which were done in Kenya show that some people are using insurance to finance their health care costs, especially after the introduction of cost sharing in public hospitals.

Wang'ombe et al 1998 found that 50% of the admissions in NGOK hospitals in Kenya paid their medical care through insurance. Nolan and Turbat 1993 found the prevalence of health insurance in Kenya to be about 25%.

This study was designed to compare the sociodemographic characteristics and health care utilization patterns of insured and non-insured persons.

1.2 BACKGROUND

The health sector in any country is structurally made up of patients, health providers and third party payers (Reinhardt 1989). Health providers raise claims to the third party payer, render health services to the patients and pay taxes to the government. Third party payers on the other hand provide medical cover to the patients and receive payments in the form of taxes or premiums from the patients. They also pay claims from providers. Some patients may opt to pay user fees directly to the health providers. The government regulates third party payers and providers so as to maintain the required standards. This relationship is shown in figure 1 below.

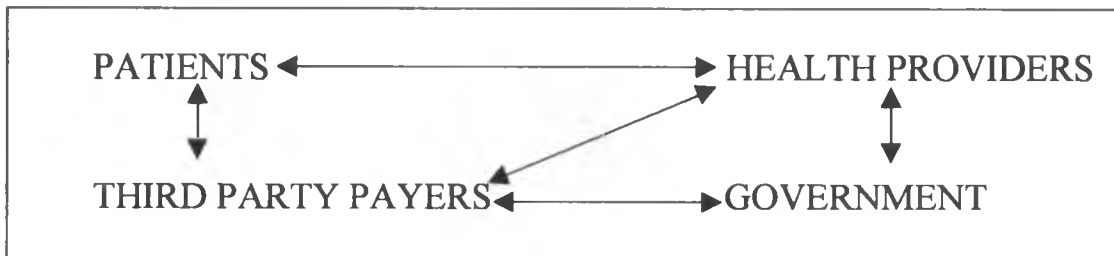


Figure 1. Structure of health services delivery (Source: Adapted from Olsen 1993).

Health services in Kenya are pluralistic. They comprise of the popular and secular sectors. The popular sector is made up of public and private providers. The public sector comprises of government and municipal health services. These constitute about 66% of the health facilities countrywide. The private sector is made up of private for profit and private non-profit. The private for profit constitutes about 25% and the private non-profit take up just about 8%. Employer based health facilities constitute the remaining 1%. The private for profit providers include private hospitals, Nursing homes and private doctor's clinics. The private non-profit providers include mission hospitals, community organized clinics, and voluntary private clinics and hospitals (Mwabu and Mwangi 1986).

Many employers have put up health facilities for their workers. Others have contracted private providers whom they pay either directly or through third party payers. The organizations with employer based health facilities include private companies, parastatals and NGOs (AMREF, 1995).

Third party payers in Kenya include insurance organizations, the government and employers. The major one being insurance organizations namely the National Hospital Insurance Fund and private insurance companies. The different health insurance programmes present in Kenya can be categorized into compulsory and voluntary health insurance.

1.3 COMPULSORY HEALTH INSURANCE

The National Hospital Insurance Fund.

This was started in 1966 for all persons above the age of 18 years in formal employment earning Ksh. 1000 and above (Gok, Sessional paper No.10 of 1965). Individuals in the informal sector interested in joining the fund were allowed to register since 1990. Initially all members contributed a fixed premium of Ksh. 20 Per month. However, later the premiums were increased to amounts between Ksh. 30 for the lowest earner to Ksh. 320 for the highest earner per month. When members retire from active employment, they continue being members by contributing a fixed premium of Ksh. 60. Those who cannot pay cease to be members.

Prospective providers of health care send their application to the DMOH. The DMOH together with the DHMT inspect the health facility to ensure that the facility meets the set requirements of the Ministry of Health. The DHMT comprising of the DMOH, DPHN, DCO, DPHO and other departmental heads conduct an on site inspection of the facility. They compile a report, which is send to the DMS. The DMS, who is a member of the Medical Practitioners and Dentists Board (MPDB), will approve the facility. The board will then register the health facility after paying the registration and annual subscription fee.

The DMS and MPDB will then make recommendations to the NHIF. The NHIF through the branch offices will also inspect the facility and compile a report that is send to the head office. The NHIF board will there after register the facility and set the fee that the facility can charge the members per day.

The NHIF reimburses accredited health providers for services rendered to members. The providers include Government of Kenya Hospitals, Private Hospitals and Nursing Homes.

The NHIF pays a fixed fee per patient per day of stay in a hospital, up to a maximum of 180 days in a year. It does not pay for outpatient services, the doctor's fees and the cost of drugs. The daily rebate fees ranges between Ksh. 400. to Ksh. 2000 per day of hospital stay.

The fund is well represented countrywide with 17 branches at places like Mombasa, Malindi, Voi, Nakuru, Eldoret, Kakamega, Embu, Kisumu, and Nyeri. Prospective members can register at the branches. Their names are then sent to the head office in Nairobi. Members are issued with membership cards which are renewable on yearly basis and must be produced at the time of admission. After a member registers with the Fund, a grace period of three months must elapse before the member can claim from the Fund.

1.4 VOLUNTARY HEALTH INSURANCE.

Employer Organized Prepayment Schemes

These are schemes organized by employers for their workers. The employer sets a medical allowance for each worker. It is then pooled with a certain contribution from the employer. The employees are given personal numbers and the list of health providers to visit. They are also informed of the limitations of their entitlement. When a member spends more than their maximum amount allowed, then the extra cost is deducted from the salary. The employer pays providers. Most of these schemes are concentrated in urban areas where formal employment is available (Wang'ombe 1994). Examples of organizations that have these schemes include parastatals such as the central bank, Kenya Power and Lighting Company Limited, Kenya Electricity Generating Company, Kenya Pipeline and Telkom Kenya Limited. Other private companies that have these schemes include insurance companies such as ALICO Kenya Limited, British America Insurance Company, Madison Insurance Company, and so on. Institutions such as the University and private banks also have these schemes for their employees.

Health Maintenance Organizations (HMOs)

These are organizations that take up the role of the insurance and provider of health care to its members. Individuals or groups of people contract with it to cover their health needs either in their facilities or in the facilities under contract to the HMO for an annual fee. In the organization, the integration of the functions of insurance and provider of care gives some degree of cost containment. This then becomes an incentive to consumers in contrast to other third party payment schemes. In most cases insurance organizations pay HMOs the annual fees for their members to receive health care.

However, in Kenya some members pay their premiums directly to the organization. The organization then provides health services and pays the health providers. The health providers are either salaried employees or contracted private providers (doctors, or hospitals). The members pay their premiums annually to the organization. Members are then given membership identification cards and stickers.

These organizations are not many in Kenya. They include the African Air Rescue Health Services (AAR), Health Management Solutions (HMS), Avenue Health Services (AHS) and Comprehensive Medical Services (CMS) and Mediplus Health services. Whenever a member is admitted in a hospital, the health provider must report to the head office within twenty-four hours.

These organizations are based in Nairobi but have contracted specific hospitals for their members. In Eldoret, the contracted hospitals are the Uasin Gishu Memorial Hospital and Eldoret Hospital.

Community Insurance Schemes

This can be health centre or rural private hospital based. Health committees are the leaders of the organization. They draw members from the community around the health facility. The members may belong to a village development association, area cooperative society, parents and teachers association or any social organization in the community. An example in Kenya is the Chogoria Hospital insurance scheme. The members comprise of the Hospital staff and the area residents. The area residents are coffee farmers. They belong to the coffee cooperative society. The cooperative society buys coffee from the farmers every year. When the farmers get payment for their coffee from the cooperative is the time that they are able to pay the insurance premiums. They are then able to get health care from Chogoria Hospital, which is paid by the insurance.

Private Insurance Organizations

There are many private insurance organizations operating in Kenya. In fact a study carried out 1994, established that there are 38 insurance organizations in Kenya. Over 3000 brokers and agencies countrywide represent them (Wang'ombe 1994).

They include ALICO Insurance, Pan African Insurance, British American Insurance, Lakestar Insurance, Madison Insurance, UAP Provincial Insurance among others.

These companies provide life, health and commercial insurance covers for their members. However not all the insurance companies provide the three types of covers. Some package health insurance covers with other commercial insurance policies, while others have separate health insurance cover.

PUBLIC HEALTH SERVICES IN KENYA

In Kenya, there are government and private health providers. In the public health sector the government pays providers and other health care costs. The government derives its revenue from general taxation, foreign aid, user fees and health insurance. These GOK facilities are dispersed over the country as dispensaries, health centres, district hospitals and provincial hospitals. These are linked up to the Kenyatta National Hospital by a referral system (Mwangi and Mwabu 1986).

About 65% of the Ministry of Health budget is absorbed by these facilities, which provide about 52% of the bed capacity in Kenya. Mission and private hospitals take just about 33% and 15% of the bed capacity respectively (GOK, Development Plan 1984-1989).

The public health sector in Kenya has had problems in meeting the health needs of the people.

The problems have been in the structure of delivery of health services, the financing of health services, population growth and the infrastructure.

In terms of structure, the system is organized into a national, provincial, district, health center and dispensary. Policies, decisions and general management is at the National level. Implementation is however centred at the district level. Policies and decisions made at the National level are channelled through the Provincial Medical Officer (PMO) to the DMOH where they are converted into operational objectives.

Shortages and other problems experienced at the peripheral health facilities need to be channelled through the same structure to the headquarters. This structural organization has some inherent delay in communication. Consequently the districts have been experiencing problems of shortages and fraud.

Public health facilities are financed through budgetary allocation from the treasury through the Ministry of Health. This allocation has diminished from about 11% of the GDP in 1963 to 7% by 1997. The per capita expenditure has diminished from about \$8 in 1980 to \$3 by 1997. There is persistent deficit between expenditure and revenue. The facilities are marked with rampant wastefulness due to lack of cost efficiency and cost effectiveness (Collins and Quick, 1994).

There are also disparities in the allocation not only in the different districts but also between curative and preventive services. About 70% of the MOH budget is spent on curative services. Despite the allocation, there are frequent drug shortages at the health facilities. Demand for curative services has also increased. This can partly be explained by the problem of rapid population growth.

The population has increased from 16.2 million in 1979 to about 28.74 million by 1999 (GoK, Census reports 1979 and 1999). Public health facilities could not cope with the increased demand for care.

This has led to the development of the private healthcare providers. Private healthcare facilities are more prevalent in urban areas than in rural areas. These urban-based curative services require a well-developed infrastructure for referral of patients. However, the infrastructure is in a poor state. The roads are in a poor state of repair and the telecommunication network has not reached the rural areas. This has made the referral of patient from rural health centers to national and district hospitals ineffective. As a result, other ways and means of raising revenue for the health sector had to be explored. In December 1989, cost sharing in government hospitals was started. The main objective was to charge high fees for curative services at the district, provincial and national hospitals. This was expected to shift utilization of curative services to health centers and dispensaries where no fees was being charged. The revenue generated was to be used for improvement of the facility. The fund experienced a series of problems between 1989 and 1992. However, it stabilized in June 1992 and has now been accepted by the people. It is operating at health centers, district hospitals, provincial hospitals and the National referral hospitals. The revenue being generated has had a direct impact on the quality of services in the facilities. The frequent shortage of drugs and other supplies in the hospitals has reduced because 75% of the revenue collected is used by the facility (Collins and Quick, 1994).

Another source of revenue for the health sector that the government is developing is health insurance. In a country where user fees have already been started for public health services, voluntary health insurance is usually stimulated. An important point to consider about insurance is that the design of insurance programmes determines the extend to which it can act as an effective tool for developing and financing health services within the constraints of a countries costs and coverage (Smith A. B, 1985).

Health insurance in most cases does not cover services that are considered as public. The priority for insurance is health events affecting individuals leading to huge losses. Individual goods such as long hospital stay and drugs are what insurance companies want to insure as well as outpatient care (Lee and Mills, 1983).

Since cost sharing has already been started in public health facilities, the government might consider developing health insurance as another source of the much-needed revenue. Voluntary health insurance already existed in this country prior to the cost-sharing scheme. However, the scheme might positively lead to an apparent increase in the Prevalence of health insurance in the country.

1.5 ORGANISATION OF HEALTH INSURANCE IN ELDORET TOWN

Different insurance organisations are represented in Eldoret town. Branch offices present in town represent the NHIF and some private insurance organisation. Private agencies and brokers represent the private insurance organisations that do not have their own branch office in the Town. Members pay their premiums to the branch, agent or broker. The members' premiums are remitted to the head office in Nairobi by the branch, agent or broker.

The National Hospital Insurance Fund

The NHIF set up an office in Eldoret in 1991. This branch office caters for all members in the North Rift region, which includes Uasin Gishu, Trans Nzoia, Nandi, Keiyo, Marakwet, Pokot, Baringo, Koibateck and Turkana districts. The branch office has 64 employees.

Currently the offices are on the tenth floor of KVDA Plaza along Oloo Street. They have about 52000 members from both the formal and informal sectors. The members registered from the informal sector are about 1500 and this has been increasing annually.

The branch has 21 approved hospitals. These include 10 private, 7 public (Government) and 4 mission hospitals.

The hospitals make their claims to the head office in Nairobi through the branch office. The daily in-patient fee reimbursement rates for the hospitals are as follows:

	Daily Rebate (Kshs.)
MTRH: General Wards	1400
MTRH: Amenity Wards	2000
Uasin Gishu Memorial	1000
Eldoret Hospital	1000
Pacifica Hospital	1000

Table 1: Daily rebates for Hospitals in Eldoret Town

Private Insurance Companies

There are insurance companies operating in Eldoret town. British American insurance Company established a branch office in Eldoret in 1972. It has a staff establishment of about 50 regular agents. It has three different types of health insurance. These include Med-flex family cover, The Photo-card and Personal Accident Cover. The personal accident cover is currently referred to as income replacer. The premiums payable by an individual are not fixed. They vary depending on the benefits that the individual wants to have. The insurance mainly covers in-patient services only.

Under the Med-flex plan, the insured person pays the institution after treatment and claims reimbursement through the branch office. However those people with a photo-card only need to inform the branch of their admission into hospital and the insurance pays the hospital directly.

American Life Insurance Company (ALICO) also has three types of health insurance. These are the Med-cash, Flexipac and Personal Accident Cover.

These insurance covers are more or less the same as those of British America Insurance in terms of payment of premiums and claims.

Madison insurance Company has the Family Cover and Personal Accident Policy. Members pay premiums to the branch in Eldoret. They also have to pay the health provider and claim reimbursement from the insurance company.

AAR Health Services

AAR Health services do not have a branch office in Eldoret Town. However members can pay premiums through agents and brokers in Eldoret. They provide rescue and evacuation, in-patient care in specific approved hospitals, a funeral benefit of Kshs. 50,000 per member and outpatient services in their clinics.

It has three health plans (Gold, Silver and Bronze) and the personal accident cover. The premiums payable vary according to the plan and whether the individual is on his own or belongs to company. People from companies pay lower premiums compared to those who are not from companies. However, the premiums for outpatient services and personal accident cover are the same. The statistics in table 3 below demonstrates the services and the corresponding annual premiums.

Type of cover	Annual premium (Kshs.)
Outpatient services (visit fee of Kshs.50)	10,900
Personal accident	1200
In-patient services, Evacuation and rescue	Gold 27,200
	Silver 18,350
	Bronze 15,100

Table 2: AAR Health Services ; Annual Premiums 2001.

CHAPTER TWO

LITERATURE REVIEW

2.1 HEALTH INSURANCE

Health Insurance is an institution and financial mechanism that helps individuals and organizations to set aside financial resources to meet the costs of medical care in event of illness. Individuals and organizations need health Insurance to cover itself against two basic types of risks namely:

- (a) Losses due to normal but expensive illness and
- (b) Costs of catastrophic and unexpected illness.

Health insurance is about risk sharing by insured individuals. Funds from individuals are pooled together. Providers of care are paid from the pool of funds. Individuals have varying levels of sickness risk. Those persons with high sickness risk benefit from insurance by paying low premiums and having their high medical bills paid by the insurance. Those with low illness risk are protected against high cost of care especially in case of an unexpected or accidental illness.

Health Insurance schemes and other forms of social financing have become important mechanisms of complementing health finances available from public services in developing countries. However, health insurance is just beginning to take root in Sub-Sahara Africa (Smith 1989). This finding is in agreement with another study done by Nolan and Turbat on the profile of health insurance coverage in Sub-Sahara Africa. They found that the population covered range from 0.01% in Ethiopia to 25% in Kenya. This was quite low compared to the developed countries (Nolan and Turbat, Population Health & Nutrition sector reports (World Bank 1993).

This low health insurance coverage is due to many factors. However, the main one according to Varian (1985) was asymmetry of information. In this case the illness risk of the people to be insured is not known to the potential insurers. This is due to the fact that most people live in rural areas while insurance organizations are in urban areas. The administrative costs of premium payment and collection make premiums to be quite high. The other factors contributing to the low health insurance coverage include adverse selection, lack of modern health facilities and existence of free health services offered by either the government or the donor countries (Anne Mills 1983). Adverse selection makes insurance organizations to charge varying premiums for different individuals. However, some insurance organizations charge uniform premiums for low and high-risk individuals. This makes the low risk people to withdraw from the insurance leaving the high-risk individuals. This in turn led to increase in claims from health providers, which makes the insurance to increase premiums. This then discourages potential people to insure.

Modern health facilities are important in insurance because they offer curative rather than preventive services. Curative services are what people want to be protected from by the insurance. When modern health facilities are not present these services will not be available and hence many people will not join insurance.

The types of health insurance present in Kenya can broadly be categorized into public and private. In the public sector there is social insurance provided by the NHIF and the government. While in the private sector, there are private insurance companies, employer prepayment plans and other plans by associations and cooperatives.

Both compulsory and voluntary health insurance has advantages and disadvantages.

In compulsory insurance the adverse selection problem of neglecting the high-risk persons to insure but for whom the premiums are high is avoided. Here premiums are levied according to income. The individuals with low risk cushion those with high illness risk. Moreover, when low risk individuals suddenly become ill and incur large medical bills, collective insurance will protect them. Collective insurance has the advantage of a lower final premium since the number of insured persons is maximized. The premiums however have to cover administrative costs and the moral hazard behavior of the insured.

Compulsory insurance also has the advantage of reducing health risks through externalities and achievement of equity. Considering that collective insurance has low premiums, the poor individuals who have high illness risks will benefit from the distributive role of the insurance cover.

The main disadvantage of compulsory health insurance is moral hazard. The insured people are bound to consume medical care excessively. The other disadvantage is that individual preferences are neglected (Carin,1986).

Private health insurance is voluntary. Individuals or employers pay premiums to the insurance organization. The organization then pays providers of medical care. In some instances, the insurance organization can employ providers and in others they contract providers or hospitals for their members. Private insurance when fully developed has the disadvantage of inequity in provision of health to the population. This is because it pays for health services rendered to the contributors leading to two forms of health care delivery. In this case the insured people will be attending well-developed private health facilities which the non-insured will not afford, hence utilize less developed public facilities.

Furthermore, private insurance underwriters tend to be selective of their members. They take individuals with low illness risk and leave those with high illness risks. This may be due to the profit-making motive or to keep premiums low for more people to take insurance. As a result the high-risk poor people do not insure themselves and hence they cannot benefit from the advantages of insurance. Private insurance also tends to pay for curative services, which have instant visible benefits to the contributors, and not the preventive services such as Immunization. It automatically requires the government to subsidize preventive services. Despite these drawbacks, private insurance can act as a source of the much-needed revenue for the health sector. In Kenya, private insurance is found mainly in urban areas alongside the compulsory NHIF. The main objective of the different health insurance

Organizations is to improve access to health care. This is because access to health care depends on many factors.

2.2 DETERMINANTS OF HEALTH CARE UTILIZATION

The determinants of health care utilization at individual or household level are many. They include the provider attributes, the consumer attributes, and environmental factors.

The provider attributes includes the price charged for services, the quality of services available, the providers of care themselves, waiting time and the type of care given to the consumers (Mwabu and Mwangi 1986).

The consumer attributes include the household/individual income, demographic factors (age, sex, family size, marital status), level of education/knowledge, proximity to the facility, relationship to the provider of care and the type of illness.

Coverage of individuals by third party payment mechanisms has also been found to be an important determinant of hospital utilization.

In his study of health care decisions at household level, individuals with Insurance coverage were found to have higher utilization than those without (Mwabu 1986). However, this household survey did not provide information about the type of illness for which the insured used health services, and the lengths of hospital stay.

Physical barriers such as overflowing rivers without bridges and forests hinder people to access health care. These are found in areas where the roads are not well developed.

2.3 THEORY OF UTILIZATION OF SERVICES BY INSURED PERSONS

The theory of insurance and utilization health service is based on demand and supply. The demand for health services at individual level is influenced by many factors. However, the price charged for the services is one of the major limitations to utilization of health care. Demand is defined as the quantity of a commodity, consumers wish and are able to buy at a given price. It is a better definition of desire or need since the need is made effective by ability and willingness to pay (Lee, 1979).

Assuming all other factors are constant in a perfect market, the theory of economics predicts that the higher the price, the smaller will be the quantity of health services demanded. The response of demand to the changes in price of services is called the elasticity of demand. The impact of insurance on private markets for health care according to the above theory is that insured persons consume more services at a given price. This is because the services are at a lower price than the one for non-insured people. Nevertheless, demand for health services has been found by researchers to be responsive to price changes only to a certain extent. For instance, if an individual's demand is perfectly inelastic, (will not change with changes in price) then over-utilization of services due to a wide coverage by insurance will not occur (Kaplan and Lane 1971).

Yet over-utilization of health care by insured persons is one of the main problems facing health insurance.

2.4 PROBLEMS FACING HEALTH INSURANCE

The major problems facing health insurance are adverse selection, moral hazard, cost escalation, high administrative costs, fraud, abuse and ignorance of insurance (Ainsworth,1982).

Adverse selection is the enrolment of people with high probability of illness into an insurance organization. For instance the chronically ill and persons engaged in risky employment. Enrolment of such persons tends to raise premiums payable and hence claims. Private insurance organizations limit this problem by a process called insurance underwriting. Potential members are examined and risk rated. Compulsory insurance organizations also experience this problem.

Moral hazard is the tendency of individuals once insured to increase the risk against which they have been insured. From the insured person's point of view, it is a rational occurrence because from the theory of insurance alluded to above, they are expected to demand more health care than the non-insured persons. However, from the insurer's point of view, moral hazard leads to large quantities of services being consumed and hence high costs, which require high premiums. The insurance organization will view the business as being of low profit due to the unnecessary high claim rates.

Unnecessary claims have been found to be a serious problem for the National Hospital Insurance Fund. They were responsible for delayed payment of medical expense claims submitted by health facilities and providers, (Wang'ombe, 1994).

Moral hazard, adverse selection, better access, lack of controls (which permit non members to falsely present themselves as members) were found to be responsible for higher patterns of health care utilization by the insured in the Bamwanda Insurance Scheme, (Donald Shepherd et al (1989).

Cost escalation is a function of the provider and consumer influence. A doctor's decision reflects not only his patient's preference but also his own, especially his preference for high income. In a private health care system, except in direct salary, the income of the provider will relate to the nature and volume of services he supplies and the price received. Providers will tend to increase the price for services especially for insured people (Evans 1974).

Providers (or hospitals) do respond to the incentives inherent in payment systems and do constitute a significant influence on demand, (Glaser, 1970). Similar findings were reported in the Phillipines. Providers were providing high cost treatment with little resistance from the clients who had little to lose since the insurance was paying the bills, (Seitz ,1981).

Fraudulent claims and abuse of the insurance cover arise from the provider and consumer influences. Some providers collude with consumers to make fake claims to the insurance.

2.5 METHODS OF CONTROLLING PROBLEMS IN HEALTH INSURANCE

There are a number of ways of reducing adverse selection. They include exclusions whereby the high-risk individuals and or groups are denied the cover.

The other method is group coverage. For instance, in the Bamwanda Scheme in Zaire, when one member of a family joins the scheme, all his family members must join. For employees and/or workers, all are encouraged to enroll with the insurance.

Large groups and organizations can be made to enroll by law; i.e. joining the insurance is made mandatory, as is the case for civil servants in Kenya. They have to enroll with the NHIF.

There are two aspects of controlling moral hazard. One relates to the client utilization of care and the other pertains to the provider of care. The measures that reduce moral hazard on consumer utilization include deductibles, coinsurance, copayment, reimbursement of cash payments, and limiting benefits, (thus certain services are excluded in the cover).

The strategies that reduce moral hazard on the providers of care include reviewing of clinical decisions, managed care where the provider is also the insurer as is the case in Health Maintenance Organizations (HMOs), use of gate-keepers and payments by capitation (World Bank Report, 1997).

Cost escalation can be reduced by regulation of providers, collective contracts between all providers and payers, limiting prices or charges for services and reducing administrative costs. Although these measures have been put in place, the following studies done on utilization of medical care by insured persons show higher levels of utilization by insured persons compared to the non-insured. In the study of performance of four health insurance plans in Zaire, Donald Shepard et al 1990 found that every plan for which insured and non-insured persons could be compared, the insured were found to use services more. This is demonstrated in Table 3.

Plan	Ratio of utilization	
	Insured	Non-insured
Bamwanda	6.7	1
Bokoro	5.0	1
St. Alfonse	2.0	1
Casop	2.5	1

(Source: Donald Shepard, Tarian vian, E.F. Kleinau 1990)

TABLE 3: Performance of Four Health Insurance Plans in Zaire

This was a cross-sectional descriptive survey done by Donald Shepard et al in 1990. The specific in-patient hospital stay and the nature of illnesses were not reported. Nevertheless, it was concludes that the combined effects of moral hazard, adverse selection, access (most residents close to the facility were insured), and lack of control (non-members could falsely present themselves as members and demand service) were the explanatory factors for the high utilization levels found.

In another study done in Zaire by Bart Criel (1998), on the Murunda Insurance Scheme, subscribers were found to require 23.5 times more admission into hospital than non-subscribers as demonstrated in table 4.

Utilization	Subscribers	Non-subscribers	Ratio
Dispensary	0.94	0.11	8.5
Hospital admission	141%	6%	23.5

Source: Annual reports of Murunda Hospital 1993

Table 4: Annual utilization of health care by Murunda insurance scheme members

The data represented the annual utilization for the year 1993. The hospital and dispensary serve about 162000 and 25000 inhabitants respectively.

The higher ratios were found to be due to adverse selection and moral hazard.

Nevertheless, the data presented could not be used to assess the levels of these phenomena. Fraud and abuse of insurance were ruled out (Criel B., 1998).

A prospective cohort study in an emergence hospital department in Boston by Edward and O'neil 1998, found that uninsured patients with one of the three common chief complaints were less frequently admitted to hospital than insured patients.

In another cohort survey conducted before and after the introduction of universal health insurance in Taiwan, Chieng and Chiang (1997) found that the newly insured persons consumed more than twice the amount of outpatient physician visits and hospital admissions than before. They concluded that the insurance removed some barriers to health care for the non-insured. Lessler and Wickizer 1998, found similar results in a retrospective study on patterns of hospital care among privately insured adult patients. They found that almost 100% of insured patients were granted admission in hospital.

The behaviour of insured people as exemplified by the above studies is not favourable for a country wishing to develop health insurance. Measures to control adverse selection, moral hazard and other consequences need to be addressed while developing a health insurance system. Prevalence of this behaviour among the insured people may be present in Kenya.

CHAPTER THREE

STATEMENT OF THE RESEARCH PROBLEM AND JUSTIFICATION

3.1 THE RESEARCH QUESTION.

Health insurance is not a new phenomenon in Kenya. Risk sharing mechanisms have existed before. For instance, the extended family system, where the family members help one another to pay sudden medical care costs. This could protect the aggrieved family member from low cost but not high cost medical expenses. The other informal type of insurance that has existed among Kenyan communities is in the form of “harambee” contributions. This has helped many families to offset high cost medical treatment in cases of an unexpected catastrophic illness.

Studies done in different parts of the country show a high interest among the Kenyan people to join an insurance scheme. For instance, the study done by Muriithi (1992), on medical care costs and health seeking behaviour among rural households, it was established that about 76.4% of the households were willing to join an insurance scheme. The small group of households that were unwilling to join gave their reason as being unable to pay their premium.

In a study done between 1988 and 1989 by Mwabu and Wang’ombe on financing rural health services in Kenya, it was established that over 60% of the households were willing to contribute to a health insurance scheme. Furthermore, they established that 95% and 72% of the households in Kwale and Kirinyaga districts respectively, wished insurance schemes were arranged in government hospitals. This implies that the households were willing to finance their health care through insurance, though the ability to contribute was not assessed.

In another study on health pricing reforms in Kenya done in 1995, using data from four government health facilities and other secondary data, Mwabu and Wang'ombe concluded that there are linkages between user charges, medical care costs and insurance. The linkage being that, since user charges raise health care costs, they stimulate the growth of health insurance schemes, because people will explore ways of hedging against the risk of excessive costs of medical care (Mwabu and Wang'ombe, 1997).

These findings point to an increasing interest among the people of Kenya to finance their health care costs through insurance. The question then is, are the people aware of the advantages and disadvantages of financing their health care through insurance? If they get insured, how will they utilize health services?

A study done in Kenya on health insurance by Wang'ombe (1994), established that the specific services paid for by the insurance were hospitalization, surgery, consultations, drugs, out-patient care, radiological and laboratory investigations. Hospitalization was however, the most common service paid for by the insurance. Moreover, most patients with health insurance cover were found to use hospitals more than other health facilities. The hospitals used most were private. Insured persons seek for health care in private hospitals because of the perceived better quality of service and the freedom they have to choose the doctor of their choice. Thus, the status of being insured puts the consumer in a position to influence the decisions of the provider. While the provider is well trained on the illnesses and the drug choices for the illnesses, in case of an insured person, these decisions can be influenced. This influence can bring differences in the overall management of patients and hence the provider preference for insured patients. Therefore, the research question for this study was how do insured persons utilize health services?

3.2 JUSTIFICATION

It is important to study the utilization of health services by insured persons because some of the factors may have adverse effects on the general delivery of health services in the country. For instance over-utilization of health services by insured persons can lead to an apparent increase in the fees charged by providers of care. This is because providers will be interested in the insured persons more than the non-insured.

Furthermore, the government is focussing on health insurance as a source of revenue to support the delivery of high quality care to the people. Therefore, information about the way insured persons are utilizing health care is needed. Much of the information available has been generated by studies done in central and Nairobi provinces. This study was done in Eldoret Municipality, which is outside those provinces. It can be a representative of the rural towns in Kenya.

The behaviour observed in this study will be used in development of policy directives in the health insurance industry. Stakeholders such as the insurance organizations will also find important information on the socio-demographic characteristics of the people with health insurance cover. The way these insured people utilize health services will give the organization a chance to develop measures that control moral hazard and adverse selection, and hence harmonize the industry. When the benefits become clear to the public, more people will take health insurance cover.

3.3 OBJECTIVES OF THE STUDY

General objective

To determine the socio-demographic characteristics and health care utilization of insured and non-insured persons in Eldoret municipality.

Specific objectives

1. To describe socio-demographic characteristics and compare the insured versus the non-insured persons
2. To determine and compare the number of consultations, an insured and non-insured person makes to a health care provider in one year;
3. To determine and compare the number of admissions into a hospital, an insured and non-insured person gets over a period of one year;
4. To determine and compare the average duration of stay (ALOS) of insured and non-insured person in a hospital;
5. To describe and compare the common illnesses for which insured and non-insured persons in Eldoret municipality consult a health care provider.

3.4 Hypotheses

1. Socio-demographic characteristics of insured and non-insured persons have no influence on utilization of health care.
2. Having a health insurance cover has no influence on utilisation of health care.

CHAPTER FOUR

STUDY METHODOLOGY.

4.1 Study design

This was a cross-sectional descriptive study comparing socio-demographic characteristics and health care utilisation of insured and non-insured persons.

4.2 Independent variables

4.2.1 Socio-demographic characteristics

Age

This variable referred to the age of the individual at the time of the study.

Sex

This was categorized into male and female since individuals of both sexes were interviewed.

Marital status

This variable was categorized into single, married, separated, divorced, and widow/widower

Household size

This variable referred to the number of persons who had been staying together for a period not less than six months prior to time of the interview.

Household income

This referred to the monetary income a household receives over a period of one month. It was to be the total income of the respondent, the spouse and any other income generating activities of the household.

Total income = salary of the respondent + salary of spouse + income from any other work.

Employment

This referred to the day-to-day work of the individual. The person could have been unemployed, employed or operating a personal business.

Type of residence

Eldoret Municipality has several residential estates. The estates can broadly be grouped into municipal (MUN) council and privately developed estates (PDE). Both types have been developed either as low, middle or high socio-economic class. This classification was based on the incomes of the tenants and hence the size of the houses. This information was retrieved from the officer in-charge of housing and social services. The categories were as follows.

- **MUNICIPAL LOW CLASS HOUSES:** These are small one bed roomed houses build either as two or four houses in one block. They have piped water and electricity. The monthly rental charge is Ksh. 1000. The estates under this category include Pioneer phase 1, Kidiwa, Uhuru, Kipchoge and Kamanda.
- **MUNICIPAL MIDDLE CLASS HOUSES.** These were build as single two bed roomed self contain houses. They have piped water and electricity. The monthly rental charges range between Kshs. 1900. And Kshs. 2300. The estates in this category include Bondeni, Mayabi and Pioneer phase 11.

- MUNICIPAL HIGH CLASS HOUSES. These are single three bed roomed houses which were build for senior officers of the council. The compound is fenced. They have piped water and electricity. The monthly rental fees range between Kshs. 4000 and 5000. There was only one estate developed in this category namely Argwings Kodheck
- PDE LOW CLASS HOUSES. These were estates with houses built using mud and blocks. Most were one bedroomed though there were some single rooms. The monthly rental fees ranged between from Kshs. 500 to Kshs. 1000. Some of the estates in this group include Langas, Kipkaren, Yamumbi, Munyaka, Huruma, Kamukunji, Kabyemit and Kimumu.
- PDE MIDDLE CLASS HOUSES. These were estates with two bed-roomed blockhouses. They had piped water and electricity. The rental charges were between Kshs.4000 and Kshs 5000. The estates include Race course, Old Uganda road (Mwanzo), Eldoret rural and King'ong'o, Kahoya and Road block), Kapsoya
- PDE HIGH CLASS HOUSES. These were estates containing a single house with three bedrooms or more. They had piped water and electricity. Some had a servant's house while others did not. The monthly rental charge ranged between Kshs. 8000 and Kshs.n 15000. The estates in this category include Elgon view and West- Indies

Highest level of education attained.

This referred to the highest level of formal education the person attained. It was categorized into no formal education, primary, secondary, advanced level and university education.

4.3 Dependent Variables

4.3.1 Utilization of health care

Number of consultations to a health provider

This referred to the number of times an individual had an illness episode, and took the initiative to consult a health provider. Since the response to this variable was based on recall, the period of consideration was three months.

Number of inpatient hospitalization

This referred to the number of times the person had been admitted to a hospital over a period of one year prior to the study.

Lengths of hospital stay

This referred to the period of time a patient took from the day of admission to the day of discharge from hospital.

4.3.2 Insurance status

Insured person

This referred to respondents who had a health insurance cover at the time of the study.

Non-insured person

This referred to a respondent who had no health insurance cover at the time of the study.

4.3 STUDY AREA

Eldoret is the main administrative town in Uasin Gishu district, Rift Valley Province. It is the regional headquarters of the North Rift region of Rift Valley Province. It is located along the Kenya -Uganda highway.

It is linked to other towns such as Kisumu, Iten, Kitale, and Bungoma by tarmacked roads. The population of the town was 50,308 by the 1979 census. It grew at the rate of 7.95 to reach about 111,882 by 1989, (GoK, Census Report 1979 and 1989 CBS). The current population is 197,449 consisting of 103,402 Males and 94,047 Females (GoK, Census Report 1999 CBS).

There are public and private health facilities in the town. Public health facilities comprise of government hospital and the municipal health centres. The government hospital has been upgraded into a teaching and referral hospital attached to the faculty of health sciences of Moi University.

The Municipal council manages three municipal health centres. These health centres are located in Eldoret West, Huruma and Pioneer Estate.

The private health facilities include Eldoret Hospital, Pacifica Hospital, Uasin Gishu Memorial Hospital and individual clinics. Consultants working at the referral hospital own the individual private clinics. The other practitioners are full time private practitioners.

4.4 STUDY POPULATION

The study population consisted of persons above the age of 18 years, with health insurance cover resident in Eldoret Municipality during the period from December 2000 to February 2001. A comparison group of non-insured persons aged above 18 years also resident in Eldoret municipality were interviewed.

Inclusion criteria

The head (or the spouse) of a household who agrees to sign the consent form and whose residence falls in the estates selected was interviewed.

Exclusion criteria

Children, relatives or maids of the owner of the household were excluded.

4.5 SAMPLING FRAME, SAMPLING UNIT AND THE SAMPLE SIZE

The sampling frame consisted of the **list of households** in the selected estates. The sampling unit was a **household**. However, the unit of analysis was the **individual respondent who was either the head of the household or the spouse**. This was because the demographic characteristics and health care utilisation questions required answers about the individual rather than the household. It is the behaviour of the individual respondent either as insured or non-insured that was investigated.

The household was defined as a group of people staying and sharing facilities of one house and were directly answerable to one head. The head of the household was either a man or woman. Only those households that met the municipal requirements for the type of residence in terms of social-class were interviewed. This was to ensure consistency in the definition of type of residence and the socio-class of the household. Those households that did not meet the socio-class of the residence such as servant quarters were not included in the sample.

4.6 SAMPLE SIZE

The sample size was estimated by use of the formula:

$$N = \frac{Z^2 \times p(1-p)}{C^2}$$

Where N is the sample size

Z is 1.960 for a 95% confidence interval,

C is the 5% significance level and

P is the assumed prevalence of in-patient hospital utilization (Mueller et al 1977).

Therefore in this study, prevalence was assumed to be 50%. This was the approximate percentage of people who use in-patient hospital services and pay their hospital bills through insurance. Similar prevalence was found by Wang'ombe et al 1998 in the study on the capacity of NGOK providers to cater for publicly provided health services. The sample size was 384 persons but 390 respondents were interviewed.

4.6 SAMPLING

Multistage cluster sampling was used to select the estates. The Estates in the municipality were first divided into municipal (MUN) and privately developed (PDE). Then the estates under municipal were divided further into three clusters depending on the social class as low, middle or high. One of the estates in each of the clusters was selected randomly as follows:

Municipal estates

Uhuru estate was selected to represent the low class estates. It is made up of 95 blocks that were built in two phases. Each of the Seventy- (70) phase I blocks had two households. Therefore, there were 140 households. Phase II had twenty-five (25) blocks. Four households occupied each block. Therefore, there were one hundred (100) households. The households were numbered one to two hundred and forty (1 to 240).

A sample of fifty-two (52) heads of households or their spouses were interviewed systematically beginning from block one. The investigator and an assistant carried out the interview after being introduced by the village elder.

Pioneer phase II was selected to represent the middle class estates. It was made up of 62 blocks. Each block had two households. Therefore, there were 124 households. The houses were numbered from 76 to 200. A sample of Fifty-four (54) households was interviewed. The interview was carried out systematically starting from house number 76.

Argwings Kodheck estate was the only high-class estate among the municipal estates. Therefore it was selected automatically. It was made up of 21 houses labelled 1 to 21. Each house is fenced and has only one household. The data collection was carried out starting from house number 1 and systematically interview the house with an odd number. A sample of 10 households were interviewed

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Privately developed estate (PDE)

It was difficult to establish the number of households per estate among the privately developed estates (PDE). This was because not all plots are developed, Moreover, the developed ones may have a tenant or not. However, the recently concluded national census exercise created enumeration areas (EA's) in these estates (GoK, Census Report 1999 CBS). The number of households per EA was established. This information was retrieved from the district statistician. The EA's were established using the maps from the district survey department. These maps were obtained from the survey department with the help of an assistant from the district statistics department. Village elders helped the investigator and his assistants to physically mark the boundaries of the enumeration areas in each selected estates.

Langas Estate which is situated about 4kms along the main Eldoret Kisumu road was randomly selected among the low social class PDE estates. It is traversed by a tarmack road, which branches off the highway opposite the Eldoret Polytechnic and connects back to the highway near the show ground. The estate was divided into four blocks namely Block I, II, III and IV. Each block was divided further into enumeration areas. These enumeration areas were used to select households that meet the inclusion criteria for this estate. Six enumeration areas in Block III were identified. The number of households in the six enumeration areas is shown in Table 6. The interviews were carried out by identifying one household as the starting point, then randomly interview the subsequent heads of households within the EA. The village elder played an important role of introducing the enumerators before the actual interview. 97 households were interviewed for this study.

Kapsoya Estate was randomly selected to represent the middle class PDE. It was broadly divided into three regions namely Kenya Re, Site and Service and the Freehold. All the regions had a number of developed plots and a few yet to be developed. The developed plots had one main house and a servant's quarter. This study concentrated on households staying in the main houses only. The number of enumeration areas was 25. The village elder played an important role of introducing the investigator and his assistants before the interview. The number of households is shown in Table 6. Ninety-two (92) households were interviewed for this study.

Elgon view estate was the only high class PDE estate among the privately developed estates. Therefore it was selected automatically. Six (6) enumeration areas were identified. The number of households present is shown in Table 6. Seventy-three households were interviewed.

ELDOR ET MUNICIPALITY						
Type of estate or house	Municipal estates (House) (MUN)			Privately Developed Estate (House) (PDE)		
Social Class	Low	Middle	High	Low	Middle	High
No. of Estates present	5	3	1	8	5	2
Randomly select one	1	1	1	1	1	1
Name of Estate Selected	Uhuru	Pioneer 11	Argwing Kodheck	Langas	Kapsoya	Elg. View
Total No. of HH. in the selected estate	240	124	21	288	267	261
No. of HH interviewed	52	54	10	97	100	73

Table 5. Summary of multistage sampling

DATA COLLECTION ASSISTANTS

Two people were recruited to assist the investigator during data collection. One was selected from the district statistics department, and the other was a volunteer university undergraduate student on holiday. The two assistants were given a copy of the questionnaire for familiarization. The investigator and the assistants discussed all the questions. During the discussion, key words in the questionnaire were translated to Kiswahili for all to have uniformity in asking and avoid confusion. These translations were used for respondents who do not understand English language. For example "Bima ya Afya" for health insurance. All enumerators agreed on the Kiswahili words to use.

PRE-TEST OF THE QUESTIONNAIRE

The pre-testing of the questionnaire was done by interviewing a sample of 60 households over a period of two weeks. The households were selected from three estates. The estates were sampled by the investigator and his assistants as follows:

Low social class-Pioneer Phase I, Middle social class- Old Uganda road (Mwanzo) and High social class- West Indies Estate. These estates were not near the estates selected for the study.

Random samples of 20 households were interviewed in each estate. The investigator and his supervisors discussed the results. Minor modifications were made to the questions and others added to make the questionnaire more valid and reliable.

DATA COLLECTION

Data was collected from respondents in the selected estates as follows: Uhuru, Argwings Kodheck, Langas, Kapsoya, Poiner II then Elgon View. A call-back note was given in those households where the head or the spouse was not found. The following day the investigator or his assistant would go back to the household and interview the head of the household or his spouse. Some heads of households directed the investigator or his assistant to their places of work where the interview was carried out. A total of 390 households were interviewed in the six estates.

DATA PROCESSING AND ANALYSIS

All the completed questionnaires were collected, coded and entered into the Software program for statistical solutions (SPSS) except 13, which were incompletely filled. Therefore, 377 questionnaires were entered into the data editor program of SPSS for analysis. The data was then cleaned and frequencies double-checked. Descriptive statistics were calculated using SPSS. Bivariate analysis was done to compare socio-demographic characteristics and health care utilisation based on insurance status.

MINIMISATION OF ERRORS AND BIASES

Biases and errors were minimised by multistage cluster sampling of estates and systematic selection of households in each estate. Furthermore, respondents had no prior knowledge of the study. Research assistants were trained by the investigator and familiarised with the study objectives and questionnaire well before actual data collection. Moreover they participated in the pre-test of the questionnaire. Hence intra -enumerator errors were minimised. The data collection tools were pre-tested and corrected for maximum reliability and validity.

ETHICAL CONSIDERATIONS

Clearance certificate to carry out research in Kenya was obtained from the Ministry of Education, Science and Technology, Jogoo house.

The District Commissioner, Uasin Gishu, the Town Clerk Eldoret municipality, the area chief, and the estate/village elders were informed about the research before the actual interview began. The estate/village elder accompanied the enumerators during the actual interviews. The individual respondent gave consent by signing the consent form before the interview. The information given was treated with due confidentiality. No invasive procedure was used in the study.

CHAPTER FIVE

RESULTS

Overview.

The overall objective of this study was to determine socio-demographic characteristics of insured and non-insured persons in Eldoret Municipality and compare the way they utilize health care. This was a cross-sectional descriptive study carried out between December 2000 and March 2001. Results are presented in three sections. Section I presents a description of the frequencies and other important statistics of the socio-demographic characteristics and health care utilisation of the respondents. Section II is the cross-tabulations of the socio-demographic characteristics and health care utilisation of insured and non-insured respondents. The chi-square (X^2) and p-values are also computed to test for significant relationships. Section III is the logistic regression model, which was done to determine the effect of each independent variable on insurance status when other confounding variables were controlled for.

SECTION I

Socio-demographic characteristics

Although the unit of sampling was a household, only one person was interviewed in each household. Therefore the unit of analysis will be the **individual respondent**. This was either the head of household or the spouse. 390 individuals were interviewed representing the same number of households. However, 13 questionnaires were found to have errors and hence were not entered for analysis.

Therefore, 377 questionnaires were analysed. The respondents interviewed were from six estates. The total number of households in the six estates was 1180.

The estates were representative of the three socio-economic classes namely low, middle and high. Table 7 demonstrates the distribution of households interviewed according to estates and socio-economic classes.

Name of estate	No. Of HH	No. HH Interviewed	No. Of HH interviewed
Uhuru	240	52	Low class: 149 (12.6%)
Langas	288	97	
Pioneer 11	124	54	Middleclass: 146 (12.4%)
Kapsoya	267	92	
Argwings Kodheck	21	9	High class: 82 (6.9%)
Elgon View	261	73	
Total	1180	377	377 (31.9%)

Table 7: Estates and Households interviewed

N=1180, HH=Household

AGE

The ages of the respondents ranged between 18 and 70 years. The mean, mode, Median and standard deviation was 36.4, 40, 35 and 10.0 years respectively. About 60% of the respondents were aged between 20 and 40 years. About 40% of the respondents were aged between 30 and 39 years. There were few respondents aged below 20 and above 50 years.

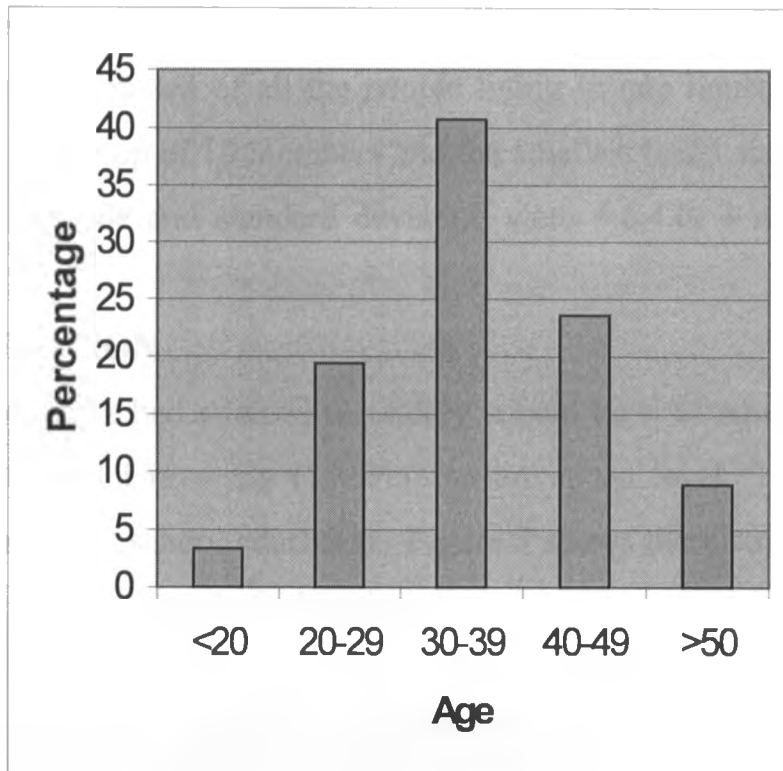


Figure 2: distributions of the ages of respondents

N=377

SEX AND MARITAL STATUS

There were 53% and 47% female and male respondents respectively. 88.4% of them were married. Others were single and divorced. Table 8 shows the distribution of the respondents according to the marital status.

Marital status	Frequency	Percentage
Single	28	7.4
Married	333	88.4
Separated	1	0.3
Divorced	5	1.3
Widowed	10	2.6
Total	377	100

Table 8: Marital status of respondents

N=377

HOUSEHOLD SIZE

The household size comprised of all the people living in one house. The largest family was made up of 13 members and the smallest had 1 member. The mean, median, mode and standard deviation were 4.6, 4.0, 4 and 2.1 respectively.

LEVEL OF EDUCATION

40.2% of the respondents had attained secondary school level of education. The others had attained University (15.5%) and advanced level (11.7%). Only 1.3% had no formal school education. Figure 3 shows the distribution of respondents according to level of education.

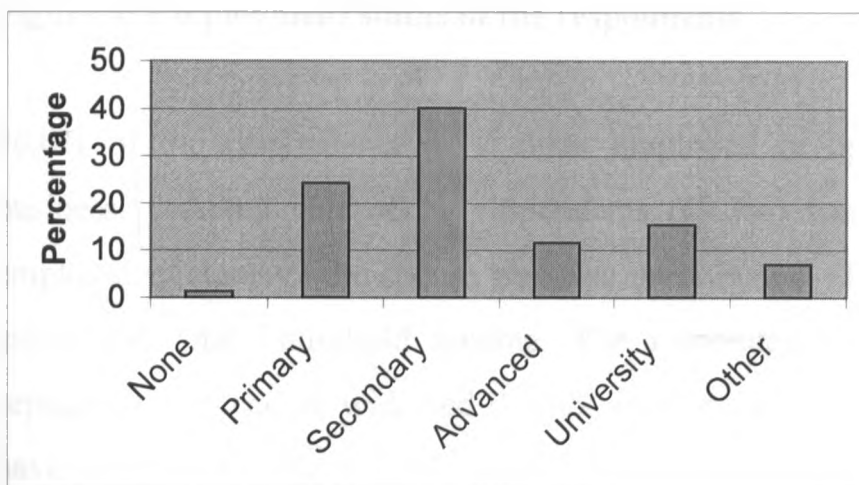


Figure 3: Level of education

N=377

EMPLOYMENT

Employment status of the respondent was defined as that occupation of the respondent for which he or she earns a salary. Those respondents who do not earn a salary were further divided into those who have their own business and those who do not have. Those who do not earn a salary and have no self-employment were labelled unemployed.

Those respondents who were employed and had their own businesses were grouped under other. Figure 4 shows the distribution of respondents according to their employment status.

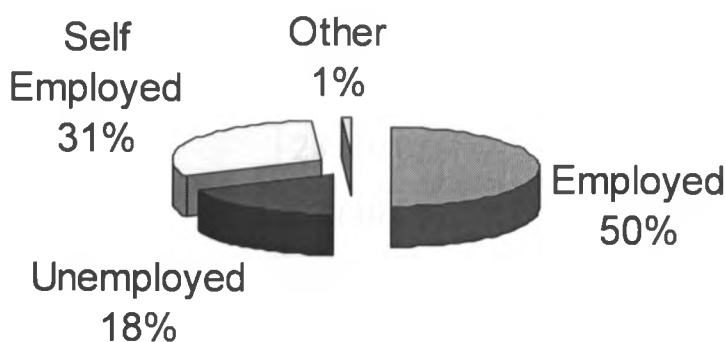


Figure 4: Employment status of the respondents

N=377

80.0% of the respondents were either employed or operated their own business. About half of the respondents (49.3%) were employed. The employment status of the spouse was also investigated. This was mainly to assess the total household income. The respondents who were single, separated, divorced or widowed did not answer this question because they have no spouse. These were about 18% of the respondents. 40% of the spouses were employed and about 27% operated their own businesses. The remaining 15% were unemployed.

INCOME OF THE RESPONDENT

The monthly income of the respondents was grouped based on a daily income of Kshs.160 (Equivalent of about Kshs. 4800 monthly), which is below the National poverty level (National development plan 1997- 2001). Many respondents (25.7%) declined to answer the question on income saying it was confidential.

Nevertheless, a high percent of those who respondent had incomes below the poverty level (21.1%). The findings on income of respondents are show in Table 9.

Income Group (Kshs.)	Respondents (%)	Spouses (%)
Less than 4999	59 (21.1)	47 (24.4)
5000-9999	50 (18.0)	43 (22.3)
10,000-49999	52 (18.20)	37 (19.2)
15000-19999	28 (10.0)	20 (10.3)
200000-24999	28 (10.0)	18 (9.3)
25000-29999	10 (3.6)	3 (1.6)
30000-34999	18 (6.4)	13 (6.7)
35000-39999	3 (1.1)	1 (0.6)
40000-44999	8 (2.6)	2 (0.8)
45000-49999	1(0.4)	1 (0.6)
50000 and above	23 (8.4)	8 (4.2)
Total	280	193

Table 9: Distribution of monthly income of the respondent and spouse (for married respondents)

In order to determine the total income of each household, respondents were asked if they had any other sources of income. 82.3% of the respondents declined to answer the question, though few of them actually did not have another source of income. Many of the respondents operated small business generating incomes ranging from five thousand to thirty thousand shillings every month. The mean income of those who answered the question was Kshs. 2500

It was difficult to establish the total household income because most respondents could not give a complete and clear picture of their incomes. Some respondents could give their own income but decline to give the income of the spouse and the IGAs.

Therefore Household income was not computed. The income of the respondent was used for analysis instead of household income.

HEALTH INSURANCE

Insured respondents

Overall, 208(54.6%) of respondents were insured. The insurance organisation with many members among the respondents was the NHIF (67.3%). Only 6.3% of the insured had taken their cover with private insurance organization alone. Health Maintenance Organizations covered a similar percentage. Both the NHIF and Private insurance company covered about 6.7% of the respondents. In other words, these were respondents who were not satisfied with the compulsory cover by the NHIF. They have insured themselves with a private insurance company as an additional cover. The insurance policies covered mostly the whole family (88.4%) with only 11.6% single person covers. Table 10 shows the distribution of the insurance organizations that had covered the respondents

Insurance organisation	Frequency	Percentage
National Hospital Insurance Fund	140	67.3
Health Maintenance Organization	13	6.3
Private Insurance Organization	13	6.3
NHIF and Private	14	6.7
NHIF and HMO	9	4.3
NHIF and Employer scheme	1	0.5
Community Insurance Scheme	8	3.8
Employer Prepayment Scheme	10	4.8
TOTAL	208	100

Table 10: Insurance organisations

The respondents gave various reasons for taking the health cover. 78.8% had joined involuntarily since most of them were covered by the NHIF. The other respondents gave reasons ranging from security against high medical bills to acting as a savings that can be used only when an illness strikes.

Table 11 shows the reasons given by the respondents for taking health insurance.

Reason	Frequency
1. It is compulsory for them since their wage is above the minimum required to contribute to the fund.	164 (78.8)
2. It helps them to pay medical bills	22 (10.6)
3. It acts as security against high medical bills	6(2.9)
4. It acts as their savings such that when an illness strikes the savings can be used to pay the bills	5 (2.4)
5. The respondents who quit the NHIF said government health services are poor and the NHIF offers very few benefits hence they joined other insurances	6 (2.9)
6. It can be used to pay medical bills during emergencies and other uncertain or unexpected occurrences	3 (1.4)
7. To cover self and the children against high medical bills especially in the private hospitals	2 (1.0)
TOTAL	208 (100)

Table 11: Main reason for taking insurance cover

(Percentage in parentheses)

About 17.8% of the insured respondents felt that they must visit a health provider every year since they are insured.

However, 82.2% disagreed and said that they visit a health provider only when they are sick.

The insured respondents were asked whether they were satisfied with their health insurance cover. 43.4% agreed but 53.2% disagreed.

A small percent (2.4%) did not know the benefits of their cover. 98(47%) of the insured respondents were not satisfied with their insurance cover.

Most of respondents who were dissatisfied were members of the NHIF. This is because most of the reasons for dissatisfaction relate to the NHIF. Table 13 sows those reasons and the proportion of respondents who gave the reason.

1. The National Hospital Insurance Fund pays little money per day of admission into hospital	28
2. The National Hospital Insurance Fund reimburses members for hospitalisation (in-patient services) alone	33
3. The NHIF has approved only specific hospitals for hospitalisation. They would rather have approved all hospitals.	5
4. The NHIF delays to pay hospitals after hospitalisation	10
5. The respondents who were not under the NHIF said their insurance organisation pays only a small portion of the cost of care.	22

Table 13: Reasons for dissatisfaction with the health insurance cover

Those respondents who were covered by NHIF were asked how long they have been members and whether they are willing to pay higher premiums. The period of contribution ranged from 1 to 34 years. However, many of the members had contributed for periods of less than 15 years (70.2%). The average period of contribution was 12 years.

Although 73.7% of the respondents had used the NHIF card to pay medical bills, only 28.6% were willing to pay higher premiums. 13.1% were willing to pay the higher premiums if other services were included in the benefits. The other services the NHIF should pay for included drugs, outpatient services and doctors consultation fees.

The benefit that most of the respondents wanted to be added was payment of drugs. Since the respondents were asked to list other services they wished to be added to the benefits, many gave more than one service. Nevertheless, table 14 shows the distribution of the respondents according to the services they listed.

Services	Frequency	Percentage
Drugs	39	22.4
Outpatient services	13	7.5
Doctors fees	6	3.5
Parents and close relatives	4	2.3
Drugs and outpatient services	27	15.5
Drugs and doctors fees	31	17.8
Drugs, doctors fees and Outpatient services	12	6.9
Miscellaneous services	26	14.9
No response	17	9.2
TOTALS	175	100

Table 14: Other services required by NHIF respondents

Few respondents listed the miscellaneous services. They included Payment of theatre fees, Funeral expenses, Emergency or Ambulance services, and provide insurance cover for unemployed children who attain the age of 18 years but their parents are members.

Non-insured respondents

About 45.4% of the respondents had no health insurance cover. 58.5% were unwilling to join health insurance.

When those willing to join insurance were asked the insurance organisation of their choice, 56.6% chose NHIF, 23.3% chose AAR and 20.8% chose a private insurance organisation.

The amount of money those respondents who were willing to join could contribute ranged between Ksh. 40 to 10,000, With a mean, mode, median and standard deviation of Ksh. 967.90, 100, 200.0, and 1700 respectively. 60% could afford the monthly premium for the NHIF Which ranges between Kshs. 30 and Kshs. 320.

Those respondents who were unwilling to join insurance gave various reasons for not joining. 52.1% could not join because of lacked money. The other reasons included unemployment and lack of knowledge or information about insurance.

HEALTH CARE UTILIZATION

Eldoret Municipality has many types of health care providers. This study concentrated on the public and private health providers in the formal sector. The facilities available in this sector include government and private for profit hospitals, Municipal health centres and private doctors' clinics. There are no mission and private non-profit hospitals within the municipality.

It was assumed that respondents utilized health services in the above facilities whenever they got an illness.

About 28.6% of the respondents always sought treatment in a government hospital. 27.3% of the respondents visited a private doctor's clinic and 17.6% visited a private hospital. The remaining 68 respondents visited either employer's clinic or a combination of the above facilities. For instance, 13.1% visited a private hospital and clinic. Table 15 shows the distribution of respondents according to their health facility of choice.

Health facility	Frequency	Percentage
Government Hospital	108	28.6
Municipal clinic	20	5.2
Private Hospital	67	17.6
Private doctor clinic	104	27.3

Table 16. Distribution of respondents by health facility of choice

About 35.4% (135) of the respondents had sought for health care from a health provider during a period of 3 months before the time of the interview. 96% of those who had visited a health provider reported a natural illness as the reason for the visit. The illnesses reported were mostly of mild to moderate severity. 79.6% of the respondents had visited the health provider once or twice.

Those respondents who had a natural illness during the three-month period before the interview gave the time that had lapsed from the beginning of illness to the day that they visited a health provider. The period ranged from one day to three weeks. 67% of the respondents took less than four days. The severity of the illness varied from mild to severe, though 75.5% of the respondents had mild to moderate illnesses.

47 respondents had been admitted to a hospital and stayed there for periods ranging between 1 and 30 days. 82.7% stayed in hospital for periods of less than seven days.

SECTION 11

5.20 COMPARISON OF THE SOCIO-DEMOGRAPHIC CHARACTERISTICS OF INSURED AND THE NON-INSURED RESPONDENTS

One of the objectives of this study was to compare socio-demographic characteristics and health care utilisation between insured and non-insured persons in Eldoret municipality.

Therefore to achieve this objective bivariate analysis was done by cross-tabulating socio-demographic characteristics and health care utilisation with insurance status. In this section a description of the socio-demographic characteristics and health care utilisation cross-tabulated against insurance status is provided.

AGE

There was a difference in the distribution of the age of the insured and the non-insured, such that although the mean age of the insured respondents was 39.4 that of the non-insured was 34.2. Moreover, while most of the insured were aged between 30 and 40 years' majority of the non-insured respondents were aged less than 30 years.

There were more non-insured respondents with ages of less than 20 years and above 50 years compared to the insured respondents.

Age was statistically significant in relation to insurance status, (P-value < 0.05). This implied that as the age rises to the middle age group the person was more likely to have a health insurance cover. This distribution is shown in Table 20 below.

Age group	Insured	Non-insured	Total
Less than 20	-	13 (7.7)	13
20-29	16 (7.7)	58 (34.3)	74
30-39	106 (51.0)	49 (29.0)	155
40-49	64 (30.8)	27 (16.0)	91
Above 50	22 (10.3)	22 (13.0)	44
TOTALS	208 (100)	169 (100)	377

Table 17: Distribution of age of insured and non-insured respondents

$X^2=70.6$ P=0.000

SEX

There were more insured male respondents (63.8%) compared to those with no health cover. However, the converse was true for females whereby the non-insured were more than the insured (52%). These results are shown in Table 21.

Sex of respondent	Insured	Non-insured	Total
Male	112 (63.8%)	65 (36.2%)	177(100)
Female	96 (48%)	104 (52%)	200(100)
TOTAL	208 (55.2%)	169 (44.8%)	377

Table 18: Comparison of sex of insured and non-insured N=377

MARITAL STATUS

Majority of the respondents (insured and non-insured) were married. A few of the respondents were single, divorced or widowed. No non-insured respondent was separated. The difference of insurance status in relation to marital status was however not significant ($P > 0.05$). This implied that marital status could not be used to predict the insurance status of the respondent.

Status	Insured	Non-insured	Total
Single	13 (6.3)	15 (8.9)	28
Married	188 (90.3)	145 (85.8)	333
Separated	1 (0.4)	-	1
Divorced	3 (1.4)	2 (0.1)	5
Widowed	3 (1.4)	7 (4.1)	10
Totals	208 (100)	169 (100)	377

Table 19: Comparison of marital status between insured and non-insured respondents $X^2 = 4.509$ $P=0.341$

LEVEL OF EDUCATION

Formal school education in Kenya begins in Primary schools. All the insured respondents had had some formal education. However, about 3% of the non-insured respondents had had no formal education. Although the insured respondents were well distributed over all levels of education, most of the non-insured respondents had primary and secondary education (88.2%).

The level of education attained by the respondent was statistically significant in relation to insurance status ($P < 0.05$). Thus, a respondent with education was more likely to be insured. ($X^2 = 116.479$).

Level of education attained	Insured	Non-insured	Total
None	-	5 (3.0)	5
Primary	10 (4.8)	78 (52.1)	88
Secondary	92 (44.2)	61 (36.1)	153
Advanced Level	41 (19.7)	4 (2.9)	45
University	48 (23.1)	11 (6.5)	59
Other	17 (8.2)	10 (5.9)	27
Total	208 (100)	169 (100)	377

Table 20. Comparison of level education between insured and non-insured respondents $X^2 = 116.479$ $P = 0.000$

TYPE OF RESIDENCE OF RESPONDENT

Although most of the respondents in the low class were non-insured, a higher percentage of the middle and high-class residents were insured. The type of residence in relation to insurance status was statistically significant, ($P < 0.05$). In this case the type of residence could predict the insurance status of the respondent because the higher the type of residence the more likely the respondent was insured. ($X^2 = 92.18$).

Type of residence	Insured respondent	Non-insured respondent	Total
Low class	37 (24.8%)	112 (75.2%)	149 (39.5%)
Middle class	112 (76.7%)	34 (23.3%)	146 (39.0%)
High class	59 (72%)	23 (28%)	82 (21.5%)
Total	208 (55.2%)	169 (44.8%)	377

Table 21: Type of residence based on insurance status

$$X^2 = 92.18 \quad P=0.000, N=377$$

THE INCOME OF THE RESPONDENT

There were more insured respondents with incomes well above Ksh. 20,000. Most of the non-insured respondents had incomes below Kshs. 10,000. The income of the respondent was found to be statistically significant in relation to insurance status of respondents ($P = 0.000$). Respondents with higher income were more likely to be insured compared to those with low income. In other words, as income of the respondent increased the likelihood of being insured also increased. ($X^2 = 129.4$). Table 25 shows the comparison of income between insured and non-insured respondents.

Income group (KShs.)	Insured (%)	Non-insured (%)	Total
0-----4999	44 (28%)	113 (72%)	157 (41%)
5000-----9999	30 (60%)	20 (40%)	50 (13%)
10,000-----14,999	38 (72%)	14 (28%)	52 (13%)
15,000-----19,999	20 (71%)	8 (29%)	28 (7%)
20,000 and above	75 (83%)	15 (17%)	90 (26%)
Total	208 (55.2%)	169 (44.8%)	377(100)

Table 22: Income of respondents based on insurance status

$$X^2 = 129.4, P\text{-value} = 0.000$$

EMPLOYMENT STATUS OF THE RESPONDENT

There were more unemployed non-insured respondents compared to the insured. Among the respondents who were self-employed, greater portions were non-insured.

The employment status of the respondent in relation to insurance status was statistically significant, ($P=0.00$). Thus, employment status was a better predictor of the health insurance status of the respondent. An employed person was more likely to have insurance than a non-employed one.

Type of employment	Insured	Non-insured	Total
Unemployed	12 (5.8)	55 (82%)	67 (17.8%)
Salaried Employment	162 (86.2%)	26 (13.8%)	188 (50%)
Self Employment	32 (27.1%)	86 (72.9%)	118 (31%)
Other	2 (50%)	2 (50%)	4 (1.2%)
Total	208 (55.2%)	169 (44.8%)	377

Table 23: Comparison of employment Status between insured and non-insured

$$X^2 = 1480, P=0.000, N=377$$

5.22 COMPARISON OF UTILIZATION OF HEALTH CARE BETWEEN INSURED AND NON-INSURED RESPONDENTS.

CONSULTATION TO A HEALTH PROVIDER

A total of 135 (35.8%) of the respondents had consulted a health provider during the period of three months preceding the interview. Among these 82 (60.1%) were insured. The difference in the visitation to the health provider in relation to insurance status was statistically insignificant. ($P > 0.05$). Table 27 shows comparison of consultation to a health provider by insured and non-insured respondents.

Visited a provider	Insured respondents	Non-insured respondents	Total
Yes	82 (60.1%)	53 (39.9%)	135 (35.8%)
No	126 (52.1%)	116 (47.9%)	242 (64.2%)
Total	208 (55.2%)	169 (44.8%)	377 (100)

Table24: Comparison of consultation to a health provider

$$X^2 = 2.95, P = 0.086 \quad N = 377$$

TYPE OF HEALTH FACILITY VISITED BY RESPONDENTS

The type of health facility a respondent visited varied with insurance status. While 29.8% of the insured respondents visited a private doctor's clinic 40% of the non-insured visited a government Hospital. Similarly, there were more insured respondents who visited a private hospital (21.2%), compared to 13.6% non-insured. The insurance status of the respondents was statistically significant in relation to the type of health facility visited ($P < 0.005$).

This implied that an insured person was more likely to consult a private health facility than a non-insured one. Table 25 demonstrates the comparison of type of health facility that insured and non-insured respondents visited.

Type of facility visited	Insured	Non-insured	Total
Government Hospital	40 (19.2%)	68 (40.2%)	108
Municipal health centre	5 (2.4%)	15 (8.9%)	20
Private Hospital	44 (21.2%)	23 (13.6%)	67
Private doctor's clinic	62 (29.8%)	42 (24.9%)	104
Private doctor's clinic and Hosp.	35 (16.8%)	15 (8.9%)	50
Employer's clinic and Pr Hosp.	13 (6.3%)	-	13
Doctor's clinic and Govt Hosp.	9 (4.3%)	6 (3.6%)	15
TOTAL	208 (100)	169(100)	377

Table 25: Comparison of type of health facility visited

$$X^2 = 40.68, P=0.000$$

FREQUENCY OF CONSULTATION

Respondents were asked the number of times they consulted a health provider over a period of three months preceding the day of the interview. This was because insured persons have a tendency to visit a health provider frequently because of the moral hazard phenomenon.

This study found that about the same number of insured and non-insured respondents visited a health provider twice, thrice and more than three times. However, the number of insured respondents who visited a health provider once was double the number of non-insured respondents.

Insurance status was found to be statistically insignificant in relation to the frequency of consulting a health provider ($P=0.169$).

43 (11.4 %) respondents had had an admission during the period of one prior to the interview.

The number of respondents who were admitted among insured and the non-insured was about the same (19 and 24). 334 (88.6 %) respondents did not report an admission. Insurance status was found to be statistically insignificant in relation to admission to a hospital ($P=0.124$). Thus insurance status was not a determinant of admission into hospital.

FREQUENCY OF ADMISSION

There were 19 and 24 insured and non-insured respondents respectively who had a history of admission to hospital over a period of one year prior to the time of interview. There was no respondent who had been admitted more than once during the one-year period preceding the study. Insurance status of the respondent was not found to have an influence on the frequency of admission. This is because insured and non-insured respondents reported an equal number of admissions.

LENGTH OF HOSPITAL STAY

The length of stay ranged between 1 and 30 days. The average lengths of stay (ALOS) were 4.3 and 3.4 for the insured and non-insured respondents respectively. 65.1% of the respondents stayed in hospital for periods of less than seven days. Half of these respondents were insured. The insured respondents who stayed in Hospital more than one week were less than those who stayed for one week. This was quite unexpected in view of the fact that providers would wish to keep the insured longer so as to earn more income.

ILLNESSES FOR WHICH RESPONDENTS CONSULTED A HEALTH PROVIDER

The insured respondents had been admitted for a number of infections. Such infections included malaria and appendicitis. Additionally others had obstetrical problems, accidental injuries and allergic conditions such as asthma. The illness with the highest number of insured respondents admitted was Malaria.

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There was no insured respondent who had been admitted for chronic illnesses such as Diabetes Mellitus, Hypertension and Peptic ulcer disease.

The non-insured respondents on the other hand had been admitted due infections such malaria, typhoid, and Pneumonia, obstetrical and gynaecological problems and chronic diseases such as Diabetes Mellitus, Hypertension and Peptic Ulcer Disease. Other non-insured respondents had been admitted due to asthma. The main difference in the illnesses between insured and non-insured respondents was the conspicuous absence of chronic diseases among the insured respondents.

SECTION 111

LOGISTIC REGRESSION

One of the hypotheses of this study was that sociodemographic characteristics have an influence on utilization of health care. Certain sociodemographic factors of respondents were found to influence utilization of health care in section 11. These included age, level of education, income, residence and employment status. Logistic regression was done to confirm the significant sociodemographic factors in relation to insurance status of respondent when confounding factors were controlled for. The dependent variable was insurance status. The effect of independent variables on utilization was also analysed. Table 26 shows the results of the analysis.

INDEPENDENT VARIABLES	S.E	WALD	DF	SIGN.	RATIO
Age	0.161	0.252	1	0.616	0.922
Sex	0.320	1.003	1	0.316	1.378
Type of residence	0.243	13.489	1	0.000	2.442
Employment status	0.174	72.497	1	0.000	4.393
Income	0.000	3.589	1	0.058	1.000
Education	0.141	6.039	1	0.014	0.707
Household size	0.074	0.111	1	0.739	1.025
Visited a private provider	0.598	8.794	1	0.003	5.885
Admission to hospital	11.089	0.025	1	0.874	5.791
Frequency of admission	11.065	0.050	1	0.823	11.859
Length of hospital stay	0.058	0.435	1	0.509	0.963
Frequency of consultation	0.313	2.940	1	0.086	1.711

Table 26: Logistic Regression Analysis results

Based on this analysis, the significant sociodemographic factors in relation to insurance status of the respondent were the type of residence, employment status, income and level of education. Consultation to private provider was a significant variable in relation to insurance status. In this case, the significant factors were better predictors of insurance status of the respondent.

TESTING OF HYPOTHESES

The first hypothesis was that socio-demographic characteristics have no influence on utilization of health care. This study found that the following factors influence utilization of health care. These were age, level of education, employment status, income and type of residence. Therefore it should read that socio-demographic characteristics have an influence on utilisation of health care by insured and non-insured persons.

The second hypothesis was that having a health insurance cover has no influence on utilization of health care. However, the study found that insured respondents consulted providers in private facilities more than the non-insured. Moreover the number of insured respondents who had consulted a provider within the period of three months prior to the study was double the non-insured. There was no insured person with a chronic illness who received admission into hospital as compared to the non-insured. Therefore, health insurance was found to influence the utilization of health care. The hypothesis should read that health insurance cover has an influence on an individual's utilization of health care in Eldoret municipality.

CHAPTER 6

DISCUSSION, CONCLUSION, AND RECOMMENDATIONS

6.1 DISCUSSION

This chapter discusses the results based on the specific objectives of the study.

Objective 1

To compare the socio-demographic characteristics of insured and non-insured persons in Eldoret municipality

The socio-demographic characteristics studied include age, sex, marital status, family size, employment status, monthly income, highest level of education attained and the type of residence where the respondent stays.

(a) Age

The age of the insured respondents ranged between 22 and 62 years while that of the non-insured ranged between 18 and 70 years. The modal age group of insured was 30-39 (52%) while that of the non-insured was 20-29 (34.3%) years. The mean age of insured and non-insured respondents was 39.4 and 34.2 respectively. It was also notable that there were few insured respondents below the age of 20 and above 50 years but these ages had many non-insured respondents.

These statistical differences can be explained by the fact that insurance organizations insured persons with low adverse selection and moral hazard. The insurance organization will tend to insure persons in the middle ages because they tend to be associated with low morbidity and mortality compared to the very young and old persons. Moreover, persons of the middle ages are able to pay premiums since they are in employment and regular income bracket. Therefore, age is an important determinant of insurance status.

(b)Sex

There were more insured males than non-insured. However, there were about the same number of insured and non-insured females. Moreover, although majorities of the insured were male, the non-insured majorities were females.

This difference can be explained in two ways. First, since many respondents were insured by the NHIF (67.3%), which gives a compulsory whole family cover, the man will most likely take the burden. Furthermore, there could be more male with employment and hence income to pay premiums. Secondly, insurance organizations most likely insure the male because of adverse selection and moral hazard. Thus females because of their biological capacity to carry on childbirth, they tend to consume more health services than males. Hence insurance organizations tend to insure the gender with low adverse selection and moral hazard.

(c) Marital status

The majority of both insured and non-insured respondents were married. This could be explained by the fact that the respondent interviewed was either the head of the household or the spouse. These people will most likely be married couples. Marital status was found to be statistically not significant in relation to insurance status of the respondent because insurance status applied to the individual respondent rather than the whole family.

(d)Household size

The household size of the insured ranged between 1 and 10, while that of the non-insured ranged between 1 and 13. The modal size was 4 for both the insured and the non-insured. There were more insured respondents with households of less or equal to 5 compared to the non-insured.

Although there was no insured person with a household size of more than 10, there were few non-insured respondents with over 10 members.

(e) Type of residence

While 53.8% of the insured lived in the middle class estate the 66.3% of the non-insured lived in the low social class estate. Moreover, there were more insured respondents in the middle and high-class estates compared to the non-insured.

Type of residence is an indication of a person's income, wealth, level of security, and disease prevalence. Insurance organizations most likely insure persons with regular income to pay premiums, adequate security to avoid accidental injuries, and very low disease prevalence. Hence persons with the above conditions will tend to be insured compared to those who live in estates with high prevalence of diseases.

(f) Level of education

The lowest level of education attained by insured respondents was primary school. However, there were respondents with no formal education among the non-insured. 95% of insured had attained secondary school education and above. However, only 52% of the non-insured had attained secondary school education and above. Level of education in Kenya is associated with good employment and income. Higher income is associated with regular payment of premiums. Therefore, level education attained was found to be an important determinant of insurance status.

(g) Employment status of respondents

There were more insured respondent who were self and salaried employees (93.3%) as compared to the non-insured (66.3%). The few unemployed insured respondents could have been spouses whose husbands were covered under a family health insurance policy.

The high number of non-insured self-employed respondents can be explained by the fact that, self employment is characterized by irregularity in income flow, hence, they fear collapse of the insurance organization. Nevertheless, employment was found to be a significant determinant of insurance status.

(h) Income of the respondent

68.3% of the insured respondents had incomes of between Ksh. 5000 and 50,000. However, the non-insured respondents had incomes below Ksh. 10,000. There were some insured respondents with incomes above Kshs. 5000, but very few non-insured respondents had this kind of income. The income of the respondents was statistically significant in relation to insurance status ($p < 0.05$). This is because health insurance requires income to be able to pay the premiums. Moreover, most of the respondents were employed people who contribute to the NHIF, which was compulsory. This result agrees with what Mwabu and Wang'ombe found in 1986 and 1994 respectively.

Objective 2

To determine the number of consultations an insured and non-insured person gets over a period of one and compare.

60% of the insured and 68% of the non-insured respondents did not consult a health provider over the period of three months before interview. However, out of those who consulted a health provider, insured respondents (39%) were more than the non-insured (31 %). This was in agreement with what Mwabu found in 1986 on consumer attributes for health care utilization. The cost of health care was found to be a determinant of utilization of health services.

The insured respondents easily consult the provider because the insurance lowers the fee that the insured person pays. This result can also be explained by the moral hazard behavior of the insured respondents.

On the type of health facility the respondent sought treatment from, it was found that 46% of the insured went to a private doctor's clinic or hospital while the 49% of the non-insured respondents went to a government hospital. This can be explained by the fact that the fee payable was lowered by the insurance cover for the insured as compared to the non-insured. Moreover, the insured respondents could have been driven by the need for high quality services with minimum waiting time, which are associated with private health facilities (Wang'ombe, 1994).

On frequency of consultation, majority of both insured and non-insured respondents had sought treatment once. Statistically the difference was not significant. Moral hazard did not play a significant role on consultation of a health provider by the insured.

Objective 3

To determine the number of admissions into hospital an insured and non-insured person gets over a period of one year and compare

There were few respondents who had been admitted during the year prior to the study (11.4%). There was no significant statistical difference in the number of admissions between insured and non-insured respondents ($p=0.124$). This could be explained by the fact that admission was based on the severity of the illness rather than the financial gain motive of health providers. In any case most of the respondents were covered by the NHIF, which does not pay doctor's fees. This result contrasted what Seitz et al found in the Phillipine that health providers admitted more insured people than the non-insured.

Objective 4

To determine the average length of stay (ALOS), an insured and non-insured person stayed in hospital over a period of one year prior to the study

The study found that the average length of stay by insured persons was more than that of the non-insured (4.3 against 3.4 days). The range of stay was between 1 and 30 days. The range of stay was in agreement with what Wang'ombe et al had found in 1998 in their study on the capacity of NGOK providers to give health care to Kenyans. The high ALOS found by this study could be explained by the fact that most of the respondents were covered by the NHIF, which pays hospitalization fees to facilities; hence the period of stay for the insured was not a cost for the respondent.

To describe the common illnesses for which insured and non-insured respondents were admitted into hospital by health providers and compare

The illnesses for which the insured and non-insured respondents were admitted to hospital were more or less the same. These were serious illnesses that could be managed better in hospital after admission rather than on outpatient basis. The distinctive difference shown by this study was the absence of chronic illnesses among the insured.

Chronic illnesses are excluded by most insurance organizations because patients with such an illness will increase claims to the insurance. The claims will be many due to adverse selection. The measures that reduce adverse selection in private insurance organizations include deductibles, exclusions, copayments and coinsurance.

INTERACTION OF HEALTH INSURANCE WITH UTILISATION OF HEALTH SERVICES IN ELDORET MUNICIPALITY

The single most subscribed insurance in Eldoret Municipality was the NHIF (67.3%). The other types of insurance present included private companies and the emerging AAR, which is a HMO. The reason given by the insured for joining the insurance was because it was compulsory (78.2%). This is an expected result because Eldoret town is still growing. Most of the residents are employed workers in public service and a few industries existing in the town. Furthermore, The NHIF is the oldest insurance hence many people are aware of its benefits unlike the private insurance companies which opened branch offices in the town recently. In view of the other reasons given for joining insurance, the level of knowledge about health insurance was quite high.

Moral hazard was found to be quite low among the insured people (17.8%). This could be explained by the fact that majority of people were not satisfied with their insurance (53.2%). The main reason for dissatisfaction was found to be the limited number of benefits, and indeed the NHIF offers only in-patient rebate for its members. Possibly if the number of benefits could be increased the moral hazard could be high. This is because the services that the members' want added to the benefits are mainly ambulatory (Doctors consultation fees, drugs and other outpatient diagnostic services such as laboratory fees). These are the most needed services on a day-to-day basis.

Most of the non-insured respondents were unwilling to join insurance (58.5%). Lack of money was their main reason for not joining. Nevertheless, among the few non-insured there were some who wanted to join insurance (41.5%).

This showed the potential that the town has. Insurance organizations should tap this potential to improve not only the health status of the people but also generate more revenue for the health sector.

LIMITATIONS OF THE STUDY

1. There were many non-responses by respondents to questions such as income. Although all were expected to answer, only 280 (74.3%) respondents gave their incomes. Furthermore, many respondents did not know the incomes of their spouses. This made it hard to determine the household income.
2. The study was carried out in an urban setting where most of the residents are employed. This led to a high response by spouses since the heads of the households had left for their work places.
3. Many respondents did not know the difference between health insurance and other forms of insurance such as life or personal accident cover.

CONCLUSIONS

In conclusion, the study found that insured and non-insured persons do not utilize health services the same way. Insured persons showed a tendency to seek health care from private health facilities while most of the non-insured consulted providers in public health facilities. This can be explained by the perceived better quality of services present in private hospitals. Better quality is associated with availability of drugs, short waiting time and the ability of a patient to see a doctor of one's choice. Majority of the non-insured persons seek health care from public health facilities because of the fees charged. The fee is lower in public hospitals compared to private hospitals. However, the cheap services in public hospitals have been associated with lack of drugs, demotivated staff, long waiting time, congestion in the wards and poorly maintained equipments (Quick et al 1994).

Secondly, the study found that sociodemographic characteristics have an influence on health care utilization. The characteristics that have an influence on health care utilization include age, level of education, employment status, income, and household size. Indeed this conclusion was also made by Mwabu and Mwangi (1986). This also agrees with what private insurance organizations view on these factors, hence the strict underwriting guidelines. Furthermore, the same factors are considered when it comes to the premium that each member pays. Both compulsory and voluntary insurance organizations use either age or income to rate the premiums payable by members. The NHIF uses income whereby persons with high-income pay higher premiums compared to those with low income. Private insurance organization on the other hand use age to rate the premiums whereby the older a person is the higher the premium. Tiered and durational ratings are concepts based on these factors.

Having a health insurance cover was also found to be an important factor in health care utilisation. The same result was found by Mwabu and Wang'ombe (1995). Health insurance has an influence on the moral hazard of the people. This is because the out of pocket cost of health care to the insured person is lowered. The insurance caters for most of the costs. Private insurance organizations have introduced measures to reduce this behavior. The measures include payment of deductibles, copayments, coinsurance and limitation of the services and frequency of visits to the health provider in a year. These measures are useful for the sustenance of the insurance organization.

In the event of absence of these measures, there will be over-utilization of health services. This will lead to an excess of claims from the insured members which when honored will lead to depletion of the revenue base of the organization. This will subsequently make administrative costs a burden and may easily lead to the collapse of the organization.

Thirdly, this study also found that there is great potential for health insurance in Eldoret Municipality. This is because 40% of the non-insured persons were willing to join health insurance. The majorities were willing to join the NHIF. Others were willing to join the HMO and private insurance organizations. The monthly premiums that they were willing and able to contribute fall within the requirements of the different insurance organizations.

Fourthly, study established that there are many potential people in need of health insurance who lack knowledge of where to get these services.

Lastly this study found that majority of the members of the NHIF are dissatisfied with the benefits offered, that is the in-patient hospitalization for the whole family (53.2%). Other reasons for dissatisfaction include the low daily rebate and the delayed payment of health providers.

RECOMMENDATIONS

This study showed that most insured people consulted providers in private hospitals. For public hospitals to attract these potential clients, it is recommend that they should be improved to the standard of private hospitals. The health workers should be as welcoming as their counterparts in private hospitals. This may entail staff training through seminars, workshops and continuing medical education (CMEs) programs. Staff motivation and commitment to duty should be addressed by the government to be commensurate with what is offered by private hospitals. This may entail increment of salaries and other benefits such as non-contributory family insurance cover and better housing schemes.

It is recommend that both the NHIF and private insurance organizations should increase marketing of their products so as to create adequate awareness. This can be done through the use of both the print and electronic media. Already the NHIF is doing this through the electronic media, but it is not enough. It is also recommend the use of public meetings such as the chief's baraza where people who have benefited from the insurance and agents can teach the rest of the population about the advantages of health insurance.

It is also recommend that the NHIF should consider the health services or benefits that were mentioned by the members such as drugs, higher daily rebate and outpatient care. These were the services that the members (13.1%) would wish to pay for, even if the premiums are increased.

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APPENDICES

APPENDIX 1

CONSENT

Thank you for accepting to participate in this research. This is a very important study to you. So consider the information you are going to provide through this research to be very important not only to me (the researcher), but also the insurance and the country at large. This information will be treated with due respect and confidentiality. Please give the answers correctly and to the best of your knowledge
Please sign here before we proceed with the Questionnaire. _____

QUESTIONNAIRE NUMBER _____

1. DATE _____

2. ENUMERATOR SELF ASSISTANT

3. HOUSE HOLD NUMBER _____

4. NAME OF ESTATE (RESIDENCE) _____

5. TYPE OF RESIDENCE

HIGH CLASS MIDDLE CLASS LOW CLASS

APPENDIX II

6. RESPONDENT

1. HEAD OF HOUSEHOLD

2. OTHER (SPECIFY) _____

7. SEX OF RESPONDENT

1. MALE 2. FEMALE

8. AGE (YEARS) _____

9. MARITAL STATUS

1. SINGLE

2. MARRIED

3. SEPARATED

4. DIVORCED

5. WIDOWED

10. FAMILY SIZE: How many biological children do you have? _____

11. EMPLOYMENT STATUS

(A) RESPONDENT

1. Employed

2. Unemployed

3. Self Employed (Operating own Business)

4. Employed and operating own business

5. Other (Specify) _____

(B) IF MARRIED, WHAT IS THE EMPLOYMENT STATUS OF THE SPOUSE?

1. Employed

- 2. Unemployed
- 3. Self Employed (Operating own Business)
- 4. Employed and operating own business)
- 5. Other (Specify) _____

12. (A) Apart from your employment, do you have any other work/activity that brings income?

- 1. YES
- 2. NO

(B) If the answer is yes, how much do you earn from this work per month? Kshs. _____

(C) How much do you earn from your employment per month? Kshs. _____

13. EDUCATION. What is the highest level of Education you attained?

- 1. None
- 2. Primary
- 3. Secondary
- 4. Advanced Level
- 5. University
- 6. Other (specify) _____

INSURANCE STATUS

14. Do you have a health insurance cover?

- 1. Yes (Insured.)
- 2. No (Not insured)

IF INSURED, ANSWER QUESTIONS 15, 16,17 AND 18. IF NOT INSURED GO TO QUESTIONS 23 AND 24

15. Which insurance Organization has insured you?

- 1. NHIF
- 2. HMO (AAR, HMS,)

3. Private insurance organization (BAICO,
ALICO)

4. NHIF and Private (specify) _____

16. What was the main reason for taking the health insurance cover?

17. How many people does your health insurance policy cover?

1. One individual (Self)
2. Whole Family
3. Other(Specify) _____

18. Do you feel that since you are insured, you must visit a health provider /doctor every year?

1. YES
2. NO

19. (A) Are you satisfied with the current insurance policy benefits /coverage?

1. Yes
2. No

(B) If NOT, Which other services /benefits would you like the insurance to pay for/ offer?

**IF YOU ARE INSURED BY THE NHIF, ANSWER QUESTION, 20
21 AND 22.**

20. Have you ever used the NHIF CARD to pay your in-patient hospital care since you started contributing ?

1. Yes

2. No

21. Which other services /benefits would you like the NHIF to pay for you?

22. Are you willing to contribute more money to the NHIF?

1. Yes

2. No

23. Are you willing to join insurance? 1. YES 2. NO

24. If the answer to Question 23 is YES,

(A) Which type of insurance are you willing to join

1. NHIF

2. HMO (AAR, HMS, ETC)

3. Private insurance organization (BAICO, ALICO, MADISON, ETC)

4. NHIF and Private insurance organization (Specify) _____

(B) How much money are you able to contribute? Kshs.

25. Whenever you have an illness which of the following health facilities do you visit?

1. Government hospital

2. Municipal health center
3. Mission hospital
4. Private hospital
5. Private doctor's clinic.

26. In the last **three months**, did you visit a health provider/Doctor?

1. YES

2. NO

IF YOUR ANSWER IS YES, PROCEED WITH QUESTION 27. IF IT'S NO, GO TO QUES. 37.

27. What was the nature of sickness?

1. Accidental injury
2. Natural illness

28. How many times did you visit your doctor over the three months period?

If the sickness was accidental injury, then answer questions 29, 30, 31, 32 and 33

29. Which part of the body was injured?

1. Head
2. Upper limbs
3. Trunk
4. Lower limbs

5. Other (specify) _____

30. How long did you take before visiting a doctor? _____

31. How severe were the injuries

1. Mild

2. Moderate

3. Severe

32. How were the injuries treated? (Tick the one applicable).

1. Stitching and dressing in the minor theatre

2. Operation in the main theatre

3. Drugs (Or Medication) alone

4. Other (specify) _____

33. What was the cause of the injury?

1. Road traffic accident

2. A fall in the house

3. Interpersonal assault

4. Other (specify) _____

IF THE SICKNESS WAS NATURAL, THEN ANSWER

QUESTION 34, 35 and 36

34. What was the name of the illness/Disease? _____

35. How long did you take before visiting your doctor?

36. How severe was your illness?

1. Mild

2. moderate

3. Severe

37. Were you ever **admitted** to a hospital this year?

1. Yes

2. No

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38. If you were admitted to a hospital, please fill the table below.

How many times were you admitted in the last one year	How long did you stay in the hospital	What was the reason for admission
Once		
Twice		
Thrice		
More than three times (Specify)		

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