DETERMINANTS OF COVERAGE AND UTILIZATION OF HEALTH INSURANCE SCHEMES AMONG ADULT RESIDENTS OF BUNGOMA TOWN, KENYA

BY

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SCHOOL OF PUBLIC HEALTH AND COMMUNITY DEVELOPMENT

MASENO UNIVERSITY

DECLARATION

I declare that this thesis is my original work and it has not been presented to any other university or college for award of a degree or diploma.

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DEDICATION

This work is dedicated to the Almighty God, my dear wife, children, parents and friends.

ABSTRACT

Increasing cost of health care remains a major challenge to achieving universal health care coverage in many developing countries. Health insurance schemes can be used to finance health care and protect people against catastrophic health care expenses. Most developing countries have low insurance coverage and rely on out of pocket health payments. Despite having 22 private and one public health insurance, only 17% of Kenya's population had insurance cover while out of pocket expenditure on health was 32%.Moreover, 91% of in-patients admitted at Bungoma County Referral Hospital between January 1st 2012 and December 31st 2012 paid through out of pocket method. Information on determinants of coverage and utilization of health financing schemes in Bungoma Town is uncertain. The main objective of this study was to establish determinants of coverage and utilization of health insurance schemes with specific objective of determining coverage, utilization and establishing sociodemographic and economic factors associated with coverage and utilization of health insurance among adult residents of Bungoma Town. A cross-sectional design was adopted for the study and quantitative data was collected using questionnaires. Probability proportionate to size sampling method was used to select 414 participants from target population of 15204 from four admitting hospitals in Bungoma Town. Chi-square test for independence and logistic regression analysis was used to test the association between independent and dependent variables. All tests were two-tailed and a P-value < 0.05 was considered statistically significant. Out of 414 respondents half 212(51.20%) had health insurance cover and 185(87.3%) utilized it. Sociodemographic factors such as age(26-45 years) OR = 2.745, (95% CI = 1.203 - 6.264), P = 0.016, marital status(Married)OR = 6.268 ; (95% CI = 2.065 - 19.024); P ≤ 0.001;and economic factors such as university and middle level college education OR = 25.500; (95% CI = 1.721 - 377.934); P = 0.019 and OR = 13.600; (95% CI = 1.367 - 135.302) P = 0.026, respectively, formal sector employment OR = 15.401; (95% CI = 6.524 - 36.360); P <0.001 and high income (26001 - 50000) OR = 38.3333 (95% CI = 48.388 - 3036.825; P <0.001 significantly influenced health insurance coverage and utilization .This study has shown that health insurance coverage and utilization in Bungoma Town is low.Females,those with higher education and high income tended to have insurance cover more than the rest hence need to step up education on the importance of having health insurance to rest of the people.

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LIST OF ABBREVIATIONS AND ACRONYMS

AMREF	:	African Medical Research Foundation
ANC	**:**	Antenatal care
CBHIs	:	Community-based Health Insurance Schemes
DMHIS	:	District Mutual Health Insurance Scheme
EPO	:	Exclusive provider organization
HIS	:	Health Insurance Scheme
HIV	:	Human Immunodeficiency Virus
HMO	:	Health maintenance organization
IP	:	In patient
KDHS	:	Kenya demographic Health survey
KIPPRA	:	Kenya Institute for Public Policy Research and Analysis
KNBS	:	Kenya National Bureau of Statistics
LMICs	:	Low and middle-income countries
MFL	:	Master Facility List
MIP	:	Medical Insurance Providers
MOH	:	Ministry of Health
NHA	:	National Health Accounts
NHIF	:	National Health Insurance Fund
NHIS	:	National Social Health Insurance
NHSSP	:	National Health Sector Strategic Plan
PCTs	:	Primary Care Trusts
OOP	:	Out of Pocket
PHI	:	Private Health Insurance

PPO	:	Preferred provider organization
THE	:	Total Health Expenditure
UHC	:	Universal Health Coverage
USA	:	United States of America
WHO	:	World Health Organization

OPERATIONAL DEFINITION OF TERMS

Health Insurance - Health insurance is a type of coverage that covers the cost of insured individual's medical and surgical expenses.

Health insurance coverage - Health insurance is a type of insurance coverage that pays for medical and surgical expenses incurred by the insured. Depending on the above definition health insurance is where either the insured pays cost out of pocket and is reimbursed, or the insurer makes payments directly to the provider to meet the cost of health services for a specific person or people to be protected.

Health insurance utilization - This is the extent to which a given group uses a particular service in a specified period or the extent to which the members of a covered group use a program over a stated time, specifically measured as a percentage determined by dividing the number of covered individuals who submitted one or more claims by the total number of covered individuals.

Health Financing - Health financing refers to the collection of funds from various sources, pooling of funds and spreading of risks across larger population groups and allocation or use of funds to purchase services from public and private providers of health care.

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CHAPTER ONE: INTRODUCTION

1.1 Background of the Study

The rising cost of health care services is a major barrier to equal access to quality health care worldwide. Moreover, financing health care systems to achieve universal coverage of health services remains a challenge in developing countries worldwide (WHO, 2012). Many developing countries are financially constrained and as such find it difficult to provide sufficient budgetary allocations to finance health care systems and consequently, health systems in sub-Saharan African countries are ill equipped to adequately address health problems (Atim, Lisa, Laurel, Stephen, & Aneesa, 2008). In addition, many people residing in developing countries, including Kenya, still rely heavily on out-of-pocket (OOP) health care payment, which is known to exacerbate poverty and impede access to health care. Alternative approaches to financing health care services to achieve universal coverage with financial protection of all against health care costs are therefore crucial. Health insurance is recognized as an important strategy that can be used to finance health care and thus protect people against catastrophic health care expenses associated with OOP as well as address issues of equity (Chuma and Okungu, 2011).

Globally different countries have different health insurance coverage levels. The developed countries tend to have most of their citizens having health insurance cover. The United States of America which has private and employer-based insurance providers(Medicare and Medicaid) has 90.9% of the population covered (Barnett & Vornovitsky, 2015).United Kingdom, which uses the national healthcare system has insurance coverage of 100% with 10% having private insurance while Germany covers 86 % of the citizens under mandatory coverage. Brazil and Canada have 75% and 100% coverage respective while France and Mexico have coverage of 92% and 85% respectively (Deloitte, 2011). Switzerland has a statutory national health insurance

system with compulsory coverage for all Swiss residents covering 99% of the 7.8 million Swiss residents (Keckley, 2011).

Most sub-Saharan countries have been trying to implement the social health insurance schemes which cover mostly formal sector employees while private and community based health insurance schemes have emerged to extend insurance coverage to self-employed and the informal sector (Carapinha, Ross-Degnan, Desta, & Wagner, 2010). In the sub-Saharan region, Rwanda has enrolled more than 75% of their population in Health insurance, while Ghana has about 50% of its population covered. Mali and Nigeria has coverage of less than 20% of their population (Lagomarsino, et at, 2012).

Findings by the Kenya household health expenditure and utilization survey (2013) showed that only 17% of Kenyans had Health insurance cover with the rest meeting the cost for their health care throughout pocket payments. Other studies have shown that health insurance coverage in Kenya is as low as 10 % of the population (Kiplagat, Muriithi, & Kioko, 2013) . It is further estimated that only 7% of women and 11% of men aged 15-49 years have a medical insurance cover according to KDHS 2008/2009 and approximately 32 % of total expenditure on healthcare by households is borne out of pocket (GOK, 2013)There are different types of health insurance providers in Kenya which are either public, private or community-based insurance schemes. National Health Insurance Fund is a government mandatory insurance scheme which is compulsory for the formal sector employees but voluntary for the informal sector. Currently NHIF provides 88.4%, private insurance 9.4% community-based insurance 1.3 % and other forms of insurance 1.0 % of health insurance coverage .NHIF coverage for formal and informal sector populations is 4.5 million people or 11% of the Kenyan population (USAID, 2014). Other than NHIF there are 22 private health insurance providers in Kenya (IRA, 2014).

There has been rise in total annual out-of-pocket expenditure on health from Kenya Shillings 43.9billion in 2007 to Kenya Shillings 62.1 billion in 2013, an increase of about 42 % where spending on outpatient care accounted for approximately 78% (Kes.48.4 billion) of total health expenditures, while inpatient services accounted for 22 % (KES 13.7 billion)of The Total Health Expenditure. This accounted for 32 % of the Total Health Expenditure which was bone out of pocket (GOK, 2013). The same survey showed that Bungoma is one of the counties where household expenditure on health still remains above total non-food expenditure(6.2%) compared to the national levels of 6% (GOK, 2013**).** Moreover, 91% of patients admitted at Bungoma County Referral Hospital between January 1st 2012 and December 31st 2012 used out of pocket method to pay for their health care, thus suggesting low coverage. No studies have been documented on determinants of coverage and utilization of health insurance schemes among adults in Bungoma town and hence the magnitude of the problem remains unclear.

1.2 Statement of the Problem

Despite the availability of health insurance schemes and the unsuccessful government efforts to introduce the national social insurance fund in 2004, coverage and utilization of health insurance schemes to finance health care is still low in Kenya. It is estimated that Globally 150 million people suffer financial catastrophe annually because they pay for health services through out of pocket payment. Only 17% of Kenyans have Health insurance cover with the rest meeting the cost for their health care using out pocket payments .Out of pocket expenditure on health is known to exacerbate poverty and impede access to health care, yet it contributes 32 % or one third of the Total health expenditure and remains the main method of paying for health in Kenya, including Bungoma town. Moreover, out of the 12435 patients admitted to Bungoma County Hospital between January 1, 2012 and December 31, 2012 only 9% used NHIF to finance their

health care while 91% relied on out of pocket payments thus suggesting low coverage in Bungoma town. No studies have been documented on determinants of coverage, utilization and factors associated with coverage and utilization of health insurance schemes among adults in Bungoma town and hence the magnitude of the problem is scarce and remains unclear. Thus intervention programs focusing on scale-up of health insurance coverage and utilization are also lacking.

1.3. Overall Objective

The overall objective of the study was to establish determinants of coverage and utilization of health insurance schemes among adult residents of Bungoma town, Kenya.

1.3.1 Specific Objectives

To achieve the above overall objective the following specific objectives were pursued.

i. To determine the coverage of health insurance,
ii. To assess the of utilization of health insurance schemes,
iii. To determine the socio-demographic factors associated with the coverage and utilization of health insurance schemes
iv. To determine economic factors associated with the coverage and utilization of health insurance schemes among adult residents of Bungoma town.

1.4 Research Questions

i. What is the coverage of health insurance in Bungoma Town?
ii. What is the magnitude utilization of different types of health insurance schemes?
iii. What are the socio-demographic factors associated with the coverage and utilization of health insurance schemes among adult residents of Bungoma town?

iv. What are economic factors associated with the coverage and utilization of health insurance schemes among adult residents of Bungoma town.

1.5 Justification

Universal health coverage remains the main objective of the ministry of Health (KHSSP, 2012). However increasing cost of health care remains the main barrier to achieving this objective even in Kenya where out of pocket expenditure on health stands at 32 %.Although Studies elsewhere have shown that use of health insurance is the option to providing health care affordably, coverage and utilization of health insurance to finance health is low in most developing countries including Kenya. In Kenya health insurance coverage is low with only 17% of the population having insurance cover. Out of the 12435 patients admitted to Bungoma County Hospital between January 1, 2012 and December 31, 2012 only 9% used NHIF to finance their health care while 91% relied on out of pocket payments, thus suggesting low coverage in Bungoma town. This trend was replicated in the other three health facilities where majority of clients were lacking health insurance and hence resorting to out of pocket payments. No documented study has been carried out to assess health insurance coverage, the types of Health insurance utilized and the factors associated with the coverage and subsequent use of the health insurance to finance health care in Bungoma Town among patients attending the four main hospitals which include Bungoma County referral, Lumboka, Elgon View and St. Damiano Hospitals. Such knowledge is essential for the development and implementation of intervention programs aimed at scale-up of Health insurance enrollment.

1.6 Significance of the Study and Anticipated Outcome

The information obtained from this study can be used to develop, plan and implement interventions to improve on the coverage of health insurance schemes to finance health care in

Kenya. The objective of the ministry of Health in Kenya is to provide Universal Health Coverage (GOK, 2012/2013)to all citizens (KHSSP, 2012). However cost, distance and social factors remain the main barriers to achieving this objective. There has been significant improvement in reducing the distance to the health facilities with 75% of people now living within 5km from health facilities (KHSSP, 2012). However cost of health care still remains a challenge in Kenya where out of pocket expenditure on health stands at 32%.(NHA, 2013). Although studies elsewhere have shown that use of health insurance is the option to providing health care affordably coverage and utilization of health insurance to finance health is significantly low in Kenya as well as most developed and developing countries. No documented study has been carried out to assess health insurance coverage, the types of Health insurance utilized and the factors associated with the coverage and use of the health insurance to finance health in Bungoma Town. This study aimed at providing insight into health insurance schemes coverage, identify the available health insurance schemes utilized and determine socio-demographic and economic factors associated with the coverage and subsequent use of the health insurance to finance health among adults in Bungoma.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

Globally 150 million people suffer financial catastrophe annually because they pay for health services (*WHO, 2010*) through out of pocket method. Proper health care financing ensures that population not only has access to health care but also use the health services when they need them (*Preker, 2004)*. A well-functioning health financing system also determines whether the health care services exist (*WHO, 2010*). Out of this recognition, Member States of the World Health Organization (WHO) committed in 2005 to develop their health financing systems so that all people have access to services and do not suffer financial hardship paying for them (*WHO, 2010*). Achieving this goal is in effect a move towards universal health coverage (*WHO, 2012*). Many countries are therefore scrutinizing different ways of financing their health care systems including user fee and cost sharing so as to protect their entire populations against the disastrous effects of high costs of healthcare (Carrin *et al*., 2007).

The World Health Organization recommends prepayment financing mechanisms including social health insurance, to protect against financial risk and to improve access to health care (WHO, 2005) . Health insurance ensures there is raising of money and spreading of financial risks through pooling of resources *(*Santere & Neun, 2010). However, in low and middle-income countries (LMICs), health insurance schemes often cover only a small proportion of the population (Carrin & James, 2005; Hsiao & Shaw, 2007) and the people least likely to be covered are those with high health care requirements and needing financial protection (Gilson *et al*, 2000). Although community based health insurance schemes are widely promoted in many countries in Africa, Asia and Latin America, most of them have limited coverage (De Allegri *et al*, 2006).

2.2 Theoretical Literature Review

Various theories have been advanced to explain the aspect of Health insurance coverage. One of such theory is the demand for Health insurance theory by Nyman (2003) who argued that where private markets for health insurance were absent the government provision for insurance should be advocated. His view is that the respective governments have the responsibility to allocate resources for health insurance(Nyman, 2003) Mark. V Pauly (1968) later observed that health insurance induces moral hazard which leads to inefficient resource allocation. John. A. Nyman (2003) observed and gave several reasons why people buy medical insurance. This is the basis of the demand for Health Insurance theory whose central theme is that consumers demand health insurance in order to obtain transfer of income from the healthy if she were to become ill and allow ill consumer to purchase more medical care services. This therefore allows the ill consumer to access medical care that would otherwise be unaffordable.

2.3. Health Insurance Coverage

The proportions of individuals who own a health insurance policy vary globally. In India, social health insurance covers formal sector employees, accounting for only 3% of the total population (Devadasan, Ranson, Van Damme, Acharya, & Criel, 2006). Despite being a developed nation United States of America (USA) has out of pocket expenditure standing at 13.5% of total Health expenditure (Deloitte, 2011). The number of the uninsured stands at 15.4% with 84.6 % having an insurance cover of which 63.9% are under private insurance and 32.2 % being public insurance (DeNavas-Walt, *et.al 2006*) .It is only the United Kingdom, which uses the national healthcare system that has achieved insurance coverage of 100% with 10% having private insurance while Germany covers 86 % of the citizens under mandatory coverage. Brazil and Canada have 75% and 100% coverage respective while France and Mexico have coverage of

92% and 85% respectively (Deloitte, 2011). Switzerland has a statutory national health insurance system with compulsory coverage for all Swiss residents covering 99% of the 7.8 million Swiss residents (Keckley, 2011).

The situation does not spell total doom in the developing countries .Some Sub- Saharan Africa countries have shown great effort where countries such as Rwanda have achieved significant coverage of 91% health insurance coverage followed by Ghana at 70%. Mali and Nigeria have coverage of less than 20% of their population *(*Lagomarsino *et.al* , 2012). Kenya has less than 20% of its population having health insurance cover (Deloitte, 2011). The population coverage by private health insurance in Kenya is approximately 700000 lives, while the National Hospital insurance covers 6.6 million lives hence only 19.2 % of Kenyans have health insurance coverage *(*GoK, 2010), despite the existence of different forms of prepayment schemes in Kenya (Kiplagat, *et.al*,2013)and approximately 32 % of total expenditure on healthcare by households is borne out of pocket (NHA, 2013).

Furthermore, 91% of in-patients admitted at Bungoma County Hospital for the period between January and December 2012 used out of pocket method to pay for their health care, thus suggesting low coverage. However, no studies have been done to determine coverage of health insurance schemes among adults in Bungoma town and hence the magnitude of the problem remains unclear.

2.4 Types of Health Insurance Utilized

There are four basic health care models globally whose function is to provide financing for Health with three basic goals of keeping people healthy, treating the sick and protecting families against financial ruins from medical bills (*PNHP, 2012*). The four models include Beverage

where health care is provided and financed by the government through tax payments as seen in UK, Spain, New Zealand and Scandinavian countries (Reid, 2009). The second model is the Bismarck model where insurance system is financed jointly by employer and employee through payroll deductions and is practiced mainly in Germany, Japan, Belgium, France, Netherlands and Switzerland. The third model is The National Health Insurance Model, combines elements of the above two and it uses private sector providers with payments being from Government run insurance program paid to by every citizen. This is practiced in Canada, Taiwan and South Korea. The last is the Out of Pocket model which is practiced by majority of the poor Nations including Kenya where people pay for their health care directly. Under this system the rich get medical care while the poor stay sick or die (Reid, 2009).

Different countries in the developed countries have developed specific types of Health insurance that suits their unique needs. The United States of America has private health insurance, employer based insurance and government owned Medicare and Medicaid as the main players *(*DeNavas-Walt, Proctor, & Hill-Lee, 2006). In the United Kingdom, the government allocates funds from the public to the National Health Service (NHS) purchasing centers, the Primary Care Trusts (PCTs) which use this funding to purchase services on behalf of the geographically defined populations for which they are responsible. Coverage for health care through the NHS is extended to all those who are "ordinarily resident" in the United Kingdom (Thomas, 2009). A few countries in the African continent such as Rwanda which has developed community Based Health insurance as an option in improving financial accessibility to health care and reaching 100% geographical coverage seem to be on the right track in health (Rwanda-MoH, 2010*)*. In Ghana the National Health insurance service operates the public health care system allowing three kinds of care plans namely the District Mutual Health Insurance Schemes, or DMHIS;

private mutual insurance schemes; and private commercial insurance schemes where the DMHIS operates in every district in Ghana while the other insurance plans cover less than 1 percent of the insured population (Gissele, 2013).

Although there are 22 registered private and one public medical insurance provider in Kenya (IRA. 2014) Kenya has not witnessed a reasonable Health insurance coverage. Despite the apparent monopoly , National Hospital insurance Fund (NHIF) which is the only public health insurance provider by 2011 had an enrollment of 3.2 million registered members of which 78.2% are from the formal sector with only 21.8% being from the informal sector (KIPPRA, 2013). Moving Kenya towards universal health care requires a financing mechanism that is efficient and equitable not only in revenue generation but also service delivery (Muiya, 2013). The NHIF is being considered as a potential institution to be transformed to a NHIS, as part of universal health coverage(Malupi, Kirigia, & Chuma, 2013) . Community-based Health Insurance Schemes (CBHIs) is not widespread in Kenya. There are about 38 registered CBHIs in Kenya that cover approximately 1.2% of the Kenyan population, although it is not clear how many are still active (Malupi,*et al* 2013). Despite the availability of other health financing schemes in Kenya, in addition to NHIF, their uptake and utilization among adult residents in Bungoma County is not well documented.

2.5 Factors Associated with Coverage and Utilization of Health Insurance

Several factors including knowledge and perceptions on health insurance and its benefits, income, health care expenditure, price of insurance, employment, area of residence, socio-demographic factors, have been suggested to be important factors for health insurance purchase decision (Malupi, *et al* 2013)but a complete understanding of the causes of low coverage remains unclear.

2.5.1 Knowledge and Perception on Health Insurance and its Benefits

The existence of knowledge gaps about the health insurance schemes has been found to influence acceptance and participation of households in the schemes (Carrin *et al.,* 2007*)* Similarly a study in India on customer perception of health insurance products found that 86.8% of the respondents indicated not having heard about health insurance as the reason for not enrolling (Bawa, 2011). Although 97.4 % were willing to buy it only 46.4% actually purchased the health insurance (Rajesh *et al,* 2013). Limited knowledge of informal sector workers about the NHIF is the most critical barrier to NHIF enrollment (Mathauer, Schmidt, & Wenyaa, 2008). The level of understanding of the benefits of using these schemes is also a barrier to uptake of health insurance in Kenya (Kimani, Ettarh, Kyobutungi, Mberu, & Muindi, 2012).

2.5.2 Income Level and Coverage of Health Insurance

Approximately 1.3 billion poor people worldwide have no access to health services because they cannot afford to pay at the time they need it (Dror & Preker, 2002) which leads to those who need to use the services to suffer financial hardship and impoverishment since they have to pay for health services through out of pocket payments(WHO, 2010). Studies have shown that there is a positive association between house hold income in both developed and developing countries with the probability of buying health insurance where income significantly determines the amount of health insurance purchased (Osei-Akoto & Adamba., 2011).

Other studies in sub-Saharan Africa, have also shown that those employed in the formal sector are more likely to have health insurance compared to those in the informal sector (Kirigia et al., 2005; Mathauer, Schmidt, & Wenyaa, 2008). This was attributed to factors such as low and non-regular income, insecure employment and factors associated with the insurance scheme (Kimani, et. al, 2012).

2.5.3 Access to Outlets Offering Health Insurance Services

Although a survey indicated increased knowledge about NHIF amongst the Kenyan population (WHO, 2010) access to NHIF offices for enrollment is still a challenge (Deloitte, 2011). NHIF has automated 31 branches in Kenya and an additional 82 service points which exist in hospital and community centers to which beneficiaries can pay premiums, update membership and receive other forms of customer care services (JLN, 2012). However compared to the current population this number of outlets is inadequate (GoK, 2010) and may be a hindering factor to the enrolment into insurance scheme in Kenya, including Bungoma County.

2.5.4 Gender

Gender has a significant bearing on choice of insurance schemes. Studies have indicated that males form the majority of respondent without cover while females especially of reproductive age demand more medical services and are more likely to purchase insurance cover than men (Bourne & Kerr-Campbell, 2010).

2.5.5 Education Level

Education has been found to increase the probability of taking up insurance of all types with more educated individuals intending to insure since they have skills and knowledge to make informed choices on health related matters among them purchase of health insurance (Grossman, 1972; Kirigia et al., 2005). Findings from other studies have also shown that individuals taking up private insurance belong to the highest wealth index, are relatively older with a higher awareness and the highest education level than the rest while those taking mutual community schemes belong to the lowest education level (Bourne & Kerr-Campbell, 2010; Nketiah-Ampomensah, 2009).

2.6 Theoretical Framework

The study utilized the Andersen and Newman Framework of Health Services Utilization theoretical framework. This framework is used to determine and discover conditions that contribute health service utilization by either facilitating or impeding them. It provides a behavioral model that determines access to medical care. It was developed in the 1960s and has four phases. The fourth phase which was developed in the 1990s is relevant in this study. It stipulates that an individual's access to and use of health services is considered to be a function of three characteristics .The first one is the Predisposing Factors. These are socio-cultural characteristics of individuals that exist prior to their illness. These include the Social Structures such as education, occupation, ethnicity, social networks, social interactions, and culture; Health Beliefs like attitudes, values, and knowledge that people have towards the health care system and Demographic factors which include age and gender. The second characteristic is the enabling Factors. These are the logistical aspects that enable obtaining of care and include personal, family, community, genetic factors and psychological characteristics. The third characteristic is the need factor which forms the most immediate cause for health service use. The two main need factors are perceived need factors and evaluated need factors. Perceived need factors helps in understanding care seeking behavior and adherence to medical regiment. It also considers the way people view their own general health and how they experience symptoms and hence their judgment of their problem whether it warrants seeking professional help. The evaluated need is related to the kind and amount of treatment that will be provided to the patient by a medical care provider. (Andersen, 1995). This theory is relevant in this study since it shares similar variables which include independent variables such socio-demographic and economic variables.

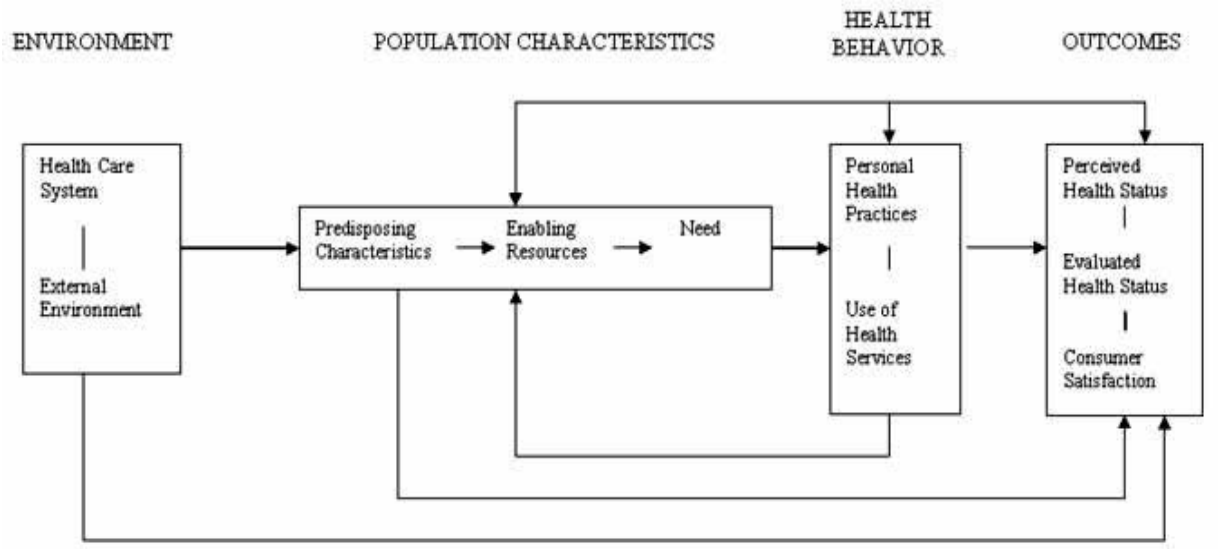

Figure 2.1: Andersen and Newman Framework of Health Service Utilization

2.7 Conceptual Framework

The study utilized the conceptual framework used in Coverage *Matters* (IOM, 2001a) which is based on Andersen's model of access to health services. It incorporates ideas from the behavioral sciences to understand the process of health services delivery and health-related outcomes for individuals(Aday, Andersen, & Flemming, 1987; Andersen & Davidson, 2001). The conceptual framework also borrowed from an economic model of insurance status and the impact of out-of-pocket costs on health care demand. Andersen put variables into three categories of those which enable the process of obtaining health care; personal or community characteristics favoring or predisposing action related to obtaining health care; and needs for health care, as articulated by those in need, determined by health care providers, or identified by researchers and decision makers. These categories are relevant in the conceptual frame work for this study. The third specific objective of this study was addressed in the framework by linking it with Andersen's framework among determinants of health insurance and such factors as family economic well-being, the institutional viability of health services, and community-level socioeconomic conditions.

The conceptual framework was used to draw similarities to the current study which aimed at establishing determinants of health insurance coverage by utilizing the same set of dependent and independent variable.

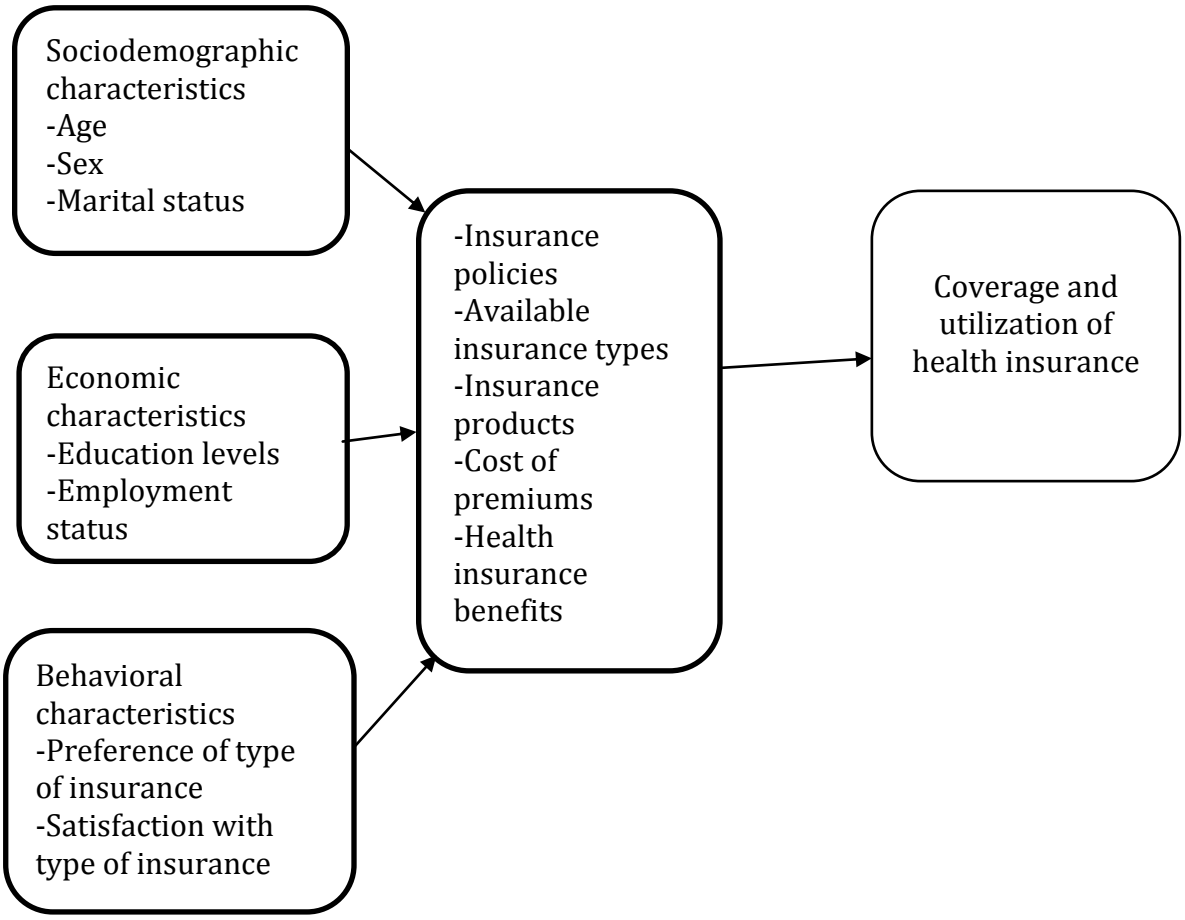

Figure 2.2: Conceptual framework showing the relationship between independent and dependent variables

The independent variables include gender, age and marital status; economic characteristics such as education, employment status, and income levels as well as socio demographic and economic associated factors. The intermediate factors which include insurance policies, available insurance types, insurance products, cost of premiums and health insurance benefits contribute to attainment of the dependent variable of increased coverage and utilization of health insurance.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

This chapter describes the method used in carrying out the research that includes the design, area and population of the study, Sampling and sample size determination, data collection methods tools used for data collection and data analysis.

3.2 Study Site

The site of this study was Bungoma Town which is the Headquarters of Bungoma County and is located 324Km west of Nairobi on latitude: 0.57° North and longitude :34.57° East .It lies at an altitude of 1384m above sea level .The town has a population of 55968 people (Softkenya.com, http//www.google.com/search?q=location of Bungoma Town).

3.3 Study Design

A cross-sectional survey with descriptive design was used in this study to obtain information on first and second specific objectives while correlation design utilizing simple null hypothesis was used to obtain information on the third specific objective .Data was collected using questionnaires which were administered by the researcher and trained research assistants. The collected data was analyzed through binary logistic regression model to analyze the relationship between dependent and independent variables.

3.4 The Study Population

The study population comprised of 15204 adult patients admitted at the four main hospitals in Bungoma Town based on data of 2012. These included Bungoma County Referral Hospital; St Damiano; Lumboka and Elgon View Hospitals (HIS Bungoma County Referral, Elgon View, Lumboka and St. Damiano Hospitals, 2012)

3.4.1 Inclusion Criteria

The inclusion criteria for the study was that one must be an adult admitted or caring for a member of the nuclear family admitted to the ward in Bungoma County Referral Hospital; St Damiano; Lumboka and Elgon View Hospitals in Bungoma Town. The selection of a caretaker was based on his or her relationship with the patient and whether he is legally allowed to access the patient's confidential information .Additionally the caretaker must have been living with the patient for a period of at least three months to have full knowledge of the patient. The caretaker was to be confirmed to have above qualities from other family members.

3.4.2 Exclusion Criteria

Non-consenting inpatients and all out-patients were excluded from the study. Bed ridden and unconscious in-patients without caretakers to respond to the interviewers were also excluded. Children were excluded based on the fact that they cannot understand the questionnaire, have no insurance of their own and they are below the consent age. Patient who resided outside Bungoma Town were also excluded from participation.

3.5 Sample Size Determination and Sampling Procedure

3.5.1 Sample Size Determination

A sample size of 414 patients or care takers of patients admitted at the four Hospitals was determined using a formula by Fishers $n=z^2(pq)/d^2$Adopted from (Mugenda & Mugenda, 1999)

Where: n = the desired sample size of the study population,

Z = the standard normal deviation (1.96) which corresponds to the 95% Confidence level,

P = the proportion of the target population calculated at 50% (0.5) with the

desired characteristics

d = the degree of precision set at 0.05

q Is set at 0.5.

Thus: $n=z^2(pq)/d^2$

$= 1.96^2 x (0.5 x 0.5)/ (0.05)^2$

=1.96x 1.96(0.5x0.5)/ (0.05x0.05)

=3.8416x0.25/0.0025=384.16 or 384(8% of the calculated sample size or 30 was added to cater for sampling error)

Hence: The adjusted sample size was therefore 414.

3.5.2 Sampling Procedure

The participating hospitals were purposively selected based on the fact that these are the main hospitals having admission facilities in Bungoma Town. The sample frame for the study consisted of patients and caretakers of patients admitted in the four main Hospitals in Bungoma Town namely Bungoma county Referral Hospital, Elgon View, Lumboka and St. Damiano Hospitals. The calculated Sample size of 414 participants was stratified according to the four Hospitals and calculated using population proportionate to size sampling based on bed capacities in the four hospitals. Based on respective Hospital information systems of 2012, the four Hospitals admitted 15204 patients. Bungoma county hospital has a bed capacity of 140 beds (56%), Lumboka 20 beds (8%), St. Damiano 30 beds (12%) and Elgon View has capacity of 60 beds (24%).The participants were then selected using systematic random sampling where the sampling interval was calculated using formula:

Sampling interval(R) = (Total Population (N)/sample size (n))

Where R= Sampling Interval

N=Total population

n=Sample size

Since the target population was 15204 per year then target monthly population will be 15204/12 = 1267.

Hence R= (N)/ (n) =1267/422 = 3.002

Thus the interval was 3

The starting point was randomly selected and subsequently every third bed occupant was interviewed.

3.5.3 Sample size Distribution

The sample size for each hospital was determined using population proportionate to size method. Using bed capacity a calculation of the number of samples for each facility was done as shown on the table below in Table 3.1

Table 3.1: Population Proportionate to Sample Size

Hospital	Population	Sample size	Sample size + 8%
Bungoma County	8515	215	232
Elgon View	3649	92	100
Lumboka	1216	30	32
St. Damiano	1824	46	50
Total	15204	384	414

3.6 Data Collection Methods

3.6.1 Recruitment of Research Assistants

Research Assistants were recruited from the respective hospitals and locality. To qualify as a Research Assistant one was required to be a holder of certificate or diploma in Health Records and information, clinical medicine, nursing or a holder of any other medical field qualification. They were required to be fluent in both spoken and written English and Kiswahili. Fluency in the local language (Bukusu) was an added advantage.

3.6.2 Training of Research Assistants and Pre-Testing of Study Tools

The recruited research assistants were trained on the study tools to equip them to understand the process of administering the research questionnaire. The study questionnaires were pre-tested at Webuye County hospital, which is also a referral hospital and has similar facilities like Bungoma County Referral Hospital. Additionally the Hospital has a well-functioning amenity wing which serves patients seeking private admission. This gave similar characteristics to those of the private and faith Based Hospitals where the study was to be carried out in Bungoma Town.

3.6.3 Reliability and Validity of the Study Tools

Reliability and validity in research are used for enhancement of accuracy of the assessment and evaluation of research work (Tavakol & Dennick, 2011). The research tools reliability and validity was tested using applicable tests. Reliability refers to the consistency, stability and repeatability of results (Twycross & Shields, 2004) while validity refers to the extent to which an instrument measures what it is intended to measure (Thatcher, 2010). In this study Stability reliability test was used to determine reliability of the tools. This is a reliability test where a researcher obtains the same result in repeated administrations or when the same test tools are used on the same sample size more than once, and when there is a reliability co-efficient that

provides an indication of how reliable the tool is(Twycross & Shields, 2004). Validity was determined using content validity which is the extent to which an empirical measurement reflects a specific domain of content. (Thatcher, 2010).To determine validity and reliability in this study, 50 questionnaires were administered to respondents during pretests conducted at Webuye County Hospital where 45(90%) of the questionnaires gave consistent and intended responses while 5 had errors which were corrected before the questionnaire could be used for data collection in Bungoma Town.

For the participants who did not know how to read and write the research assistants who were locally selected explained the questionnaire to the participants. Although it was necessary to translate the questionnaires into the local language this was not done because the study was carried out in a cosmopolitan urban set up with mixed communities. Being an urban setup majority of the participants had attained some level of formal education.

3.6.4 Recruitment of Participants for the Study

After determination of the number of respondents in each facility the researcher obtained consent from the county Director of Health and verbal permission from the respective health facility in charges to allow researcher and research assistants access the patients admitted in various words in the selected Hospitals. To avoid selection of same sex of participants the research team visited male and female wards on different occasions where equal number of respondents were selected through systematic random sampling. The first respondent was randomly selected.

3.6.5 Data collection Tools

Data was collected using questionnaires which were administered to respondents selected from patients admitted (or their caretakers) to the four main Hospitals in Bungoma Town. Every

participant was either given a questionnaire or had the questionnaire read to them by the research assistant after obtaining his or her consent to participate. The questionnaires had three sections which were to address each objective. The first section identifies the socio demographic and economic aspects of the respondents; second section established health insurance coverage and the utilization of health insurance while the third section inquired into the factors associated with coverage and utilization of Health insurance schemes among adult residents of Bungoma Town.

3.6.6 Data Collection Process

The data was collected between 5th October and 7th of December 2015 by research assistants and the researcher who visited Bungoma county Referral, Elgon View, Lumboka and St. Damiano Hospitals on different days. A researcher was allocated a ward per day until the target populations were interviewed in each facility. Clients were counterchecked to ensure no repeat interview of participants occured.After introducing oneself and obtaining consent, the researcher either read or gave the questionnaire to the respondent and recorded the responses.

3.7. Data Management and Analysis

The collected data was processed by carrying out editing where data was scrutinized to detect any errors and omissions in order to ensure data accuracy. Thereafter data was coded by assigning numbers to categorize responses. Data was then classified into groups based on their characteristics. The classified data was tabulated by placing summarized data into columns and rows. The tabulated data was entered into a computer using statistical package for Social sciences (SPSS) Version 20 and analyzed using descriptive analysis. Chi-square was used test for independence while logistic regression analysis was used to analyze relationship between independent and dependent variables. Odds ratios were compared through regression to ascertain the likelihood of occurrence of events. Spearman's correlation was also used analyze association

between variables and this generated the direction of magnitude of association. All tests were done at 95% confidence level and were two-tailed with a P-value of < 0.05 considered statistically significant.

3.8 Ethical Considerations

The study approval as well as ethical approval was sought from Maseno University School of Graduate Studies (See appendix II) and Maseno University Ethical Review Committee (Appendix III) respectively. Permission to conduct the study in Bungoma was obtained from County Director of Health (Appendix IV) Verbal consent was also obtained from facility in charges of the participating hospitals. Informed consent was also obtained from the participating patients or their caretakers (Appendix V) and participation into the study was voluntary. No identifying data was indicated on the study tools. Information emerging from this study has been treated with confidentiality by entering data and storing it in pass worded computers accessible only to the principal investigator for a period of five years and all hard copies kept and locked up securely.

In order to ensure that critical patients participating in the study and yet were unable to pay their bill are retained in the facilities discussions were held with the respective facilities to utilize the existing waiver option for the period of the study. Additionally most hospitals are now embracing a rights based approach to patient care which emphasizes that every patient has a right to emergency health care hence patients were not turned away.

CHAPTER FOUR: RESULTS

4.1 Introduction

This chapter presents the study findings objective by objective. First and foremost the socio-demographic profile of the study participants is described, followed by results on coverage of health insurance schemes; utilization of health insurance schemes and finally results on factors associated with the coverage and utilization of health insurance schemes among adult residents of Bungoma town.

4.2 Distribution of Study Participants by Health Facility

A total of 414 adult residents of Bungoma town participated in the study and all their data was included in the analysis. The participants were from four health facilities which included one public health facility (Bungoma County Referral Hospital); two private health facilities(Elgon View & Lumboka Hospitals) and one Faith Based Health facility (St. Damiano Hospital). A total of 237(57.25%) respondents were from Bungoma County referral Hospital, 95(22.95%) from Elgon View; 49(11.84%) were from St. Dominic while 33(7.97%) came from Lumboka. The details of the respondents are shown in table 4.1 below.

Table 4.1: Distribution of Study Participants by Health Facility

Health Facility	Frequency of Participants n (%)
Bungoma County Hospital	237(57.25%)
Elgon View	95(22.95%)
St. Daminio	49(11.83%)
Lumboka	33(7.97 %)
Total	414

4. 3 Socio-Demographic and Economic Profile of the Study Participants

4.3.1 Socio-Demographic Profile of the Study Participants

Of the 414 participants 187(45.17%) were males while 227(54.83%) were females. On analysis it emerged that almost a half 205(49.51%) of the participants were aged 26 – 35 years while 99(23.91%) were aged between 18 – 25 years; 74(17.87%) were aged between 36 - 45 years while the remaining 36(8.71%) were aged 46 years and above. Approximately two thirds 268(64.73%) were married; 93(22.46%) were single yet 27(6.52%); 22(5.31%) and 4(0.98%); respectively were separated; widowed and divorced. No type of marriage was assessed in the current study. Segregation by residency revealed that majority i.e. 86(20.77%); 83(20.05%); 57(13.77%); 44(10.63%); 31(7.49%) and 29(7.00%) were from Kanduyi; township; Milimani; Musikoma; Mashambani and Mjini, respectively which comprise Bungoma town while only 84(20.29%) came from outside Bungoma Town.

Table 4.2: Socio-Demographic Profile of the Study Participants

Socio-Demographic Variable	Frequency n(%)
Gender	
Males	*187(45.17%)*
Females	*227(54.83%)*
Age	
18 – 25	*99(23.91)*
26 – 35	*205(49.51)*
36 - 45	*74(17.87)*
≥46	*36(8.71)*
Marital Status	
Married	*268(64.73)*
Single	*93(22.46)*
Separated	*27(6.52)*
Widowed	*22(5.31)*
Divorced	*4(0.98)*
Residency	
Kanduyi	*86(20.77)*
Other estates	*84(20.29)*
Township	*83(20.05)*
Milimani	*57(13.77)*
Musikoma	*44(10.63)*
Mashambani	*31(7.49)*
Mjini	*29(7.00)*

4.3.2 Economic Profile of the Study Participants

Most of the participants 166(40.09%) had middle level college education; 143(34.54%) had secondary education while 82(19.80%); and 19(4.58%) had primary and university education respectively whereas only 4(0.97%) did not have any formal education. Regarding occupation the study revealed that 150(36.23%) were employed in the informal sector; 103(24.88%) were working in the public sector; 112(27.05%) were employed in the private sectors whereas 49(11.84%) were in other sectors of the economy. Household monthly income in Kenya shillings was also investigated and it emerged that majority 232(56.04%) of the study participants earned between KES. 5001 - 25000, while 112(27.05%) earned KES. ≤5000.00 yet 47(11.35%) and 23(5.56%) earned between KES. 26001 - 50000 and above KES. 50000 respectively. The details of socio-economic profile of the study participants are contained in Table 4.3 below.

Table 4.3: Economic Profile of the Study Participants

Socio-Economic Variable	Frequency n (%)
Education	
None	*4(0.97)*
Primary	*82(19.81)*
Secondary	*143(34.54)*
Middle Level College	*166(40.10)*
University	*19(4.58)*
Occupation	
Public sector	*103(24.88)*
Private sector	*112(27.05)*
Informal sector	*150(36.23)*
Others	*49(11.84)*
Av. Income (Kes)	
≤ 5000	*112(27.05)*
5001-25000	*232(56.04)*
26001-50000	*47(11.35)*
>50000	*23(5.56)*

4.3.3 Objective 1: Coverage of Health Insurance Schemes.

According to the current study health insurance coverage is where either the insured pays cost out of pocket and is reimbursed, or the insurer makes payments directly to the health care provider to meet the cost of health services for a specific person or people to be protected. This was determined by assessing enrollment into health insurance, number of participants from each facility who had health insurance and number of participants with knowledge of Health

insurance schemes. Out of the 187 males only 99(52.94%) were enrolled into a health insurance scheme while 88(47.05%) were not enrolled into any health insurance scheme. On the other hand 113(49.78%) of the 227 females were enrolled into a health insurance scheme against 114(50.22%) who were not enrolled into any health insurance scheme.

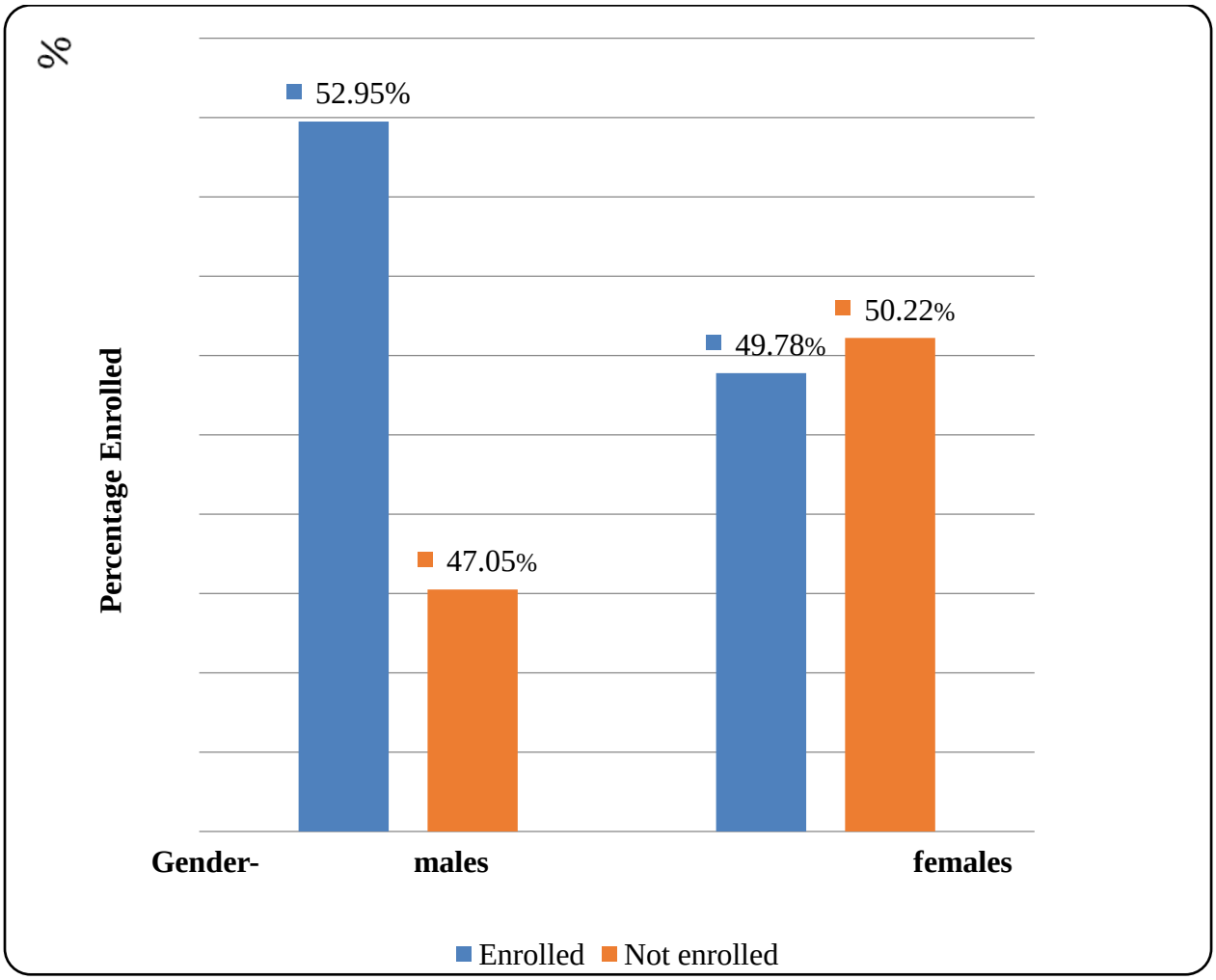

Figure 4.1: Enrolment into an Insurance Scheme by Gender

The study revealed that majority of the participants, 366(88.41%) had heard of health insurance whereas 48(11.59%) had never heard of a health insurance scheme. Of the 366 who had heard of health insurance schemes, majority of the respondents i.e. 357(97.54%) knew of the National Health Insurance Fund (NHIF) while only 7(1.91%) and 2(0.54%) mentioned Britam and Jubilee

respectively. Of the 414 participants that participated in the study slightly above half 212(51.20%) were enrolled in at least one insurance scheme with the remaining 202(48.80%) reporting that they were not enrolled into any health insurance scheme.

A total of 189(89.15%) were enrolled with NHIF; 15(7.07%) had enrolled with Linda Jamii;4(1.88%) were enrolled by resolution; 2(0.94%); 1(0.47%) and another 1(0.47%) were enrolled by Britam; APA and CIC, respectively. The details are found in Table 4.4 below.

Table 4.4: Coverage of Health Insurance Schemes

Variable	Frequency n (%)
Have heard of HIS?	
Yes	*366(88.41)*
No	*48(11.59)*
HIS known	
NHIF	*357(97.54)*
Britam	*7(1.91)*
Jubilee	*2(0.54)*
Enrolled into a HIS	
Yes	*212(51.20)*
No	*202(48.80)*
HIS enrolled in (n = 212)	
NHIF	*189(89.15)*
Linda Jamii	*15(7.08)*
Resolution	*4(1.89)*
Britam	*2(0.94)*
APA	*1(0.47)*
CIC	*1(0.47)*

The study participants who were not enrolled into any health insurance scheme were further probed to provide reasons as to why they did not have a health insurance scheme. Half of the respondents 101(50%) said no one had ever approached them to enroll in a health insurance scheme, 80(39.60%) said they were unable to pay while a paltry 21(10.40%) said they had no trust in health insurance scheme providers. Details of the findings are presented in Figure 4.2 below.

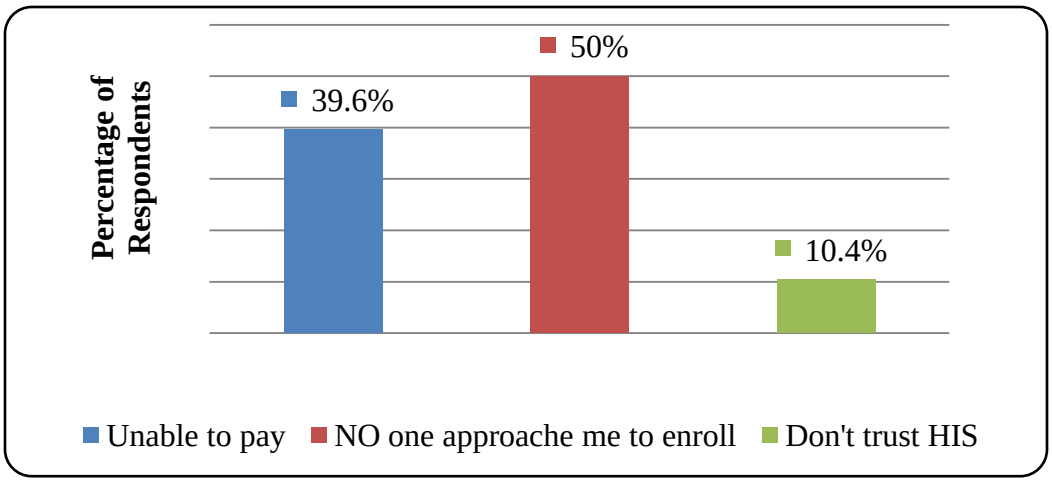

Figure 4.2: Reasons given for not being enrolled into any health insurance scheme

4.3.4 Coverage of Health Insurance Schemes by Health Facility

With regard to coverage of health insurance schemes by the health facility, it emerged that out of the 212 study participants who said they were enrolled in a health insurance scheme, slightly above a third of them 84(39.60%) were served by Bungoma County Referral Hospital which is a public health facility while majority or 128(60.4%) attended private and Faith Based Hospitals where 62(29.30%) were served by Elgon View Hospital; 41(19.30%) by St Damiano Hospital and 25(11.80%) by Lumboka Hospital. Thus Private and FBO facilities recorded significant numbers of clients with insurance cover despite their low bed capacity. Details are presented in Figure 4.3 below.

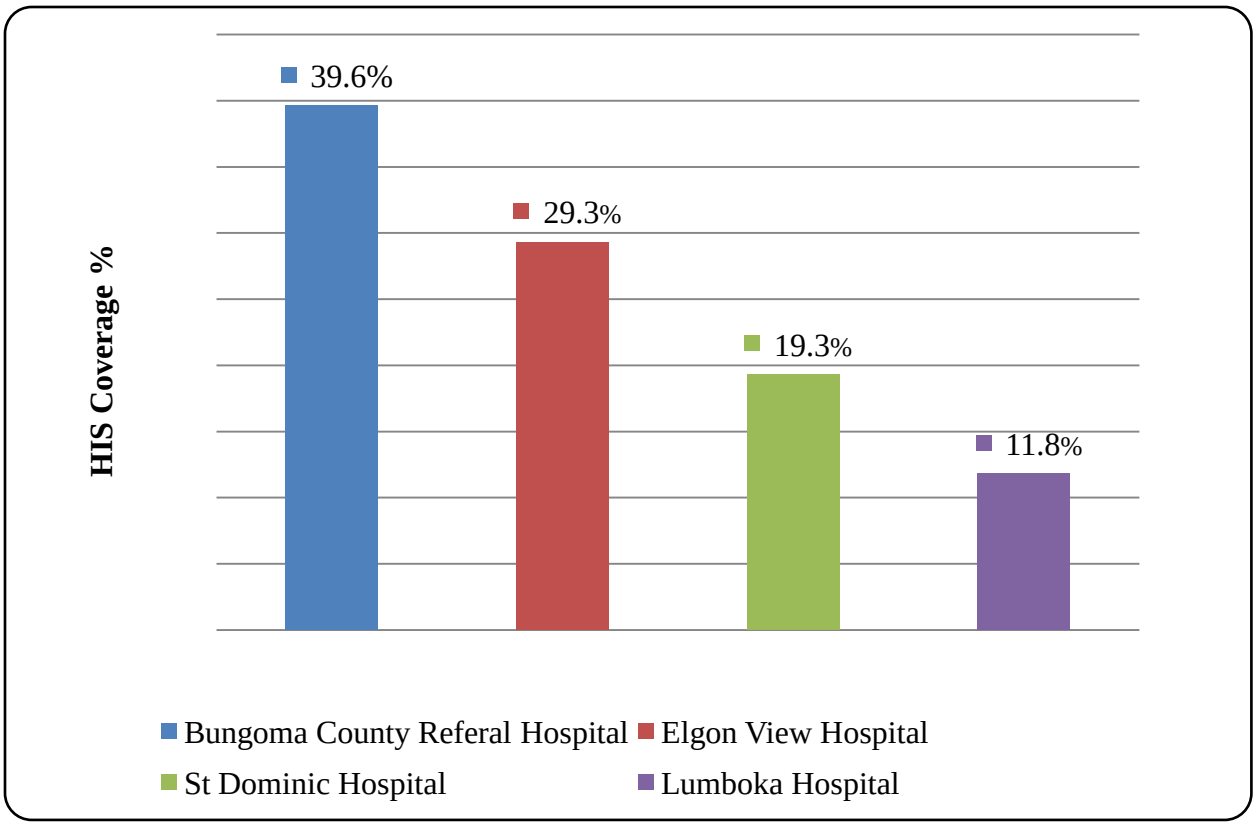

Figure 4.3: Health Insurance Coverage by Health Facility

4.4 Objective 2: Utilization of Health Insurance Schemes

Utilization of health insurance was determined by the number of participants who used Health insurance to pay for the current admission. It was investigated by asking a number of questions including, who is responsible for payment of the current hospital admission, who was paying for premiums, who determines the health service provider to treat the participant and whether the participant was satisfied with the health care services provided by the chosen health service provider. Regarding who was responsible for payment of the current admission it was revealed that out of the 212 patients with insurance cover, majority of them 185(87.26%) had their admission fee paid by their health insurance provider, while 23(10.86%) paid in cash, and fee for another 2(0.94%) was paid by a friend/donor and the remaining 2(0.94%) had their admission fee waived, thus 185(87.3%) utilized health insurance. On further probing of the 185 respondents

whose admission fee were paid by their health insurance scheme to find out who was responsible for premium payments, the results revealed that majority, 144(77.83%) had their insurance premiums paid by their employers, 35(18.92%) were paying premiums by themselves while 6(3.24%) had the premium shared between themselves and their employer. Another issue of concern was on who determines the health care service provider. The results revealed that for majority, 159(80.71%) of the insured study participants it was the insurance provider that determined the health care provider where their clients were treated whereas 37(18.78%) had the privilege of choosing their own health care service provider yet only 1(0.51%) had the freedom to be attended to by any qualified health care provider. The issue of accessibility of health care services from the health care providers nominated by the health insurance service providers was also investigated. Out of the 159 participants whose health care providers were nominated by the Health insurance service provider, 21(13.21%) agreed that their health care provider was very accessible; 137(86.16%) were of the view that the health care services were generally accessible while only 1(0.63%) had difficulties in accessing the health care service provider.

Table 4.5: Utilization of Health Insurance Schemes

Variable	Frequency n (%)
Payment for admissions? (N = 212)	
Cash	*23(10.86)*
HIS	*185(87.26)*
Friend/Donor	*2(0.94)*
Waived	*2(0.94)*
Responsibility for HI Premium? (N = 185)	
Employers	*144(77.83)*
Self	*35(18.92)*
Shared self and employer	*6(3.24)*
Determining HC provider (N = 197)	
HIS provider	*159(80.71)*
Self	*37(18.78)*
Self (any qualified health care provider)	*1(0.51)*

Access and Satisfaction with the health care services provided by the nominated health care service providers was also investigated and it emerged from the results that only 15(9.43%) were very satisfied; 143(89.94%) were satisfied and only 1(0.63%) was dissatisfied. Equally assessment of access to the recommended health provider was done where 137(86.16%) felt the facilities were generally accessible, 21(13.21%) felt they were very accessible while 1(0.63%) felt the facilities were inaccessible. Table 4.6 has details on the described results. It is worth noting that those who felt the providers were inaccessible also felt dissatisfied with the providers' services. Satisfaction and access, however, did not significantly affect utilization of health insurance schemes.

Table 4.6: Assessment of Access and satisfaction with health care providers for Health insurance utilization

Variable	Frequency n(%)
Accessibility of Health care services by insured (159)	
Very accessible	*21(13.21)*
Generally accessible	*137(86.16)*
Hard to access	*1(0.63)*
Satisfaction with the services	
Very satisfied	*15(9.43)*
Satisfied	*143(89.94)*
Not satisfied	*1(0.63)*

4.5 Objective 3: Factors Associated With Coverage and Utilization of Health Insurance Schemes

The last specific objective of the study was to identify the factors associated with the coverage and utilization of health insurance schemes among adult residents of Bungoma town, Kenya. For one to be considered covered by a health insurance scheme, then they must have been enrolled into any health insurance scheme or are protected by it and for utilization their current admissions must have been paid for by the health insurance service provider. To achieve this specific objective bivariate analysis was run using Pearson's product moment correlation to generate correlation coefficients (r) at two tailed level of significance. The factors that were

significant with bivariate analysis were further subjected to multivariate analysis using logistic regression.

Bivariate analysis revealed that marital status r = +0.213, (p <0.001), residency r = +0.090 (p =0.034) and employment status positively significantly influenced health insurance coverage among residents of Bungoma town while age r = -0.086 (p = 0.041), education (-0.516, p <0.001) and monthly income r = -0.496 (p = <0.001), respectively significantly influenced health insurance coverage among residents of Bungoma town.

4.5.1 Logistic Regression Findings on Socio Demographic Factors

On logistic regression analysis it emerged that those who were aged 26 – 35 and 36 – 45 were 3 times more likely to have health insurance coverage than those who were aged above 45 years; OR = 2.632, (95% CI = 1.262 - 5.492), P = 0.010 and OR = 2.745, (95% CI = 1.203 - 6.264), P = 0.016, respectively. Those who were married were 6 times more likely to have health insurance coverage than those who were widowed OR = 6.268 ; (95% CI = 2.065 - 19.024); P $\leq$ 0.001 whereas those who were separated were 5 times more likely to have health insurance coverage compared to widowed OR = 4.846; (95% ci = 1.294 - 18.150); P = 0.019. Nevertheless residency did not significantly influence health insurance coverage. Table 4.8 below give details.

Table 4.7: Logistic Regression on Socio-Demographic Factors and Health Insurance Coverage in Bungoma Town

Variable	OR	(95%CI)	P - value
Age			
18 – 25	*0.833*	*(0.374 - 1.852)*	*0.653*
26 – 35	*2.632*	*(1.262 - 5.492)*	***0.010***
36 - 45	*2.745*	*1.203 - 6.264)*	***0.016***
*≥46 (**Reference**)*	*1.00*		
Marital Status			
Married	*6.268*	*(2.065 - 19.024)*	***0.001***
Single	*2.973*	*(0.932 - 9.487)*	*0.066*
Separated	*4.846*	*(1.294 - 18.150)*	***0.019***
Divorced	*1.500*	*(0.122 - 18.441)*	*0.751*
*Widowed (**Referenced**)*	*1.00*		
Residency			
Kanduyi	*1.273*	*(0.695 - 2.330)*	*0.434*
Township	*1.829*	*(0.990 - 3.378)*	*0.054*
Milimani	*1.971*	*(0.995 - 3.903)*	*0.052*
Musikoma	*1.754*	*(0.840 - 3.665)*	*0.135*
Mashambani	*0.733*	*(0.312 - 1.721)*	*0.476*
Mjini	*1.641*	*(0.701 - 3.839)*	*0.253*
Other estates	*1.00*		

4.5.2 Logistic regression Findings on Economic Factors

Logistic regression analysis on economic factors revealed that those with university education and those with middle level college education were 25 times and 13 times more likely to have health insurance coverage compared to those with no informal education OR = 25.500; (95% CI = 1.721 - 377.934); P = 0.019 and OR = 13.600; (95% CI = 1.367 - 135.302) P = 0.026, respectively. Those working in the public sector were 15 times OR = 15.401; (95% CI = 6.524 - 36.360); P <0.001 more likely to have health insurance coverage compared to those who were not employed. On income, those earning between 26001 - 50000 were 38.3 times OR = 38.3333 (95% CI = 48.388 - 3036.825; P <0.001.This is explained in table 4.9 below.

Table 4.8: Logistic Regression on Economic Factors and Health Insurance Coverage in Bungoma Town

Variable	OR	(95%CI)	P - value
Education			
*NFE (**Reference**)*	*1.00*		
Primary	*0.465*	*(0.044 - 4.876)*	*0.523*
Secondary	*1.469*	*(0.149 - 14.503)*	*0.742*
Middle Level College	*13.600*	*(1.367 - 135.302)*	***0.026***
University	*25.500*	*(1.721 - 377.934)*	***0.019***
Occupation			
Public sector	*15.401*	*(6.524 - 36.360)*	***<0.001***
Private sector	*4.506*	*(2.205 - 9.210*	***<0.001***
Informal sector	*0.388*	*(0.188 - 0.801)*	***0.010***
*Unemployed (**Reference**)*	*1.00*		
Av. Income (Kes.)			
*≤ 5000 (**Reference**)*	*1.00*		
5001-25000	*11.806*	*(6.143 - 22.689)*	***<0.001***
26001-50000	*38.3333*	*(48.388 – 303.6825)*	***<0.001***
>50000	*30.000 (9.426 - 95.477)*		***<0.001***

4.5.3 Socio-demographic and Economic Factors Associated with Utilization of Health Insurance Schemes

According to the current study health insurance utilization was measured in terms of payment of hospital bills by Health Insurance providers for the current admission of the clients who were interviewed and accessibility of health care services by the insured as well as client satisfaction with the health care services provided by the Health Insurance nominated health service provider. This section describes the association between socio-demographic and economic factors and health insurance utilization.

4.6 Logistic Regression Analysis on Socio Demographic Factors

On logistic analysis it emerged that males OR=*1.481 ;(95%CI=1.003 - 2.185); p=0.048* and females OR =1.00 had almost equal likelihood of utilizing health insurance. Those who were married OR=*10.938 ;(95% CI=2.507 - 47.721); P=0.001* were 11 times more likely to utilize health insurance than those who were widowed while those who were separated were10 times more likely to utilize health insurance compared to widowed. Nevertheless residency did not significantly influence health insurance utilization as shown in table 4.10

Table 4.9: Logistic Regression on Socio-Demographic Factors and Health Insurance Utilization in Bungoma Town

Variable	OR	(95%CI)	P - value
Gender			
Male	*1.481*	*(1.003 - 2.185)*	*0.048*
Female (Reference)	*1.00*	-	-
Marital Status			
Married	*10.938*	*(2.507 - 47.721)*	***0.001***
Single	*7.547*	*(1.667 - 34.178)*	***0.009***
Separated	*10.769*	*(2.093 - 55.400)*	***0.004***
Divorced	*3.333*	*(0.226 - 49.093)*	*0.380*
*Widowed (**Referenced**)*	*1.00*	-	-
Residency			
Kanduyi	*1.574*	*(0.848 - 2.921)*	*0.151*
Township	*2.140*	*(1.148 - 3.989)*	***0.017***
Milimani	*3.251*	*(1.612 - 6.556)*	***0.001***
Musikoma	*2.495*	*(1.182 - 5.268)*	***0.016***
Mashambani	*1.043*	*(0.440 - 2.471)*	*0.924*
Mjini	*1.541*	*(0.653 - 3.638)*	*0.324*
*Other estates (**Referenced**)*	*1.00*	-	-

4.7 Logistic Regression analysis on Economic Factors

Logistic regression analysis on economic factors revealed that those with university education and those with middle level college education were 38 times and 22 times more likely to utilize health insurance compared to those with no formal education OR = *38.400;(95%CI 9.476 - 155.613)P=<**0.001*** and OR = *22.680(95% CI 10.702 - 48.062)P<**0.001,*** respectively. Those working in the public sector were 10 times OR *=9.87 (95%CI 4.442 - 21.949) P<**0.001*** more likely to utilize health insurance compared to those who were not employed. On income, those earning more than KES.50000 were 36 times and those earning between 26001 - 50000 were 32 times ,OR *36.173 (95% CI 10.643 - 122.949)P<**0.001*** and OR = *32.154 (95% CI 12.705 - 83.377)P<0.001* respectively were more likely to utilize health insurances shown in table 4.12 below

Table 4.10: Logistic Regression on Economic Factors and Health Insurance Utilization in Bungoma Town

Variable	OR	(95%CI)	P - value
Education			
*Primary (**Reference**)*	*1.00*	-	-
Secondary	*3.306*	*(1.562 - 6.997)*	***0.002***
Middle Level College	*22.680*	*(10.702 - 48.062)*	***<0.001***
University	*38.400*	*(9.476 - 155.613)*	***<0.001***
Occupation			
Public sector	*9.874*	*(4.442 - 21.949)*	***<0.001***
Private sector	*3.100*	*(1.543-6.228)*	***0.001***
Informal sector	*0.276*	*(0.132 - 0.579)*	***0.001***
*Unemployed (**Reference**)*	*1.00*	-	-
Av. Income (KShs.)			
*≤ 5000 (**Reference**)*	*1.00*	-	-
5001-25000	*9.211*	*(4.889 - 17.353)*	***<0.001***
26001-50000	*32.154*	*(12.705 - 83.377)*	***<0.001***
>50000	*36.173*	*(10.643 - 122.949)*	***<0.001***

4.8 Association between Health Facility Related factors and coverage and utilization of Health Insurance Scheme.

In comparing association between health facilities related factors and utilization of health insurance assessments was done on perceived benefits of health insurance, access to the health care providers and satisfaction with health care services offered. Majority of the respondents 345(83.3%) found health insurance to be beneficial to them, 137(33%) found it generally accessible while 143(34.5%) were satisfied with the Health insurance provider.

Table 4.11: Relationship between Client Perception and Utilization of Health Insurance Schemes

Variable	Frequency n (%)	r	P value
Perceived Benefits		*+0.341***	*<0.001*
Beneficial to me	*345(83.3)*		
Beneficial to HIS	*20(4.8)*		
Beneficial to hospital	*24(5.8)*		
No response	*25(6.0)*		
Perceived Accessibility to Health Care Services by insured		0.681**	*<0.001*
Very accessible	*21(5.1)*		
Generally accessible	*137(33.1)*		
Hard to access	*1(0.2)*		
N/A	255*(61.6)*		
Perceived Satisfaction with Health Care Services		0.678**	*<0.001*
Very satisfied	*15(3.6)*		
Satisfied	*143(34.5)*		
Not satisfied	*1(0.2)*		
N/A	*255(61.6)*		

CHAPTER FIVE: DISCUSSION

5.1 Introduction

This chapter discusses the findings of the study and compares with the findings of other related studies to determine relevancy of the study.

5.2 Coverage and Utilization of Health Insurance Scheme

Although majority of respondents knew of health insurance (88.4%) only 51% were enrolled. Various reasons were given for not enrolling in health insurance schemes, the main one being lack of knowledge of health insurance due to low marketing. Kimani *et al.,* (2013) showed that the level of understanding of health insurance and benefits of using these schemes was a barrier to uptake of health insurance in Kenya. This study therefore concurred with those findings since 101 (50%) of the participants reported that no one had ever approached them to enroll in a health insurance scheme hence were not aware of the benefits. However 80(39.60%) said they were unable to pay insurance premiums while a paltry 21(10.40%) said they had no trust in health insurance scheme providers. Out of the 212 study participants who said they were enrolled in a health insurance scheme, only about a third of them 84(39.60%) were served by Bungoma County Referral Hospital while most of the participants or 60.4% were served by the private and FBO facilities. This showed that those attending private and FBO facilities tended to use Health insurance more than those attending public Hospitals. This was attributed to the fact that the private and Faith Based Organization Hospitals offer a variety of insurance options unlike the government health facility which offers service to NHIF holders only. The findings in this study also showed that more female 139(65%) were enrolled into Health insurance schemes compared to males 83(39%).This is in contrast with the findings of KDHS, (2014) which showed that health insurance is still low in Kenya where more men were enrolled than women or 14% and

18% of women and men aged 15-49 years respectively were insured. Nevertheless, the KDHS report is in agreement with the findings of the current study, where it also emerged that most of the insured use employer based insurance schemes. In the study it emerged that most participants had National Health Insurance cover hence the large number of participants who were from Bungoma County Referral Hospital. As highlighted earlier, the findings of the current study agree with the Kenya Economic Report (2013), which states that the National Health Insurance Fund is a government mandatory insurance scheme which is compulsory for the formal sector employees but voluntary for the informal sector where it Currently covers 88.4% while private insurance covers only 9.4% of the population and community-based insurance 1.3 % and other forms of insurance 1.0 % .NHIF coverage for formal and informal sector populations is 4.5 million people or 11% of the Kenyan population (USAID, 2014). The current study shows a better picture in terms of coverage where half of the participants 212(51%) had health insurance.

In terms of utilization of Health insurance schemes, in the current study majority 185(87.2%) of the study participants with health insurance had their admission fee paid by their health insurance provider, while about 27(12.7%) paid for their admissions in cash despite having an insurance. From this analysis, it was evident that the insurance cover did not directly translate into utilization since it did not cover the total expenditure of medication but only admission fees have been mentioned. In this regard, it was evident that the research findings conform to conclusion by Kiplagat *et al* (2013) that despite the existence of different forms of prepayment schemes in Kenya few people were found to utilize it (Kiplagat, *et.al*,2013) and approximately 32% of total expenditure on healthcare by households is borne out of pocket (NHA, 2013).

5.3 Factors Associated With Coverage and Utilization of Health Insurance Schemes

The study established that Gender, marital status and residency were some of the sociodemographic factors associated with health insurance coverage. With regard to gender this conformed to the findings of Bourne and Kerr-Campbell (2010), which revealed that males form the majority of respondent without cover while females especially of reproductive age demanded more medical services and were more likely to purchase insurance cover than men. The current study also established that those with university education tended to be covered by Health insurance schemes. This conforms with the findings by Grossman (1972), Kirigia *et al.* (2005), Nketiah-Amponsah (2009), and Bourne and Kerr-Campbell (2010) that education increases the probability of taking up insurance of all types with more educated individuals intending to insure since they have skills and knowledge to make informed choices on health related matters including purchase of health insurance. Age of an individual also emerged as a factor influencing health insurance coverage. The findings by Gilson *et al.* (2000), Habtom and Ruys (2007), and Hsiao and Shaw (2007), were in agreement with the findings of the current study, which established that people least likely to be covered are those with high health care requirements and needing financial protection such as those with advancing age due to increased health risk. The current study noted that 91.29% of the participants aged 46 years and above did not have health insurance covers yet they need health services more.

The study also established that people with higher income tend to have health insurance compared to those with low income. In this regard, it was evident that the findings of this study conform to the conclusions made by Carrin *et al* in 2005 and Hsiao and Shaw in 2007(Carrin and James, 2005; Hsiao and Shaw, 2007)that in low and middle-income countries (LMICs),

health insurance schemes often cover only a small proportion of the population who tend to have extra disposable income.

In terms of utilization the study further established that education, occupation and income of the respondents influenced the utilization of health insurance; this converges with the assertions of Nyagero. *et al*. (2012) that socio and economic factors have a role in determining coverage and utilization of health insurance schemes. The present study found out that educated individuals have the necessary skills and knowledge to make informed decisions concerning the purchase of insurance cover.

The findings of the present study were similar to those advanced by Mathaueret *al,* (2008) that limited knowledge of informal sector workers about the NHIF is the most critical barrier to NHIF enrollment. Most respondents who had insurance coverage attending Bungoma County Referral Hospital were in formal sectoremployment. These findings also converge with those of the by Mathauer (2008) and Kirigia (2006) which showed that in sub-Saharan Africa, those employed in the formal sector are more likely to have health insurance compared to those in the informal sector .

The study findings showed that those who earned higher income were more likely to have medical insurance a fact which is in agreement with the findings by Osei-Akoto and Adamba (2011), which showed that there is a positive association between house hold income in both developed and developing countries with the probability of buying health insurance where income significantly determines the amount of health insurance purchased. Those earning more than ksh.50000 per month tended to utilize health insurance compared to those earning less than ksh.5000 and employed in informal sector. This observation is consistent with previous findings

of Nketiah-Amposah (2009) and Kerr-Campbell (2010), which reported that individuals taking up private insurance schemes belong to the highest wealth index, are relatively older with a higher awareness and the highest education level than the rest while those taking mutual community schemes belong to those the lowest education level (Bourne & Kerr-Campbell, 2010; Nketiah- Ampomensah, 2009). Further a large number who acknowledged that health insurance was beneficial to them said it was also accessible (86.16%). hence affecting its coverage and utilization. This findings were in contrast with the findings by Deloitte (2011) which showed that access to NHIF service providers for enrollment was a challenge.

CHAPTER SIX: CONCLUSION AND RECOMMENDATIONS

6.1 Introduction

This chapter considers all the findings in the study and draws conclusions on what these findings have revealed. Additionally the chapter gives recommendations based on these findings. These recommendations will be utilized to address key findings the study that will require improvement.

6.2 Conclusion

This study showed that coverage and utilization of Health insurance to meet the cost of health care in Bungoma which could be a representative of the situation in the country is low. The National Hospital insurance Fund was found to be known to most of the residents of Bungoma Town and was paid for by the employer at source hence utilized more by those in formal employment. Females were noted to have insurance cover and utilization more than males with those having high level of education or university level tending to use health insurance more than those of low education levels with low earnings and are thus more exposed to catastrophic health expenditures. Lack of information on health insurance was found to contribute more to low enrollment into Health insurance more than the inability to pay for the premiums. On the other hand dissatisfaction with the provider and access to health service providers did not significantly reduce coverage and utilization of health insurance schemes.

Socio-demographic factors and economic factors played significant role in affecting coverage and utilization of health insurance in Bungoma Town. Those of middle age and married appeared to have and utilize health insurance more than those aged above 46years.Middle level and university level education increased the chances of having an insurance cover and utilizing it.

6.3 Recommendations

1. All stakeholders in the health sector and Health insurance providers should step up efforts to educate the populations in the county as well as the whole country on the importance of use of health insurance to meet the cost of health care .The main focus of the marketing should be on males, informal sector and those above age of 46 years.
2. The ability to pay for the premiums being a challenge for the low income earners and those in the informal sectors calls for those in authority to consider tax funded health insurance scheme for the unemployed and the low income earners who cannot pay their premiums
3. Government owned health facilities should open up to private health insurance to improve its utilization.
4. The Health service providers should expand range of services covered by the insurance schemes to ensure satisfaction by the clients

6.4 Recommendations for Further Studies

Further study to determine the role of cultural factors in determining coverage and utilization of health insurance schemes in Bungoma Town should be carried out.

6.5 Limitations of the Study

The study only covered in-patients admitted to the main stream hospitals leaving out those attending treatment in out-patient departments. Additionally, those patients who were critically ill and left without care takers were exempted from participation leading to vital information being missed out from these participants.

To mitigate this limitation data collection was carried out over a period of two months to ensure more numbers were captured. However this measure did not fully eliminate this limitation.

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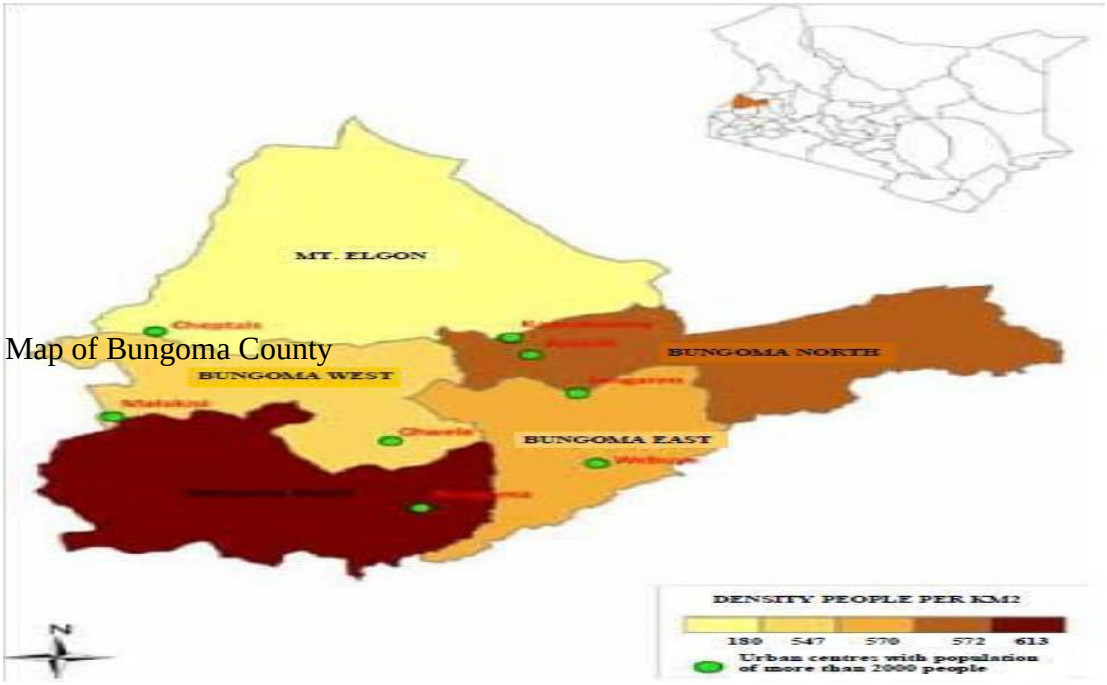
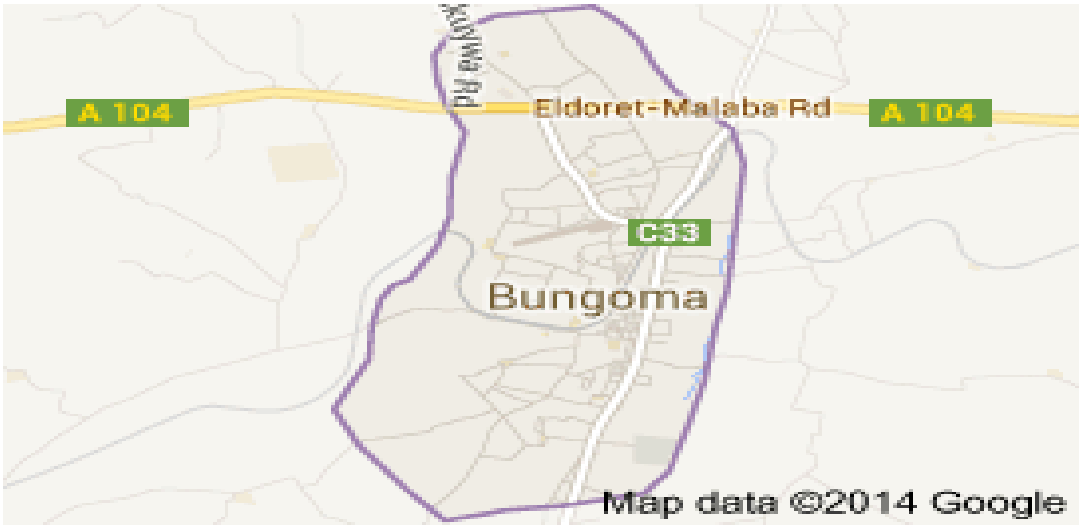
APPENDICES

APPENDIX I: Map of Study Area



Map of Bungoma County



A map of Bungoma Town, Source: Map data @2014 Google

APPENDIX II: School of Graduate Studies Approval

MASENO UNIVERSITY
SCHOOL OF GRADUATE STUDIES

Office of the Dean

Our Ref: PG/MPH/00010/2012

Private Bag, MASENO, KENYA
Tel:(057)351 22/351008/351011
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Date: 08th June, 2015

TO WHOM IT MAY CONCERN

RE: PROPOSAL APPROVAL FOR ISAAC OBORE OMERI — PG/MPH/00010/2012

The above named is registered in the Master of Public Health Programme of the School of Public Health and Community Development, Maseno University. This is to confirm that his research proposal titled "Determinants of Coverage and Utilization of Health Schemes among Adults Residents of Bungoma Town, Kenya" has been approved for conduct of research subject to obtaining all other permissions/clearances that may be required beforehand.

09 JUN 2015

Prof. P.O. Owuor
DEAN, SCHOOL OF GRADUATE STUDIES

APPENDIX III: Maseno University Ethical Review Committee Approval

MASENO UNIVERSITY ETHICS REVIEW COMMITTEE

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FROM: Secretary - MUERC **DATE**: 24th August, 2015

TO: Isaac Obore Omeri **REF**: MSU/DRPI/MUERC/00194/15
PG/MPH/00010/2012
School of Public Health and Community Development
P. O. Box, Private Bag, Maseno, Kenya

RE: Determinants of Coverage and Utilization of Health Financing Schemes among Adult Residents of Bungoma Town, Kenya. Proposal Reference Number MSU/DRPI/MUERC/000194/15

This is to inform you that the Maseno University Ethics Review Committee (MUERC) determined that the ethics issues raised at the initial review were adequately addressed in the revised proposal. Consequently, the study is granted approval for implementation effective this 24th day of August, 2015 for a period of one (1) year.

Please note that authorization to conduct this study will automatically expire on 23rd August, 2016. If you plan to continue with the study beyond this date, please submit an application for continuation approval to the MUERC Secretariat by 14th July, 2016.

Approval for continuation of the study will be subject to successful submission of an annual progress report that is to reach the MUERC Secretariat by 14th July, 2016.

Please note that any unanticipated problems resulting from the conduct of this study must be reported to MUERC. You are required to submit any proposed changes to this study to MUERC for review and approval prior to initiation. Please advice MUERC when the study is completed or discontinued.

Thank you.

Yours faithfully,

Dr. Bonuke Anyona,
Secretary,
Maseno University Ethics Review Committee.

Cc: Chairman,
Maseno University Ethics Review Committee.

MASENO UNIVERSITY IS ISO 9001:2008 CERTIFIED

APPENDIX IV: Consent Letter County Director of Health

ISAAC OMERI
P.O. BOX 2211
BUNGOMA
5/09/2015

COUNTY DIRECTOR OF HEALTH
BUNGOMA COUNTY
P.O.BOX
BUNGOMA

RE: CONSENT TO CONDUCT DATA COLLECTION FOR RESEACH

I refer to the above subject matter. I am a student at Maseno University and I am conducting a research on determinants of coverage and utilization of health insurance schemes by adult residents in Bungoma Town, Bungoma County, Kenya. This research proposal is in partial fulfillment of the award of the Master of Public Health Degree of Maseno University. All information obtained during this research shall be treated with confidentiality and details of participants shall not be disclosed whatsoever. The purpose of this letter is to request for permission to collect research data from patients admitted to Bungoma county, Lumboka , St.Domiano and Elgon View Hospitals in Bungoma Town

The data shall be collected by two research assistants;

1. Eunice Oundo ,clinical Officer, Tel 0717112590
2. Lucy Chemtai , clinical officer, Tel:0725099821

Thank you in advance

Yours faithfully,

Isaac Omeri

Tel: 0728980810

7/09/2015

Noted and approved

COUNTY DIRECTOR OF HEALTH
BUNGOMA COUNTY
P. O. Box 18-50200
BUNGOMA

ISAAC OMERI

APPENDIX V: Questionnaire and Consent Letter for Respondents

1.1 Information and consent:

Questionnaire code……Date…….

Respondents code…….....

Hospital bed number……..

1.2 Introduction:

My name is ……..and I am a postgraduate student pursuing a master of Public Health Degree at Maseno University. I am accompanied by my two colleagues. We are carrying out a study on determinants of coverage and utilization of Health insurance schemes in Bungoma Town, Kenya.

1.3 Use of the study findings

The information that will be acquired from this study will be used primarily for learning purposes. However the information can be used at the policy level to develop, plan and implement interventions to improve on the coverage and utilization of health insurance schemes to finance health care in Kenya.

1.4 Participation:

Your participation in this study will be voluntary and you can opt out of the study participation if you have reasons to do so. The interview will last approximately 15minutes.All the information you will give during the interview shall be treated with confidentiality.

Your honest responses shall contribute to the desired outcome of this study. You are free to seek any clarification.

Do you agree to participate in the study?

1) Yes
2) No

Signature of interviewee……Date……

Signature of interviewer……...Date……

Contact of interviewer (Mobile Phone Number)……..

SECTION A: BIODATA

Tick one appropriate response

1. What is your gender?
   (1)Male (2) Female
2. What is your age?
   (1)18-25 years (2) 26-35 years (3) 36-45years (4) 46 years and above
3. . What is your marital status?
   (1)Married (2) Separated (3) Divorced (4) Single (5) Widowed
4. .Where do you reside in Bungoma Town
   (1)Township(2)Kanduyi(3)Milimani(4)Musikoma(5)Mashambani(6)Mjini(7)Other estate
5. How do you earn your living

(1)Employed in public sector (2) employed in private sector (3) employed in informal sector (4) other support

6. What is your Position in the family

   (1) Parent (2) sibling (3) Guardian (4) worker (5) Other Relative

7. What highest level of Education did you attained:

   (1) Primary school (2) Secondary school (3) Middle level college (4) University (5) No formal Education

8. What is your average earning in Kenya shillings per month

   (1) Below 5000.00 (2) 6000-25000.00 (3) 26000.00-50000.00 (4) Above 50000.00

SECTION B: HEALTH INSURANCE COVERAGE AND UTILIZATION

1. . Have you heard of the word health insurance?

   (1)Yes (2) No

2. If yes which health insurance do you know?

   (1)NHIF (2) Britam (3) Jubilee (d) other private health insurances (mention 3)

3. Are you enrolled in a health insurance schemes?

   (1)Yes (2) No

4. If yes which one? Name ……..

5. If no why have you not enrolled?

   (1)Unable to pay for premiums (2) Lack of trust for insurance schemes (3) The products offered not satisfactory (4) No one has talked to me on enrollment.

SECTION C: FACTORS ASSOCIATED WITH COVERAGE AND UTILIZATION OF HEALTH INSURANCE SCHEMES

1. .What is your perception about health insurance

   (1) It is beneficial to me (2) It is not beneficial to me (3) It benefits Hospitals

2. Do you know of the benefits of using health insurance scheme?

   (1)Yes (2) No

3. If yes which of these benefits do you know of

   (1)Paying for cost of hospital services (2) For tax relief (3) Risk protection

   (4)I do not know any benefit of health insurance

4. . What is your preferred health care services provider?

(1) Public Hospital (2) private Hospital

5. For the current admission how will you pay for the health services?

   (1)Using cash (2) Using a health insurance (3) Paid for by a friend/donor (4) Waived

6. If through cash what is the reasons for not enrolling in health insurance?

(1) Lack of knowledge of health insurance (2) Unable to pay premium (3) Lack of trust in insurance

7. If through insurance who pays for your premiums?

   (1) Self (2) Employer (3) Shared between me and employer

8. Who determines the health providers for your insurance cover?

   (1) Insurance provider (2) myself

9. How satisfactory are the services given by the provider authorized to offer services under your insurance cover

   (1)Very Satisfactory (2) Satisfactory (3) Not satisfactory

10. How accessible is your insurance authorized health service provider when you need services

    (1) Very accessible (2) generally accessible (3) Hard to access (d) Not accessible

    Thank you for accepting to participate.