ASSOCIATION BETWEEN HEALTH INSURANCE AND ACCESS TO UNIVERSAL HEALTH CARE IN MAKUENI COUNTY, KENYA

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DECLARATION

This thesis is my original work and has not been submitted for a degree in any other university.

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DEDICATION

I dedicate this dissertation to my mother, Rose Kyungu for her invaluable support provided through prayer and encouragement to not give up until I graduate with a Master of Public Health from the University of Nairobi. I will forever appreciate the inspiration you were throughout the journey of acquiring this degree.

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TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

ABBREVIATIONS AND ACRONYMS

AIDS – Acquired Immune Deficiency Syndrome

ANC – Antenatal Care

BRITAM – British American Insurance

CBHI – Community Based Health Insurance

CHE – Current Health Expenditure

CHI – Citizen Health Insurance

CHU – Community Health Unit

CHV - Community Health Volunteer

EBHI – Employer Based Health Insurance

EBI – Employment Based Insurance

EHBP – Essential Health Benefits Package

EPSDT – Early and Periodic Screening, Diagnostic and Treatment

ESIS – Employees' State Insurance Scheme

FY – Financial Year

GDP – Gross Domestic Product

HH – Head of Household

HIRA – Health Insurance Review and Assessment Service

INR – Indian Rupee

IRA – Insurance Regulatory Authority

KEPH – Kenya Essential Package for Health

KNH-UoN ERC – Kenyatta National Hospital – University of Nairobi Ethics and Research Committee

LMIC – Low- and Middle-Income Countries

MC – Makueni Care

MCH – Maternal and Child Health

MoH – Ministry of Health

MSCCHC – Makueni Sub County Community Health Coordinator

MTN – Mobile Telephone Network

NACOSTI - National Commission for Science, Technology and Innovation

N – Naira

NCD – Non-Communicable Diseases

NCMS – Newly Cooperative Medical Scheme

NGO – Non-Governmental Organization

NHA – National Health Accounts

NHIF – National Hospital Insurance Fund

NHI – National Health Insurance

NHIP – National Health Insurance Programme

NHPS – National Health Protection Scheme

NHIS – National Health Insurance Scheme

NHIS – National Health Insurance Service

NHS – National Health Service

NWLB – National War Labor Board

OOP – Out of pocket

OPSD – Old and Persons with Severe Disabilities

OR – Odds Ratio

OVC – Orphaned and Vulnerable Children

PCC – Pearson's Correlation Coefficient

PHC – Primary Health Care

PHO – Public Health Officer

PNC – Postnatal Care

RBI – Residence Based Insurance

SACCO – Savings and Credit Cooperative

SBA – Skilled Birth Attendant

SDGs – Sustainable Development Goals

SHI – Social Health Insurance

SME – Small and Medium Enterprise

SPSS – Statistical Package for Social Sciences

SHIS – Statutory Health Insurance System

SUS – Unified Health System

TGB – Total Government Budget

THE – Total Health Expenditure

TPA – Third Party Administrators

UEBMI – Urban Employee Based Medical Insurance

UHC – Universal Health Coverage

UK – United Kingdom

URBMI – Urban Resident Basic Medical Insurance

URRBMI – Urban-Rural Resident Basic Medical Insurance

USA – United States of America

USD – United States Dollar

VAT – Value Added Tax

WHO – World Health Organization

WTP – Willing to Pay

DEFINITION OF OPERATIONAL TERMS

Enrollment of Health Insurance – Utilization of protection against the possibility of incurring expenditures related to well-being as a tradeoff for payments made over a period of time.

Factors Influencing Enrollment of Health Insurance – aspects such as health needs, chronic illness, lack of knowledge on health insurance and distance to a health facility which determine whether an individual will decide to enroll with a health insurance scheme or not.

Perception on Health Insurance – is an opinion on health insurance which is persuaded by own assessment of health status, cost of health care treatment, willingness to pay for health services, benefits to ownership of health insurance and cost of health insurance premiums.

Private Health Insurance – insurance procured by an individual from a company reserved to provide exclusive or good quality health services.

National Hospital Insurance Fund – is an establishment owned by the Government of Kenya whose responsibility is to offer health insurance to its members and their confirmed children.

Community Based Health Insurance – A scheme where individuals make subsidized contributions to a managed fund at village level.

Employment-Based Health Insurance – is a scheme where companies procure cover for their workers with employer or joint employer-employee contributions.

Access to Universal Health Coverage – ability of an individual or household to seek treatment at the nearest health facility, obtain the needed health services and pay for health services delivered.

Source of Livelihood – income generating activity an individual is engaged in to earn a living.

ABSTRACT

Background: Universal Health Coverage (UHC) is a global health policy agenda that was endorsed by member states of the World Health Organization (WHO) as one of the 17 Sustainable Development Goals (SDGs) in the year 2015. Developed countries and some Low-and-Middle-Income Countries (LMICs) have been able to achieve UHC through adoption of National Health Insurance Schemes (NHIS) or Community Based Health Insurance (CBHI). Kenya needs other sources of financing mechanisms other than out-of-pocket (OOP) payments to fund its health care system for the achievement of UHC. This study aimed to establish whether adoption of health insurance decreases over reliance on OOP payments for the achievement of UHC.

Objective: To assess the association between health insurance and access to UHC.

Methods: This was a correlation survey that was conducted in Makueni County. Participants were residents of Makueni Sub-County who were $\geq$ 18 years. Systematic random sampling was used to select 423 heads of households from 32 health facilities. Outpatient registers for patients above five years old were used as sampling frames to select heads of households as respondents to participate in the study. The interval used to identify respondents was determined by dividing the total number of patients who sought health services from all participating health facilities in the past year at the time of data collection by the sample size. Interviewer administered semi-structured questionnaires were used to collect data from heads of households. Data collected included information on the socio-demographic characteristics of the respondents under study, respondents' enrollment into health insurance schemes, types of health insurance that respondents are enrolled with as well as access to UHC. Association between the independent variables of socio-demographic characteristics, enrollment into health insurance schemes and types of health

insurance and the dependent variable access to UHC was analyzed through descriptive statistics, Chi-square tests and a statistical mean of access which was calculated to show the direction of association between the variables.

Results: The statistical mean of access showed that women had more access to UHC (3.328) than men (3.319). Respondents between the age of 15 and 24 years, those with three or less dependents, had completed secondary school, never been married and were involved in small and medium enterprise (SME) trading as their source of livelihood had the highest access to UHC (3.527, 3.350, 3.355, 3.360, and 3.378, respectively). Age of respondents ($\chi^2 = 43.282$, df = 12, p < 0.001), number of dependents ($\chi^2 = 28.109$, df = 9, p = 0.001), level of education ($\chi^2 = 27.224$, df = 9, p = 0.001) and marital status ($\chi^2 = 22.294$, df = 12, p = 0.034) had statistically significant associations with access to UHC. Enrollment into health insurance schemes was influenced by level of income, assessment of personal health status and awareness on benefit of being enrolled into a health insurance scheme. Respondents enrolled with Makueni Care (the local UHC programme in the county) had the highest access to health services (3.347). Enrollment into a health insurance scheme ($\chi^2 = 8.174$, df = 3, p = 0.043) and type of health insurance scheme enrolled with ($\chi^2 = 33.255$, df = 15, p = 0.004) had statistically significant associations with access to UHC.

Conclusion: Enrollment into a health insurance scheme and the type of scheme enrolled with had an influence on access to health services. Embracing health insurance therefore increases access to UHC. Makueni Care has increased access to health services for the residents of Makueni County. Registration for enrollment with the scheme should be decentralized so as to encourage more heads of households to enlist with the health insurance scheme.

CHAPTER ONE: INTRODUCTION

1.1 Background

The definition of a health care system encompasses organizations, institutions, resources and people whose main aim to enhance the well-being of a people. (World Health Organisation , 2010). In Kenya, these institutions, organizations, resources and people would include the Ministry of Health (MoH), providers of private health insurance, the National Hospital Insurance Fund (NHIF), third party administrators (TPAs) and the Insurance Regulatory Authority (IRA). In the current conversation of restructuring health systems for the achievement of Universal Health Coverage (UHC), it is important to ensure that the financing of the health system is well organized (Cuadrado, Crispi, Libuy, Marchildon, & Cid, 2019).

Health financing refers to the different sources of revenue that a government is able to mobilize for the provision of health services. These sources include taxes, out-of-pocket (OOP) payments and health insurance (Munge & Briggs, 2014). The key functions of health financing are to raise revenue, pool resources and purchase health services (McIntyre & Kutzin, 2016)

One of the ways of financing a health care system is through health insurance. This refers to a method of spreading monetary liability related to differences in individual health care expenses by sharing expenditures over a period of time to members through pre-payment of a fraction of expected overheads (Toth, 2016). Ideally, health insurance should provide an efficient mode of placing people into one risk fund where premium contributions are separated from health needs. This can be realized through a National Health Service (NHS), National Health Insurance (NHI), Social Health Insurance (SHI) or employment Based Health Insurance (EBHI) (Cuadrado, Crispi, Libuy, Marchildon, & Cid, 2019).

The NHS is supported by taxation where the government makes a disbursement to the institution for delivery of health services to eliminate rivalry in the market. Health services are publicly funded and can be accessed at any health facility. This guarantees a uniform health benefits package and maintains cost of health services at a minimal rate. Much as the model ensures access to health services when needed, that in itself is a disadvantage in that residents get tempted to seek "unnecessary" health services which can lead to increased cost of treatment and taxation. (Vera Whole Health, 2019). The NHS is mostly used in the United Kingdom (UK).

In NHI, payments for health services are made by the government to private providers through a state-owned insurance scheme where all citizens must be enrolled. Health services are accessed by all irrespective of ability to pay, there is no competition for profits and all dues are paid. This model allows health facilities and health care workers to provide and deliver health services without thinking about the intricacies of insurance plans and policies. Its main disadvantage is possibility of long waiting time to seek specialized treatment such as surgical procedures. This scheme is used in Canada, Taiwan and South Korea (Vera Whole Health, 2019).

Social health insurance is where citizens of a country make payments to a health fund which assures them of a constituted package of health services by the state. The payments made are mandated by the government through employers who make deductions from monthly salaries. The deductions are organized such that those with high salaries contribute more and vice versa (McIntyre, Doherty, & Gilson, 2003). In Kenya, an equivalent of SHI from this definition is the NHIF.

Employment based insurance is where companies and their staff are in charge of their wellbeing. Contributions from salaries are paid to a "sickness fund" which reimburses

providers for costs incurred by members when seeking health services. Providers are private while insurers are public (Vera Whole Health, 2019).

The NHI presents the most feasible method of financing a health care system for the achievement of UHC (Cuadrado, Crispi, Libuy, Marchildon, & Cid, 2019).

Access to health services is the simplicity with which individuals are able to make use of suitable needed medical services. The five measurements of access are known as approachability, acceptability, availability, affordability and appropriateness. These measurements must be used together to get an authentic assessment of access to health services (Levesque, Harris, & Russell, 2013).

Universal Health "Care" refers to opinions about likely beneficiaries of a defined health care package and quality of services to be provided. It includes aspects such as access to health services, perception of access to health services as a right, health services to be provided, the people to benefit from the services and financial protection from catastrophic health care expenses (Stuckler, McKee, Feigl, & Basu, 2010). Universal Health "Coverage" (UHC) refers to access of promotive, preventive, curative, rehabilitative and palliative health services for everyone without exposure to financial hardship (United Nations, 2015). The aim of UHC is to guarantee health services without exposure to financial constraints. More specifically, to provide adequate and superior health services to all patients without being economically burdensome to a household (World Health Organization, 2017). The term Universal Health "Care" is used in developed countries when making reference to health policy while UHC is applied in developing countries. The definition of UHC encompasses three aspects of Universal Health "Care" thereby making it a part of the latter (Stuckler, McKee, Feigl, & Basu, 2010).

3

UHC became a global policy agenda in 2010 when the World Health Organization (WHO) published its report that focused on health systems financing for the achievement of UHC. The aim of the report was to provide information on ways of raising funds and eliminating financial obstacles to accessing health services especially among underprivileged populations (World Health Organization, 2010). The importance of UHC was further reiterated when the 17 Sustainable Development Goals (SDGs) were endorsed by member states in 2015 to guide the global development agenda through 2030 (World Health Organization, 2017); UHC is part of SDG 3 (good health and well-being).

Kenya pledged to achieve UHC by 2022 and this promise has been the key motivating factor behind the health policy reforms witnessed in the health sector. (i 3 Actuaries and Consultants , 2021). These reforms are prompted by international resolutions and agreements that the country is party to. They are guided by the Constitution of the year 2010, Health Policy 2014 – 2030, Kenya Health Sector Strategic and Investment Plan 2014-2018 and the draft UHC Policy 2020-2030. These documents provide the framework within which Kenya executes health sector reforms. The health care packages that constitute a key part of the UHC policy are Kenya Essential Package for Health (KEPH) which comprises of a comprehensive package, Essential Health Benefit Package (EHBP) which is yet to be formally published and the Afya Care (i 3 Actuaries and Consultants , 2021). Commitment to UHC is a political process which is implemented through a legal framework. It is based on the power of political parties and labor associations which determine whether a state will apportion its revenues to the programme (Stuckler, McKee, Feigl, & Basu, 2010). Former President Uhuru Kenyatta launched the big four agenda through which UHC would be implemented under provision of affordable health care as one of the priorities for the country (Council of Governors, 2018). Afya Care was a UHC

pilot project whose purpose was to assess the provision of a health care package that controls for financial constraints in terms of expenses incurred when accessing health services. It was tested, for one year, in the four counties of Kisumu, Isiolo, Machakos and Nyeri because they are considered to have high occurrences of both communicable and non-communicable diseases, maternal mortality and road traffic injuries then later to be scaled up to the rest of the country (Council of Governors, 2018).

Prior to the launch of the agenda, Makueni County had already started implementing its innovative local UHC scheme as a result of decentralization, which allows counties to make policies for provision of affordable, accessible and quality health care for residents (Government of Makueni County, 2018). In this scheme, households pay 500 Kenya shillings as annual fee (an equivalent of five US dollars) to access health care services (Mwakisha, 2018).

The objectives of the study were to determine the association between enrollment into health insurance schemes and access to UHC as well as to determine the association between type of health insurance and access to UHC.

The remaining sections of this dissertation are literature review methodology, results, discussion of finds, conclusions and recommendations. Literature review encompasses socio-demographic factors, enrollment into health insurance schemes and types of health insurance in the world that influence access to universal health care, and the theoretical and conceptual framework of the study. This is followed by the problem statement, justification and objectives of the study and research question. Methodology highlights the study design, area and population; sample size determination and sampling procedure, inclusion and exclusion criteria, data collection and analysis as well as ethical considerations adhered to during the research. The results of the study are a highlight of the findings using descriptive

and inferential statistics presented in tables. Discussion of findings is a comparison of outcomes from this research with results from other studies. The dissertation ends with conclusions and recommendations, which are drawn from the results of the study.

1.2 Statement of the Problem

Developed countries have been able to achieve UHC through adoption of NHI where governments pay for health services through insurance to private providers (Vera Whole Health, 2019). Others have insurance schemes for specific sectors of the population such as formal, informal, underprivileged, children and elderly to ensure that all citizens have financial protection and can access health services from any facility irrespective of where they live (Fang, 2020; Skowronski, 2018; Fronstin, 2019; Matsuda, 2020; Kwon, 2015). This has been possible due to political commitment, thriving economies, tax-based financing for health care systems and obligation to the national value of treating health care as a right, that citizens should be able to seek health services regardless of whether they can afford to pay or not (Fang, 2020; Martin, et al., 2018; Institute for Quality and Efficiency in Health Care [IQWiG] 2018; Sakamoto, et al., 2018; Massuda, et al., 2018).

In low and middle-income countries (LMICs), only a few have been able to achieve UHC. Brazil for example was on track to achieving UHC from the late 1980s up to 2014 through the unified health system (SUS). Gains made during these years were halted when the economic and political crunches in the country began (Massuda, et al., 2018). Ghana has been able to achieve UHC through a mandatory national health insurance scheme (NHIS) which is financed from government expenditure at approximately USD100 per capita or 6.2% of GDP out of which 2% is allocated to the NHIS (European Union, 2019). Rwanda has also achieved UHC through community based health insurance (CBHI) (Chemouni,

2018). Other countries are making progress towards UHC though experiencing various challenges. India has a national health insurance programme (NHIP) which was introduced in 2008, an employees' state insurance scheme (ESIS) for people with casual jobs and a national health protection scheme (NHPS) for the poor. With these three health insurance schemes, only 37% of citizens had any form of health insurance by the end of 2018. The country is still heavily dependent on OOP payments which contributes to 65% of total health expenditure to finance the health care system (Gupta, 2020). In Nigeria, the major health provider is the NHIS. The scheme which is voluntary in nature mostly covers federal government workers although citizens are encouraged to join. As of December 2016, only 4% of the population had registered to the scheme.

Fifty percent of the sources of funds for health care in underdeveloped states is from OOP payments unlike 30% in average income states and 14% in developed states (Mills, 2014). A study conducted in Kenya to assess the utilization of health care services revealed that some services are still paid for OOP in both public and private facilities (Kimani, Mugo, & Kioko, 2016). According to the 2021 National Health Accounts (NHA), OOP payments account for 24.3% of Current Health Expenditure (CHE). This percent has increased from 20.3% in 2016/17, 22.7% in 2018/19 and 25.5% as at 2021 (David, Macharia, Mwai, Mulinge, & Olwanda, 2022). The continued use of OOP payments to access health services has been on the increase over the years. The country needs other sources of financing mechanisms such as taxation, social health insurance, subsidized community-based health insurance, private insurance, vouchers, conditional cash transfers and equity funds to achieve UHC (Kimani, Mugo, & Kioko, 2016). There are repercussions to funding the health sector through taxation and SHI, however, no evidence exists as to which method is superior to the other. Achievement of UHC is dependent on governments' ability to

accumulate, allocate and standardize provision of health services (Bump, 2015). This study therefore aimed to find out what whether adoption of health insurance would reduce reliance on OOP payments in Kenya for the achievement of UHC.

1.3 Justification of the Study

In 2010, the WHO issued a report on health systems financing focusing on the achievement of UHC. This made UHC a global health policy agenda with many governments allocating resources to the health sector for its achievement. With such international focus on UHC, it is imperative to ensure that the principles of UHC (financial protection, population covered and services offered) are being adhered to by county governments and the MoH at the national level.

The enhancement of access to health insurance has become the aim of health policy reforms to reduce the financial burden of disease in LMICs. Despite these policy reforms for health insurance, the latter can be fruitless in terms of realizing its aim as was revealed by a study that showed that ineffective insurance in LMICs is an obstacle to UHC. Ineffective insurance was defined as having health insurance but being unable to obtain treatment for diagnosed non-communicable diseases, delivering outside of a health facility for women and borrowing money or selling household assets to pay for health care services. In that study, 69% of respondents had borrowed or disposed property to pay for health care expenses while 34% did not receive treatment for terminal illnesses (El-Sayed, Vail, & Kruk, 2018). In Makueni County, residents dispose property to pay for health care services of household members and relatives (Gathara, 2018). This study aims to shed some light on the effectiveness of health insurance schemes in Makueni County.

In a study conducted in Togo to determine whether type of health insurance has an influence on the selection of health care provider as well as cost and consumption of health care services, over 60% of policy holders, irrespective of whether public or private, sought health care services in health centers. With regard to selection of health care provider, policy holders with private insurance sought health care services in private health facilities while those with public insurance sought the same in public health facilities (Atake, 2020). This study provides information on the trend of consumption of health services among heads of households (HHs) in Makueni County, contributing to information gathered by other researchers on health insurance and also generating information that can be used by policy makers in designing insurance programmes for the achievement of UHC.

There are 244,669 HHs in Makueni County (Kenya National Bureau of Statistics, 2019). To date, there are 91,059 HHs registered with Makueni Care (Government of Makueni County, 2020), a local health insurance programme introduced by the county government in 2016 to increase access to health services (Government of Makueni County, 2018). This study provides information on enrollment into health insurance schemes among HHs that can assist the county government to boost enrollment into Makueni Care so that more residents are able to access UHC.

1.4 Research Question

What is the association between having a health insurance cover and access to UHC?

1.4.1 Broad Objective

To examine the association between health insurance and access to UHC.

1.4.2 Specific Objectives

i. To determine the association between enrollment into health insurance schemes and access to UHC.

ii. To determine the association between type of health insurance and access to UHC.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

The health of people is an important factor to the development of a nation in that it is a noneconomic pointer of destitution in a country. The healthier people are, the more productive they become and less likely to drift into poverty. To sustain good health, residents must be able to access, utilize and pay for health service when needed (Government of Makueni County, 2018). Health facilities must also be within easy reach and be able to provide needed health services (Mary Ngendo Mwami, 2017). Cost of health services should be affordable for everyone through an appropriate financing mechanism that has the least charges, equally allocates financial liability and ensures impartiality in access to health services (Okungu, Chuma, & McIntyre, 2017). The remaining sections of this chapter contain information about socio-demographic factors, enrollment into health insurance schemes and types of health insurance in the world that influence access to health care services. This information was gathered from peer reviewed articles and reports sourced from google scholar and web sites of various organizations.

2.2 Socio–Demographic Factors

General consumption of health services in Kenya is determined by numerous socio-demographic characteristics such as age, gender, education, household size, cost of visit to a health facility, area of residence, income and employment status. Young people are less inclined to seek health services when unwell unlike older people whose health gets worse as they age. Men are less inclined to seek health services when unwell unlike women who will want to be treated so that they can nurture their families well. An educated head of household knows the significance of well-being and will therefore encourage his or her

family members to go for frequent check-ups. A small family is likely to support a member who falls sick to visit a health facility for treatment unlike a large family. This is because the resources in a small family are adequate to meet needs unlike in a large family where resources available have to be stretched to meet family needs. The cost of a visit to a health facility determines whether someone will seek health services or not. High user fees influence preference of one facility over another because of the perception that the one that charges higher fees offers better quality services. On the other hand, low user fees encourage people to seek health services due to affordability. The underprivileged are more likely to seek health services due to the unhealthy living conditions in informal settlements which make them susceptible to contracting diseases. People who live in urban areas have a tendency not to seek health services when needed as a result of time constraints and the fast-paced lifestyle in the city. They will only seek health services when a situation becomes dire. The same would apply to someone in formal employment who does not have the time to seek health services and would rather opt for self-medication. These time constraints indirectly coerce those in formal employment to invest in being healthy so that a lot of time is not spent on seeking health services (Mary Ngendo Mwami, 2017).

In terms of specific health care services such as maternal and child health (MCH), a woman's level of education, her age, income and number of children determine her utilization of health services. Women who have secondary level of education and above, have an income of more than one US dollar a day or the endorsed least monthly salary in Kenya as well as those who are employed or run a small but growing enterprise are more inclined to seek antenatal care (ANC) services, give birth assisted by a skilled birth attendant (SBA) and also seek post-natal care (PNC) services because they have funds to enable them to seek health care services. Women who are above 26 years old and have

more than three children are less likely to seek ANC services or give birth assisted by a SBA, whereas those who are below 25 years and have at least two children are more likely to give birth assisted by a SBA. Older women with more children are not inclined to seek PNC services. For immunization of children, women who have gone through high school and are employed or run a small-scale business are more inclined to make sure that their children complete the routine immunization program unlike women with primary level of education and with no source of income. This is because educated women are more enlightened on the benefits of vaccination and appreciate why scheduling for inoculation of children is essential (Nzioki, Onyango, & Ombaka, 2015).

In Zambia, utilization of maternal health services is affected by occupation, how far a health facility is, age, education level and whether one is married or not. Decreased use of ANC services is linked to low-income levels. This is because, a woman with little money to spare is not able to afford the accompanying costs of purchasing a meal and paying for transport to the health facility irrespective of the fact that the service sought is free of charge. Distance to a health facility determines whether a woman will give birth assisted by a SBA or not. The further the health facility, the less inclined a woman is to deliver assisted by a SBA and the closer the health facility the more likely she is to give birth assisted by a SBA. On PNC services, the older and more well read a woman is, the more inclined she would be to utilize PNC services because she is more informed about health risks that come after childbirth and is able to clearly communicate with health providers and understand the information being passed on to her. A married woman is also more likely to make use of PNC services due to the joint decision with husband to do so compared to a situation where a woman herself is the main decision maker (Chamileke, 2017).

2.3 Enrollment into Health Insurance Schemes

The more one understands the advantages of having health insurance, the more likely one is to enroll into a scheme. Members of health insurance schemes generally have more confidence in the advantages of health insurance (Masengeli, Wanja, Mutai, & Simiyu, 2017). A study involving informal sector workers who are members of Unaitas Savings and Credit Co-operative (SACCO) in Kenya reported that knowing the benefits of health insurance, understanding the technical terms of insurance and having some appreciation of how pooled funds are utilized increases chances of enrolling into a health insurance scheme such as NHIF (Kituku, Amata, & Wachira, 2016).

Willingness to pay (WTP) for health insurance has been defined as the highest sum of money people are inclined to incur for purchase of needed health services (Nosratnejad, Rashidian, & Dror, 2016). It is influenced by various aspects such as demographics, socio-economic status, determinants of access to health services, perceived needs and insurance related variables. A large number of LMICs have a higher percentage of rural populations compared to a few with a low percentage of urban populations. This fact affects WTP for health insurance in that rural populations generally have partial awareness of insurance and lower socioeconomic status compared to people who live in urban areas who are moderately more informed of health insurance and are of a higher socioeconomic status. Other factors that affect WTP for health insurance are household size, how well-read an individual is, occupation, past admission in a health facility and low sense of well-being. High family income makes it possible to acquire health insurance which in turn increases demand for the same. When people do not understand what they stand to benefit from having health insurance, have had a bad experience at a hospital or if the nearest hospital is too far from their home then, they may not be WTP for health cover. On the contrary, if

someone has an experience at a health facility that enhances their health, irrespective of whether the facility is far from their home or not, this increases chances of being WTP for health cover. Oddly, the elderly are not eager to pay for health cover as would be expected due to the associated higher premiums and the fact that most insurance schemes have a cut-off age for initial enrollment (Nosratnejad, Rashidian, & Dror, 2016).

High cost of premiums discourages people from enrolling with health insurance while low premiums attract enrolment. Even with low cost of monthly premiums, regular payments for the same is a challenge for many rural people. Not being able to meet the requirements for regular payment of premiums can result in not enjoying the benefits of having insurance cover when needed even though some premiums have been paid (Masengeli, Wanja, Mutai, & Simiyu, 2017). In Cameroon, CBHI schemes charge exorbitant rates for premiums which has discouraged many people from enrolling. This is because majority of residents are low-income earners who do not have extra sources of income. In addition to this, the way premiums are paid for is cumbersome and discourages people from enrolling into CBHI schemes. As a result of this, renewal of membership to schemes has dropped (Mukangendo, Nzayirambaho, Hitimana, & Yamuragiye, 2018).

People with a good evaluation of their well-being are inclined to visit a hospital for treatment when the need arises to maintain the good health status. This implies that such people are happy with the services received from health facility visited hence encouraged to go for regular checkups to maintain the good health status. A good evaluation of one's health status increases the chance of enrollment into a health insurance scheme so as to reduce costs that would be incurred during regular checkups (Mary Ngendo Mwami, 2017). Health needs such as severity of illness, physical disability and presence of non-communicable diseases (NCDs) determine whether an old person would access healthcare

services or not. Worsening health conditions or having incapacity for employment is linked to added utilization of health services. Old people with worsening health conditions and those with NCDs such as high blood pressure, heart disease and diabetes are inclined to seek care more than people without such conditions. Physical disability also decreases access to health care because of discrimination and having no convenient means of travelling to a hospital (Wandera, Kwagala, & Ntozi, 2015).

Presence of chronic illness in a family urges members to seek for and enroll with a health insurance programme for support with part of high medical bills. Enrollment is increased when such support is possible and decreased when not possible. For CBHI schemes, an optimum benefits package is limited to available resources due to low premiums charged for sustainability purposes. In connection to this is availability of quality health service from accredited facilities. Good services encourage enrolment and renewal of membership unlike poor services which discourage the same. Trust in an insurance scheme and its management also influences enrolment. When a CBHI scheme is perceived as strict and not willing to go an extra mile to assist a client, enrolment and renewal of membership becomes low. When people have confidence in a scheme, perceive it as helpful and has backing from policymakers, enrolment increases. Long distance to an accredited health facility discourages enrolment into a scheme (Dror, et al., 2016).

Research carried out in Viwandani slum in Nairobi to assess the dominance of health cover and factors associated with health protection enrollment established that residents who are unhappy with fees charged for treatment in comparison to services rendered are less likely to enroll for health insurance due to their experiences. In addition to this, families that seek health services from state owned hospitals are not inclined to enroll for insurance because

services provided in these facilities are subsidized by the government making them affordable (Otieno, Wambiya, Mohamed, Donfouet, & Mutua, 2019).

In Tanzania, the aspects that affect enrollment for health cover among people with casual jobs are gender, chronic illness, lack of awareness on health insurance, understanding the function of health cover and distance to a hospital. Women are more likely to register themselves with an insurance programme due to their nurturing role for the family unlike men who are providers. Chronic illness coerces individuals to join health protection programmes as a result of frequent necessity for health care, high costs of treatment and reduced productivity which in turn leads to low incomes and inability to make cash payments for care delivered. Lack of awareness on health insurance in relation to registration procedures, payment system, cost of premiums and benefits package raises doubt about a scheme and discourages enrollment. Appreciating the role of a health insurance scheme on the other hand increases enrollment to health insurance. Registration to a health insurance programme is not influenced by how far a hospital is from an individual's home because, irrespective of whether a facility is far or not, people are eager to enroll for health insurance since health services are more important (Chengula, 2019).

2.4 Types of Health Insurance in the World

As shown in Table 2.1 (developed by the investigator) China, U.S.A., Japan, Germany, United Kingdom, Korea, Ghana and Rwanda have been able to achieve UHC through mandatory and/or voluntary health insurance funded by taxes and affordable premiums. The other countries are still on progress towards UHC and are dependent on OOP payments to finance their health care systems.

Table 2.1: Types of Health Insurance in the World

COUNTRY		TYPE OF HEALTH INSURANCE	NATURE	FUNDING
DEVELOPED COUNTRIES	China	NHI	Voluntary	Taxes, Premiums
	USA	PHI, SHI, EBHI	Voluntary, Mandatory	Taxes, Premiums
	Japan	SHIS	Mandatory	Taxes, Premiums
	Germany	NHI	Mandatory	Taxes, Premiums
	United Kingdom	NHS	Mandatory	Taxes
	Korea	NHI	Mandatory	Taxes, Premiums
LMICs	India	NHI, ESIS, NHPS, PHI	Mandatory, Voluntary	Taxes, Premiums, OOP
	Brazil	SUS	Mandatory	Taxes, Premiums, OOP
	Nigeria	NHIS, PHI	Voluntary	Premiums, OOP
	Ghana	NHIS	Mandatory	Taxes, OOP
	Rwanda	CBHI	Voluntary	Premiums, OOP
KENYA		PHI	Voluntary	Premiums
		NHIF	Voluntary, Mandatory	Premiums
		CBHI	Voluntary	Premiums
MAKUENI COUNTY		PHI	Voluntary	Premiums
		NHIF	Voluntary, Mandatory	Premiums
		Makueni Care	Voluntary	Premiums

Health Insurance; SHI – Social Health Insurance; EBHI – Employment Based Health Insurance; SHIS – Statutory Health Insurance System; NHS – National Health Service; ESIS – Employees' State Insurance Scheme; NHPS – National Health Protection Scheme; SUS – Unified Health System; NHIS – National Health Insurance Scheme; CBHI – Community Based Health Insurance; NHIF – National Hospital Insurance Fund.

2.4.1 Developed Countries

The health care system in China is governed by the assumption that residents are entitled to receive basic medical services when needed. As such, the health care system is funded through public health cover. The country achieved universal health insurance coverage in 2011 at 95% coverage through three insurance programmes introduced over a period of time. The Urban Employee Basic Medical Insurance (UEBMI) was introduced in 1998 for citizens in formal employment living in cities. It was made mandatory since inception. The voluntary Newly Cooperative Medical Scheme (NCMS) followed in 2003 for citizens living in rural areas. Finally was the Urban Resident Basic Medical Insurance (URBMI) in 2007. The scheme covers citizens in the informal sector living in cities including children, the aged and people running their own businesses. It is voluntary in nature. Since 2016, the country has been in the process of merging the NCMS with the URBMI to Urban-Rural Resident Basic Medical Insurance (URRBMI) for purposes of increasing risk pooling and decreasing managerial costs. Central government is in charge of formulating health law, coming up with guidelines for implementation and management of the public health insurance schemes while regional administrations are responsible for coordinating and delivering medical services. Private health insurance is procured by affluent citizens and employers to cover costly services not paid for by public insurance as well as deductibles, copayments and other cost sharing (Fang, 2020).

The health care system for the United States of America (USA) is predominantly funded through health insurance which is both private and public. Private health insurance is acquired personally from both profit and non-profit insurance companies while public health insurance is provided by the government in two ways, Medicare and Medicaid. Medicare is an insurance program for the elderly and persons living with disability and is

managed by the federal government. In 2019, the medical scheme insured 61.2 million people. Out of these, 52.6 million were above the age of 65 years while 8.7 million were persons living with disability. Total amount spent on insurance was $796.2 billion (The Board of Trustees, Federal Hospital Insurance and Federal Supplementary Medical Insurance Trust Funds, 2019).

Medicaid is an insurance program for underprivileged families and individuals. It is funded through combined contributions from central and regional governments. Membership is voluntary though there are strict conditions for joining the scheme. Some of the services covered by the insurance are in and outpatient hospital services, Early and Periodic Screening, Diagnostic and Treatment services (EPSDT), nursing facility care, home health care, physician care, rural health clinic services, laboratory tests and X-rays, family planning services and transport to health facilities (Skowronski, 2018).

Employer-based health insurance is where companies procure cover for their workers in full or staff also make some payments for their cover. It is sponsored by central government through exclusion on some aspects of taxation offered to companies for the contributions made to workers' health insurance plans. The scheme began during World War II when employers started offering health insurance to employees as an enticement to potential workers after the National War Labor Board (NWLB) froze wages (Fronstin, 2019).

As at 2017, EBHI covered 62% of Americans below the age of 65 years. This is attributed to a rise in companies offering health as a benefits package, growing economy, reduced unemployment rates and low premium increases. In addition to this, the scheme has various

advantages. It is attractive to people who form groups for different reasons other than the sole purpose of purchasing insurance. This has enabled the scheme to become a first choice for such groups. Secondly, companies act as lawyers for their workers in situations where there are disagreements between employees and health plan organizations. Thirdly, companies check on the superiority of medical services provided to workers since health insurance is a benefits package for enticing potential employees to jobs. Finally, EBHIs have contributed to knowledge of health insurance in the general public since potential employees must understand what they stand to benefit from a particular job.

Besides the advantages that EBHI offers, its main disadvantage is that it does not contribute to UHC. This is because, it only covers people who are employed, small companies may not have resources to pay for their workers' contributions and it is only specific to a particular job – if someone changes jobs, they cannot move with their health cover (Fronstin, 2019).

In Japan, the health care system is governed by a statutory health insurance system (SHIS) which has two kinds of compulsory cover known as Employment-Based Insurance (EBI) and Residence-Based Insurance (RBI). EBI covers 59% of citizens and RBI 40%. RBI includes Citizen Health Insurance (CHI) for the unemployed and Health Insurance for the aged. The scheme is financed through taxes and individual contributions. There is an additional 30% payment for coinsurance and copayments based on income level. OOP payments are made monthly or annually for long-term health care services. The national government regulates the amount of premiums and their programme for payment while prefectures come up with delivery systems. Private health insurance is purchased to boost

life insurance or to be an extra source of income for admitted patients (Matsuda, 2020). In addition to this remarkable achievement of UHC, Japan has also been able to attain increased growth in all its sectors, a high benchmark for livelihood, economic steadiness, highest life expectancy in the world and extinction of regular infectious diseases (Sakamoto, et al., 2018).

The German health care system is funded through a compulsory medical protection programme. Membership is pegged on personal income such that it should not surpass a stated limit but if it does, those with a higher income are free to purchase private insurance. Funds for the scheme are sourced from excess tax revenues and contributions made by covered employees and together with employers based on income level. Members are entitled to utilize health care services when ill and to continue being paid a salary irrespective of their income level (Institute for Quality and Efficiency in Health Care [IQWiG], 2018).

Health in the United Kingdom is financed through the NHS which was founded in 1948. The purpose of the scheme since inception was to offer free health services to residents at point of delivery (Bump, 2015) and to cause health services to be more accessible to residents irrespective of whether they are able to pay or not. Funding for the health service is sourced from taxes, a blend of private medical insurance and cash disbursements in the form of copayments and direct payments. Private medical insurance finances services are not offered by NHS and is paid for by individuals or employers for their employees (Jonathan Cylus, 2015).

The Republic of Korea introduced SHI in 1977 and achieved UHC in terms of population covered in 1989. This insurance was first rolled out to people with casual jobs in large companies and gradually spread to those working in small companies and finally to people running their own businesses. Much as the health care system is financed with resources from the national government, health services are delivered through private providers. Regional governments are responsible for running provincial health facilities, while each municipality is responsible for running health centers, health sub-centers and primary healthcare posts. The SHI scheme is managed by the National Health Insurance Service (NHIS) and the Health Insurance Review and Assessment Service (HIRA). The NHIS handles the gathering of contributions, risk pooling, administration of monies collected and compensation to providers while the HIRA is in charge of evaluating queries submitted, examining suitability of medical services, technical support to benefit packages and the design of the provider payment system. There is a small percent of OOP payments made for partial payments for insured services and complete payment for services not added in the benefits package (Kwon, 2015).

2.4.2 Low- and Middle-Income Countries (LMICs)

Medical care in India is delivered through a NHIP which was introduced in 2008 (Gupta, 2020). As at 2016, the scheme had covered 41 million families and by the end of 2018 only 37% of citizens had any type of medical cover. The country is still heavily dependent on OOP payments which contribute 65% of total health expenditures (THE) to finance the health care system. As a result of this, an approximate 8% of the population is at risk of impoverishment.

Besides the NHIP, India has an insurance programme for salaried people known as the ESIS. The scheme which is managed by the Ministry of Labor and Employment covers staff in businesses with more than ten personnel. Both the staff and owners of the businesses make payments towards the cover. Staff pay 0.75% of their salary while business owners pay 3.25% of each staff salary. Anyone whose monthly salary is more than INR 21,000 (USD 294) is qualified to join the scheme.

In addition to ESIS, there is the NHPS for the poor whose mandate is to ensure delivery of medical care in both state and for-profit health facilities. Its influence is subject to the readiness of hospitals to deliver excellent medical care at cited charges, manner of compensation to health facilities for provision of curative services, organization of medical services and convenience of reaching health workers and procuring prescribed drugs. Private health insurance is procured to cover admission and 36% of Indians have this insurance (Gupta, 2020).

Brazil's health care system was on track to achieving UHC from the late 1980s up to 2014 when the economic and political crunches in the country began. The SUS experienced exponential growth during these years as a result of restructuring operations of the health system and key developments in Primary Health Care (PHC) which led to advances in improved health service package, health delivery and expected results. These successes were short-lived because the restructuring did not attend to issues of insufficient funding, organizational limitations at national level and unequal distribution of resources. In addition to this, a new government was sworn in in 2016 and the new president introduced economic changes whose main purpose were to privatize national properties. The same year in December, a constitutional amendment was passed to control government spending

on health to 15% over the next 20 years. These changes have greatly affected SUS such that some services provided by the state have been moved to the private sector for provision through insurance. This in itself is a problem because the economic crises revealed that the country has a large informal sector meaning that a considerable percentage will be unable to afford the premiums thereby reverting to OOP payments (Massuda, et al., 2018).

In Nigeria, the major health provider is the NHIS. The programme which is voluntary in nature mostly covers federal government workers although citizens are encouraged to join. As of December 2016, only 4% of citizens had enrolled to the programme. Despite this scenario, there is disposable income in some segments of the economy which has increased the need for private health insurance. Private insurers have taken advantage of this situation to make use of the opportunity provided by high use of mobile phones in the country to develop products for the underprivileged. MTN for example, the country's largest mobile carrier launched a service called "Y'ello Health Cover" in 2014. In this service, subscribers pay a weekly fee of N100 or $ 0.24 and are permitted to seek health services in any of the 6,000 accredited health facilities with the NHIS for up to N350,000 or about $1,100 (Ernst & Young Global Limited, 2018).

Health care in Ghana is implemented within a devolved management system in the ten regions of the country. The system is organized in four levels of care known as national, regional, district and sub-district. There is also a community level that is an initial contact for citizens to the health care system where PHC services are delivered. Clinics and health centers fall within the sub-district, hospitals at the district and regional levels and teaching hospitals at the national level. The health care system is backed by a NHIS which was

enacted in 2003 but began operations in 2005. It was a result of health financing changes introduced in 1997. The scheme, which is mandatory in nature, is carried out at the village level. It began through community-based mutual health insurance organizations whose membership was up to a maximum of 1,000 people. Financing for health is sourced from government expenditure which is approximately USD100 per capita or 6.2% of gross domestic product (GDP). About 2% of GDP is allocated to the NHIS in addition to 2.5% of value-added tax (VAT) and another 2.5% of the pension payroll tax. This contributes 50% of THE with the other 50% coming from the private sector. Six percent comes from private insurance, 10% from non-governmental organizations (NGOs) and 34% from OOP payments (European Union, 2019).

The Rwandan health care system is supported by CBHI schemes and self-help mechanisms which have increased financial access to health services. The schemes were inventions of churches, local governments and opinion leaders with differences in organization, health service package, amount of premiums and co-payments. They grew in number from 54 in the year 2000 to 76 in 2001 and 226 in 2004 and their presence reversed the trend of non-utilization of health facilities in the country (Chemouni, 2018).

2.4.3 Kenya

Kenya's health system is decentralized in that counties are responsible for the management of health care in their various geographical regions. This has resulted in impartial and well-organized delivery of services through encouraging innovative ways such Makueni Care in Makueni County and Oparanya Care in Kakamega County that have generally improved access to health services. Healthcare in Kenya is financed by a mixture of government expenditure, contributions to NHIF and private health insurance (i 3 Actuaries and

Consultants , 2021). Only 29% of Kenyans are covered by health insurance (FSD Kenya, 2019). This has led to high out-of-pocket health expenses accounting for 24% of total health care expenditure (World Health Organisation , 2019).

Table 2.2, sourced from the national treasury website, highlights the budgetary allocations to MoH from the Financial Year (FY) 2013/14 to 2020/21 (Health Policy Plus, 2021). There is a remarkable increase since the inception of county governments in the year 2013 which can be ascribed to fast expansion of county health budgets in comparison to the national MoH budget. The proportion of MoH budget to total government budget (TGB) has increased steadily from 3.7% in FY 2013/14 to 7% in FY 2020/21 with drops in FY 2017/18 and FY 2019/20. Despite these fluctuations, the general trend shows that Kenya is slowly inching towards the Abuja target of 15% but this is still not adequate for the achievement of UHC (Health Policy Plus, 2019).

Table 2.2: Budgetary Allocations to the Ministry of Health

FINANCIAL YEAR	MoH BUDGET ALLOCATION (In Billions of Kshs.)	TOTAL GOVERNMENT BUDGET (TGB)	MoH BUDGET ALLOCATION AS % OF TGB
2013/14	41.7	1136.20 billion	3.7
2014/15	54.1	1433.10 billion	3.8
2015/16	61.7	1493.30 billion	4.1
2016/17	73.6	1805.70 billion	4.1
2017/18	60.9	1578.34 billion	3.9
2018/19	207	2.5 trillion	9.2
2019/20	93.4	2.1 trillion	4.4
2020/21	188.5	2.79 trillion	7%

Source: National Treasury Website (https://www.treasury.go.ke/) *June 2019*

The NHIF was founded 54 years ago under MoH to provide health insurance specifically for Kenyans in formal employment. In 1972 an alteration was made to include people working in the informal sector. The Fund was then transformed into a state parastatal through an Act of parliament, the NHIF Act No. 9 of 1998 (The Republic of Kenya , 2012). Membership to NHIF is mandatory for all Kenyans in formal employment and voluntary for those in the informal sector. NHIF used to cover inpatient costs only but started covering outpatient services in July 2015 (Barasa, Rogo, Mwaura, & Chuma, 2018). The health facilities that provide services to Kenyans are accredited under three categories, A, B, or C depending on the type of facility. Category A is for government health facilities, B some private and mission hospitals and C private health facilities. All services provided in government health facilities are paid for by NHIF. The same case applies to those in some private and mission hospitals except for surgeries where members pay for themselves. They are also covered up to an annual limit of Kshs. 432,000. In category C, NHIF covers only a quantified daily allowance (i 3 Actuaries and Consultants , 2021).

When someone falls sick, they visit a preferred health facility for treatment and "pay" for health services received with their NHIF card. The services provided are under a package called "Super Cover" for those who are enrolled with the scheme. Informal sector workers pay Kshs. 500 per month while members who are salaried pay between Kshs. 150-1700 per month depending on their salary scale (Dutta, Maina, Ginivan, & Koseki, 2018). The benefits insured in this package include:

1. Outpatient services: consultation, laboratory investigations, day care procedures, drugs and dispensation, health education, wellness and counselling, vaccines immunization

2. Specialized treatment: renal dialysis, radiology and chemotherapy for cancer treatment, surgical procedures, maternal care and reproductive health services, emergency road evacuation, overseas treatment and rehabilitation for drug and substance abuse.

3. Services specifically for the disadvantaged: provided for through government-sponsored programs.

   i) Linda Mama Program – for expectant mothers and their new-born children with no other form of insurance. The program offers ante-natal, delivery care, postnatal care, referral, and infant care.

   ii) Edu-Afya the Secondary School Cover covers all students in public secondary schools.

   iii) Health insurance subsidy programmes for the poor, orphans and vulnerable children (OVC) as well as those targeting old and persons with severe disabilities (OPSD).

The role of NHIF established in the Act No 9 of 1998 is to enroll and collect payments from Kenyans, reimburse accredited hospitals for services provided to members, set criteria for accreditation of hospitals, generate a list for the accredited hospitals, control payments made to the fund, guard the welfare of members and counsel the government on the national policy with regard to national health insurance (National Hospital Insurance Fund, 2018). Overall, the commitment to UHC and the move of the government to be financier of health services rather than provider has opened new opportunities for private sector development and market creation (International Finance Corporation, 2019).

Kenya's health insurance sector is in the process of implementing UHC and for this to be accomplished, there is need for impartial medical admission and enhanced superiority of curative services. NHIF is currently the main public health insurer for Kenyans with white collar jobs leaving out the majority with casual jobs. Kenya is considering transforming NHIF into a NHIS to create a conducive environment for the private sector to get involved in delivery of curative services. Private providers of health services acknowledge that there are advantages of having SHI in their facilities for the benefit of Kenyans especially the underprivileged since they are a major supply of their health services. SHI schemes should consequently be devised to accommodate structures for involvement and certification of private providers such as outpatient services introduced by NHIF in 2015. There should also be attractive enticements for for-profit private providers to acquire certification for their health facilities besides pressure from clients pushing for their certification. NHIF on the other hand ought to intensify enrollment of clients among informal sector workers and certification of PHC facilities in remote areas. The fund should also engage private providers as partners in provision of health services and introduce opportunities for discussing ways of improving provision of health services and tackling challenges of involvement in social health insurance (Sieverding, Onyango, & Suchman, 2018).

2.4.4 Makueni County

Decentralization of health is a constitutional obligation and the health sector is one of the most delegated sectors in the country. County Governments should therefore work closely with the National Government to ensure seamless transition in devolvement of health services (Ministry of Health, 2016).

The county government of Makueni recognized that 40% of residents would sell property especially land and consume all household income on OOP payments for health services of immediate family members or relatives. To avert this situation, the county government resolved to offer financial protection to its residents by introducing a local health insurance programme where members make an annual voluntary contribution fee of Kenya shillings 500 (about five US dollars) per household. Parents and their children below 18 years (or 24 years for students) are entitled to free primary healthcare in dispensaries, health centers, sub county hospitals and the county referral hospital (Gathara, 2018).

2.5 Theoretical Framework

Health care is considered a product or service that should be utilized by all citizens when needed whether one is able to pay or not (Mwabu, 1997). However, this is not as easy as it ought to be especially in LMICs where health services are still paid for out-of-pocket. Expected utility theory, states that the demand for insurance is an indication of how much an individual dislikes being caught flat footed by uncertainties vis a vis having disposable income (Schoemaker, 1982) and that the need for insurance is a choice between the damage that would happen without protection and the cost of paying a premium (Manning and Marquis 1996). For the underprivileged, their choice is to have a disposable income instead of paying premiums. This automatically bars them from health insurance and in turn limits their access to health care services. It is such scenarios that have led governments in LMICs to advocate for CBHI to enhance utilization of medical services among the less fortunate. The conceptual framework for this study was derived from expected utility theory (David Dror, 2013) which suggests that the decision for whether to insure or not depends on what one stands to gain or lose and the likelihood of disease occurrence. The independent

variables of socio-demographic factors, enrollment of health insurance and types of health

insurance each have an association with the dependent variable access to UHC.

Figure 2.1: Conceptual Framework

Independent Variables   *Dependent Variable*

```
┌─────────────────────────────┐
│ Socio – Demographic Factors │
│ Sex                         │
│ Age                         │
│ Marital Status              │
│ Level of Education          │
│ Source of Livelihood        │
│ Number of Dependents        │
└─────────────────────────────┘

┌──────────────────────────────────────┐        ┌──────────────────────────────────┐
│ Enrollment into Health Insurance     │        │ Access to Universal Health Care  │
│ Schemes                              │  ───▶   │                                  │
│ Perceptions on Health Insurance      │        └──────────────────────────────────┘
│ Characteristics of Respondents       │
│ Enrolled into Health Insurance       │
│ Schemes                              │
│ Characteristics of Health Insurance  │
│ Schemes                              │
└──────────────────────────────────────┘

┌──────────────────────────────────────┐
│ Types of Health Insurance Schemes    │
│ Private Health Insurance             │
│ National Hospital Insurance Fund     │
│ Community Based Health Insurance     │
│ Employment Based Health Insurance    │
└──────────────────────────────────────┘
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Source: Adopted and modified from Dror et al, (2013)

32

The conceptual framework in figure 2.1 highlights that socio-demographic factors, enrollment into health insurance schemes and types of health insurance schemes have an influence on access to universal health care. Socio-demographic factors are aspects about individuals who were sampled from a community to participate in the study. Enrollment into health insurance schemes refers to whether or not an individual is registered with an insurance scheme. Type of health insurance schemes refers to the kind of insurance plans available in the market. Access to universal health care refers to whether health services are within reach when needed. The independent variables in the study were socio-demographic factors, enrollment into health insurance schemes and types of health insurance schemes. The dependent variable was access to universal health care. The outcome variable for the study was whether health services were within reach for the residents of Makueni County.

The socio-demographic factors studied in this research were sex of participants, age of respondents, marital status, level of education, source of livelihood and number of dependents. The factors studied under enrollment into health insurance schemes were perceptions on health insurance, characteristics of respondents enrolled into health insurance schemes and characteristics of health insurance schemes. The types of health insurance schemes studied were private health insurance, national hospital insurance fund, community-based health insurance and employment-based health insurance.

CHAPTER THREE: METHODOLOGY

3.1 Study Design

This research was a correlational survey because the investigator sought to assess association between the independent variables and the dependent variable. This choice of design was appropriate for the study because it provided opportunity for outlining how the variables relate to each other. The value of the correlation coefficient that was calculated indicated the strength of the association.

3.2 Study Area

The research was carried out in Makueni County, which is situated in the South Eastern part of Kenya (see Map in Appendix I). It borders Machakos to the North, Kitui to the East, Taita Taveta to the South and Kajiado to the West. Makueni lies between Latitude 1º 35´ and 3° 00´ South and Longitude 37º10´ and 38º 30´ east and covers an area of 8,169.8 Km². It is divided into nine sub-counties namely Kathonzweni, Kibwezi, Kilungu, Makindu, Makueni, Mbooni East, Mbooni West, Mukaa and Nzaui. These sub-counties are subdivided into 30 electoral wards each, which are further subdivided into 60 sub-wards. The population of Makueni County was 987,653 where 489,691 are male and 497,942 are female with 244,669 households (Kenya National Bureau of Statistics, 2019). The research took place in Makueni Sub County which had a population of 130, 373 where 65,418 are male and 64, 955 are female with 34,479 households. The Sub County was selected due to geographical challenges that would be encountered were the study to be done across Makueni County.

The headquarters of the County is situated in Makueni Sub County where there are 64 health facilities out of the 237 in the entire county. These health facilities have community

health units (CHUs) attached to them. The Kenya Essential Package for Health defines a CHU as the initial point of contact for residents and the health system in the order of Kenya's points of health care provision. Each CHU covers about 5,000 residents who are served by community health volunteers (CHVs). Research respondents were therefore selected from the CHUs to provide adequate representation of the entire sub county.

Sixty-four per cent of the residents in Makueni strain to afford basic healthcare services (Government of Makueni County, 2018). Due to this, the government of Makueni County introduced a local health insurance programme in 2016 known as Makueni Care to increase access to health services. Besides this, the government has also constructed more health facilities such that the county today has one referral hospital, 13 sub-county hospitals, an additional 113 dispensaries and health centers (Gathara, 2018) as well as 12 health facilities providing comprehensive emergency new-born and obstetric care (Government of Makueni County, 2018).

3.3 Study Population

This comprised of residents of Makueni Sub County who were 130,375 in number where 65,418 are male and 64,955 female (Kenya National Bureau of Statistics, 2019). Forty three point eight per cent are below 14 years, 5.1% above 65 years and the remaining 51.1% are in the generally productive age bracket (15-64 years). Young people (18-34 years) account for 26% of the total population. The male to female ratio of 1:1 indicates a reasonable comparison in terms of sex. However, women carry out most of the tasks required and run the economic projects but have no say regarding decisions made over properties such as land and finances. The poverty level stands at 60.6% (Government of Makueni County, 2016).

3.4 Sample Size Determination

Fisher's formula was used to estimate the required sample size. Nonresponsive allowance of 10% was added to cater for respondents who meet the inclusion criteria but for various reasons may not be able to participate in the study or those who may accidentally participate without meeting the inclusion criteria.

$$n = \frac{Z^2 pq}{d_2}$$

Where:

n = desired sample size (if the target population is greater than 10,000) z = standard normal deviate at the required confidence level p = proportion in target population estimated to have characteristics being measured. 50% is used in situations where estimates of the target population are not available (A Fisher, 1983). In this study, 50% was used as an estimate of the residents who are able to access health care services.

$$q = 1 - p$$
d = level of statistical significance set
$$z = 1.96$$
p = 50% of population (0.50)
$$q = 1 - 0.50$$
$$d = 0.05$$
$$n = \frac{(1.96 \times 1.96)\,(0.50)\,(0.50)}{0.05 \times 0.05}$$
$$= \frac{3.8416 \times 0.50 \times 0.50}{0.0025}$$
$$= \frac{0.9604}{0.0025}$$
$$= 384.16$$
Non-response allowance is 10%
$$n = 10\% \times 384$$

36

$$= 38.4$$
$$= 384 + 38.4$$
$$= 422.4$$

Sample size $= 423$

3.5 Inclusion/Exclusion Criteria

3.5.1 Inclusion Criteria

- Registered with Makueni Care as a member of the insurance scheme

- Resident of Makueni Sub County

- Resident of Makueni County for at least six months

- Above 18 years old

3.5.2 Exclusion Criteria

- Not able to give consent or not consented to the study

- Anyone above 65 years old because the elderly had a special programme that begun before the introduction of Makueni Care

3.6 Data Collection

Prior to commencement of data collection, the investigator sought approval to conduct the study from the Kenyatta National Hospital-University of Nairobi Ethics and Research Committee (KNH-UoN ERC) (Appendix VI), National Commission for Science, Technology and Innovation (NACOSTI) (Appendix VII), Office of County Director Health Services (Appendix VIII) and County Commissioner, Makueni County (Appendix IX). The documents were presented to the Makueni Sub County Community Health Coordinator (MSCCHC) who is responsible for implementation of health programmes in the county.

Upon verification, verbal consent was given for data to be collected from residents of Makueni Sub County.

The investigator had a meeting with the MSCCHC to discuss recruitment of research assistants. It was reported that CHVs were attached to CHUs that are spread across the sub county in seven wards, each headed by a Public Health Officer (PHO). During drafting of the proposal, there were 32 CHUs in the sub county; however, this number had increased to 49 at the time of data collection. Given that the proposal was approved with the 32 CHUs, simple random sampling was used to select 32 CHUs for the study. CHVs were recruited as research assistants because they are attached to health facilities where households seek treatment thereby making them familiar with the residents of the sub county and the villages they live in.

The investigator conducted a training session for the research assistants to explain the purpose of the study, how it would be carried out, sampling procedure for selecting respondents and consenting process. Hard copies of the structured questionnaire (Appendix II) and consent form (Appendix IV) were used to guide the research assistants to understand information being sought from each question and how to get permission from respondents to participate in the study respectively. Difficult words, phrases and questions were identified during the training and an appropriate translation agreed for uniformity purposes. For adherence to COVID–19 protocols, data was collected electronically. Research assistants practiced how to use the online form using their smart phones. It was explained that responses from the respondents would be keyed in as received. At the end of the day, questionnaires were sent to a central data base where the investigator went through them to ensure all questions were correctly answered. The data collection tool was adopted and modified from three studies on health insurance conducted in various areas of the country

(Nguru, 2018; Enoch, 2016; Ombiro, 2019) while the information sheet and consent form were standard forms from Kenyatta National Hospital-University of Nairobi Ethics and Research Committee. The reason for choosing a structured questionnaire was due to its viability, appropriateness to the research problem and affordability. Official language used in the study was English; however, there were questionnaires translated to the local language of Kikamba (Appendix III) and consent forms (Appendix V) for respondents who did not understand English.

Upon arrival at the home of a respondent, the investigator and research assistant introduced themselves and stated the reason for the visit. They then requested for audience with the head of household and verified that the individual lived within the boundary of his/her CHU, was a resident in the sub county and had lived in the county for at least six months. Whether or not the head of household was registered with Makueni Care was brought out while responding to questions. The investigator then informed the respondent why the research was being carried out and what was expected of him or her during the interview. The participant's statement of consent was read to the respondent and he or she was requested to further give written signed consent for participation in the study. The investigator also read their statement of consent and signed it as proof that the respondent agreed to participate in the study. The interview was then commenced and respondent was reminded that they were free to discontinue the interview at any point should they feel uncomfortable to proceed. At the end of the interview, the respondent was informed to get in touch with the investigator should they have a question about the research at a later date.

3.7 Sampling Procedure

The MSCCHC availed the names of the 49 CHUs which were written on pieces of paper, folded up, put in a container, shuffled and 32 pieces of paper selected. The names of the CHUs written in the selected pieces of paper were those included in the study. The investigator was also informed that CHVs report to PHOs who in turn report to the MSCCHC. The seven PHOs were each contacted through a telephone call by the MSCCHC and requested to avail names of CHVs from their respective wards to be involved in the study as research assistants.

The outpatient register for patients above 5 years old was used as a sampling frame to select heads of households as respondents to participate in the study. Systematic random sampling was used to identify particular respondents for the study. The interval that was used to identify respondents was determined by dividing the total number of patients who sought health services from all participating health facilities between the period 1st May 2020 and 30th April 2021 by the sample size (177,809/423=420). The calculated sample size for the study was 384 plus 10% non-responsive allowance totaling to 423. To get specific sample sizes for each CHU, the annual caseload for each health facility was divided by the cumulative annual caseload for participating health facilities to get a proportion of the sample size allocated to each CHU. This proportion was then multiplied by 423 to get a specific sample size for each CHU. The first head of household to participate in the study from each CHU was randomly selected. After that, every 420th HH was selected. If a 420th head of household did not meet the age criteria, that individual was skipped and the next 420th selected. This process was followed until the sample size for the study was achieved.

3.8 Study Variables

Definitions and measurements of the variables that were studied in the research are shown

in table 3.1, 3.2 and 3.3

**Table 3.1: Definition and Measurement of Study Variables (Socio-demographic
Characteristics)**

NO.	NAME OF VARIABLE	DEFINITION	CATEGORIES	MEASUREMENT
1	Sex	Gender of respondents	Male or Female	Categorical
2	Age	Age of respondent in years	15 to 24 25 to 34 35 to 44 45 to 54 55 to 64	Continuous
3	Dependents	Number of people in a family that the head of the household has	1 to 3 4 to 6 7 to 9 10 and above	Continuous
4	Education	Highest level of schooling attained	Primary complete Secondary incomplete Secondary complete Tertiary	Continuous
5	Marital Status	Presence or absence of a life partner	Never married Married Separated Divorced Widowed	Categorical
6	Livelihood	Means of acquiring source of income	Formal employment SME trading Farming Support from children	Categorical

SME-small and medium enterprise

41

Table 3.2: Definition and Measurement of Study Variables – Enrollment into Health Insurance Schemes

NO.	NAME OF VARIABLE	DEFINITION	CATEGORIES	MEASUREMENT
1	Enrollment	Whether or not an individual is registered with a health insurance scheme	Yes or No	Categorical
2	Knowledge on purpose of health insurance	Whether or not an individual is aware of the aim of health insurance	Yes or No	Categorical
3	Income	Wage or salary paid for work done in Kenya Shillings	0 to 999 1000 to 4999 5000 to 9999 10000 and above	Continuous
4	Personal health status	Evaluation of individual well being	Excellent Good Average Poor	Categorical
5	Benefits of health insurance	Whether or not a respondent knows the advantages of health insurance	Yes or No	Categorical
6	Health conditions covered by health insurance	Illnesses paid for by health insurance	All conditions All conditions except maternity All conditions except cancer All conditions except AIDS Limited number of conditions	Categorical
7	Health facilities recognized by health insurance scheme	Hospitals acknowledged by insurance scheme that respondent is registered with	Private Public Faith based All other, specify	Categorical
Perceptions on Health Insurance				
8	Treatment	Cost of treatment is too expensive	Strongly Agree Agree Neither Agree nor Disagree Disagree Strongly Disagree	Categorical
9	Insurance premiums	Health insurance premiums are affordable	Strongly Agree Agree Neither Agree nor Disagree Disagree Strongly Disagree	Categorical

10	Willingness to pay for health insurance	Residents of Makueni Sub County are willing to pay for health insurance	Strongly Agree Agree Neither Agree nor Disagree Disagree Strongly Disagree	Categorical
11	Mandatory health insurance	Health insurance should be made mandatory	Strongly Agree Agree Neither Agree nor Disagree Disagree Strongly Disagree	Categorical

Table 3.3: Definition and Measurement of Study Variables – Types of Health Insurance

NO.	NAME OF VARIABLE	DEFINITION	CATEGORIES	MEASUREMENT
1	Types of health insurance	Kinds of health insurance schemes that respondent is aware of	BRITAM NHIF NHIF and Makueni Care Makueni Care	Categorical
2	Type of health insurance enrolled with	Out of the HI the respondent knows, which one the he or she is enrolled with	BRITAM NHIF NHIF and Makueni Care Makueni Care None	Categorical
3	Mode of payment	How the respondent paid for health services	OOP NHIF Private Insurance CBHI EBHI	Categorical

BRITAM-British American Insurance, NHIF-National Hospital Insurance Fund, OOP-out-of-pocket, CBHI-Community Based Health Insurance, EBHI- Employmnt Based Health Insurance

Table 3.4: Definition and Measurement of Study Variables – Access to Universal Health Care

NO.	NAME OF VARIABLE	DEFINITION	CATEGORIES	MEASUREMENT
1	Source of health care	The preferred source of health care in case of illness or need for other health services.	No action Traditional / herbal healer Government health facility Private health facility Faith-based facility Self – medication / visit a pharmacy Spiritual intervention	Categorical
2	Limitations in access to health services	Whether or not the respondent has had an instance when he or she needed health services in the past 12 months but could not access them because of cost	Yes or No	Categorical
3	Cost of transport	Expense incurred for means of transport used to seek treatment	0 to 249 250 to 499 500 to 749 750 to 999 1000 and above	Continuous
4	Time waited to get treatment	Period waited to get treatment from arrival at the health facility	0 to 59 60 to 119 120 to 179 180 to 239 240 to 299 300 and above	Continuous

5	Means of transport	The means of transport used to travel to a health facility	Walking Matatu Donkey cart Taxi Motor Bike	Categorical
6	Time taken to travel to a health facility	Period taken to travel to a health facility for treatment	0 to 59 60 to 119 120 to 179 180 to 239 240 to 299 300 and above	Continuous
7	Diagnosis of illness	Assessment of whether or not the sickness a respond sought treatment for was well identified	Yes or no	Categorical
8	Visits to health facility	The number of times a respondent went to a health facility for treatment	0 to 2 3 to 5 6 to 8 9 to 11 12 to 14 15 and above	Continuous
9	Opinion on accessibility of health services.	To what extent the respondent agrees with the statement that 'health services are accessible'	Strongly Agree Agree Neither Agree nor Disagree Disagree Strongly Disagree	Categorical

3.9 Data Analysis

The independent variables of socio-demographic factors, enrollment into health insurance schemes and types of health insurance each have an association with the dependent variable access to universal health care. Raw data from these variables were coded into statistical package for social sciences (SPSS) version 24 for analysis.

Descriptive statistics of the variables studied, socio-demographic factors, enrollment into health insurance schemes, types of health insurance and access to universal health care were analyzed using indices and proportions and presented in tables.

Association between the independent variables of socio-demographic factors, enrollment into health insurance schemes and types of health insurance with the dependent variable access to universal health care was analyzed using Chi-square test.

A statistical mean of access, an average of the values assigned to the variables used to assess access, was calculated to show access to health services for each respondent. This mean access was also used to calculate the mean of mean access for the variables that were studied in this research.

3.10 Ethical Considerations

Authorization to conduct the study was sought from the Department of Public and Global Health, Kenyatta National Hospital-University of Nairobi Ethics and Research Committee, National Commission for Science, Technology and Innovation, Office of County Director Health Services and County Commissioner, Makueni County. These authorizations were verified by the Makueni Sub County Community Health Coordinator after which verbal approval was issued to collect data from respondents.

A training session for the research assistants was conducted to explain the purpose of the study, how it would be carried out, sampling procedure for selecting respondents and consenting process. Respondents were informed that participation in the study was voluntary and declining involvement would not result in any consequence to them. The participant's statement of consent was read to the respondent and he or she was requested to further give written signed consent for participation in the study. The investigator also read their statement of consent and signed it as proof that the respondent agreed to participate in the study. The respondent was then informed of what was expected of him or her during the interview and reminded that they were free to discontinue the interview at any point should they feel uncomfortable to proceed.

Once a respondent agreed to participate in the study, they were requested to identify a quiet and private location within their homestead to conduct the interview. This ensured that information availed was not overheard by third parties. For those whose data was obtained electronically, research assistants submitted their forms on different days and times using different handsets. This electronic transmission of data automatically created a database (only accessible to the investigator) which listed all the forms entered. Where hard copies of the questionnaire were used, numbers were allocated depending on the sample sizes for specific CHUs. The electronic forms were downloaded in Excel format and data from the hard copy questionnaires was keyed into the same excel sheet. When data was being keyed in, male respondents were coded as 1 and female respondents as 2. The combination of the two data sets and coding completely mixed up all the forms making it difficult to trace the information of a particular respondent hence ensuring confidentiality.

Information gathered will be shared with the County Director Health Services for implementation at the community level of health service delivery thus improving access to

UHC for the residents of Makueni County. The same information will be used to enrich or guide the implementation of UHC in other parts of the country. Data gathered will also contribute to the wealth of information on health insurance from other scholars locally and internationally through publication of a journal article.

CHAPTER FOUR: RESULTS

4.1 Introduction

The calculated sample size for the study was 423 (384 plus 10% non-response allowance). Of the 423 participants approached, 11 declined to participate (response proportion 97.4%). An additional 10 participants were excluded because they were above 65 years (one of the exclusion criteria).

4.2 Socio-demographic Characteristics of Respondents

Table 4.1 is a summary of the socio-demographic characteristics of respondents. There were more female respondents (66.7%) than male. On age, 76.9% were between the age 25 – 54 years with the majority (28.9%) between the age of 35 – 44 years. The average age was 40 years with a standard deviation of 11.7, while the youngest person who participated in the study was 18 years old. Majority of respondents (53.5%) had between four and six dependents, while only 2% had more than 10 dependents. Only 7% had post-secondary education and 63.1% were married. Concerning source of livelihood, 73.1% of respondents earned a living from farming, 12.7% from formal employment, another 12.7% from SME trading and 1.5% depended on support from their children.

Table 4.1: Socio-demographic Characteristics of Respondents

Characteristic	Categories	Frequency (n)	Percentage (%)
Sex (n = 402)	Male	134	33.3
	Female	268	66.7
Age (n = 402)	15 to 24	35	8.7
	25 to 34	97	24.1
	35 to 44	116	28.9
	45 to 54	96	23.9
	55 to 64	58	14.4
Number of Dependents (n = 402)	1 – 3	139	34.6
	4 – 6	215	53.5
	7 – 9	40	10.0
	10 and above	8	2.0
Level of Education (n = 402)	Primary Complete	189	47.0
	Secondary Incomplete	37	9.2
	Secondary Complete	148	36.8
	Tertiary	28	7.0
Marital Status (n = 402)	Never married	78	19.4
	Married	254	63.1
	Separated	17	4.2
	Divorced	2	0.5
	Widowed	51	12.7
Source of Livelihood (n = 402)	Formal employment	51	12.7
	SME Trading	51	12.7
	Farming	294	73.1
	Support from children	6	1.5

4.3 Assessment of Access to Universal Health Care

The variables that were used to assess access to UHC were preferred source of health care, cost limitations in access to health services, transport costs to a health facility, waiting time before treatment, means of transport to health facility, time taken to travel to a health facility, assessment of whether the respondent perceives that the illness was well diagnosed or not, number of times one visited a health facility in the past 12 months and respondent's opinion on accessibility of health services. These variables fall under the five measurements of access known as approachability, acceptability, availability, affordability and appropriateness. These measurements must be used together to get an authentic assessment of access to health services (Levesque, Harris, & Russell, 2013). Responses to

51

these variables were assigned a value from one to six in ascending order. The higher the value assigned, the more access to UHC and the lower the value assigned, the less access to UHC. A mean for these values was calculated for each respondent to determine access to UHC (mean accessibility). Table 4.2 gives a highlight of how the values for accessibility were assigned.

Table 4.2: Access to Universal Health Care

Variables	Category	Participants (n = 402)		Assigned Accessibility
		No.	%	
Preferred source of health care	Government Health Facility	365	90.8	5
	Private Health Facility	11	2.7	4
	Traditional/Herbal Healer	22	5.5	3
	Self-Medication/Pharmacy Visit	3	0.7	2
	No Action	1	0.2	1
Cost limitations on access to health services	Yes	256	63.7	1
	No	146	36.3	2
Transport cost incurred to seek treatment at health facility	0 – 249	189	47.0	5
	250 – 499	84	20.9	4
	500 – 749	69	17.2	3
	750 – 999	7	1.7	2
	1,000 and above	53	13.2	1
Illness well diagnosed	Yes	308	76.6	2
	No	72	17.9	1
Waiting time before treatment (in minutes)	0 – 59	146	36.3	6
	60 – 119	92	22.9	5
	120 – 179	72	17.9	4
	180 – 239	17	4.2	3
	240 – 299	27	6.7	2
	300 and above	48	11.9	1
Time taken to travel to health facility (in minutes)	0 – 59	121	30.1	6
	60 – 119	107	26.6	5
	120 – 179	108	26.8	4
	180 – 239	32	8.0	3
	240 – 299	21	5.2	2
	300 and above	13	3.2	1
Number of visits to health facility	0 – 2	178	44.3	1
	3 – 5	160	39.8	2
	6 – 8	7	1.7	3
	9 – 11	12	3.0	4
	12 – 14	7	1.7	5
	15 and above	38	9.5	6
Means of transport to health facility	Walking	81	20.1	5
	Matatu	79	19.6	4
	Motor Bike	186	46.3	3
	Taxi	52	12.9	2
	Donkey Cart	4	1.0	1
Opinion on accessibility of health services	Strongly Agree	55	13.7	5
	Agree	251	62.4	4
	Neither Agree nor Disagree	50	12.4	3
	Disagree	45	11.2	2
	Strongly Disagree	1	0.2	1

Most respondents preferred seeking treatment from government health facilities (90.8%), experienced cost limitations in terms of access to healthcare services (63.7%), incurred transport costs to visit a health facility (47%) and used motor bikes as means of transport to health facilities (46.3%).

There were 79.3% of respondents who stated that they were well diagnosed. This was because they were attended to by a skilled healthcare professional, subjected to laboratory tests, had x-rays conducted, given medicine to take home, stopped feeling pain and generally recovered well. The 20.6% who were not well diagnosed were not attended to by a skilled healthcare professional, no medication was prescribed, they didn't have health insurance cover, took too long to heal, returned to the health facility for another checkup or visited a different health facility for a second opinion, continued feeling pain and their health status deteriorated.

In terms of the waiting time before treatment, most participants (36.3%) waited for less than an hour. The proportion of respondents decreased with increase in waiting time. For time taken to travel to health facilities, 30.1% spent less than an hour traveling to a health facility, 26.6% less than two hours and 26.8% less than three hours. For the number of visits to a health facility in the past year, 44.3% of respondents visited a health facility twice and 40% five times.

Finally, the opinion of respondents as to whether health services are accessible was sought and 76.1% were of the opinion that health services are accessible.

Chi Square test was used to assess the association between independent variables and access to UHC. Considering that Chi Square test does not give the direction of association, a statistical mean for access was calculated to show the direction of association. The total mean of accessibility for all respondents was divided by the total number of respondents

for each independent variable to get the mean of mean accessibility. The higher the value

of the mean of mean accessibility, the more the access to UHC, and the lower the value of

the mean of mean accessibility, the less the access to UHC. The total of mean accessibility

for respondents of each variable was divided by the total number of respondents for a

particular variable to get the mean of mean accessibility for that variable. The quartiles of

mean accessibility for all respondents are shown in Table 4.3.

Table 4.3: Quartiles of Mean Accessibility of All Study Participants

Quartiles	Range		Participants	
	Lower	Upper	No.	Percent
1	1.889	3.111	100	24.9%
2	3.111	3.333	101	25.1%
3	3.333	3.556	101	25.1%
4	3.556	4.750	100	24.9%

4.4 Association Between Socio-demographic Characteristics and Access to UHC

Chi Square test was used to assess the association between the independent variables of sex

of participants, their age in years, number of dependents, level of education, marital status

and source of livelihood and the dependent variable access to UHC. Age of respondents (χ^2

= 43.282, df = 12, p < 0.001), number of dependents (χ^2 = 28.109, df = 9, p = 0.001), level

of education (χ^2 = 27.224, df = 9, p = 0.001) and marital status (χ^2 = 22.294, df = 12, p =

0.034) had statistically significant associations with access to UHC. Table 4.4 is a highlight

of the association between socio-demographic characteristics of respondents and access to

UHC.

Table 4.4: Association Between Socio-demographic Characteristics and Access to Universal Health Care

Characteristic	Categories	Total (n = 402)		Mean Accessibility								Chi Square	df	P-Value
				Quartile 1 (Range: 1.889–3.111)		Quartile 2 (Range: 3.111 – 3.333)		Quartile 3 (Range: 3.333 – 3.556)		Quartile 4 (Range: 3.556 – 4.750)				
		No.	%	No.	%	No.	%	No.	%	No.	%			
Sex	Male	134	33.3	39	9.7	32	8.0	30	7.5	33	8.2	2.173	3	0.537
	Female	268	66.7	61	15.2	69	17.2	71	17.7	67	16.7			
Age	15 to 24	35	8.7	1	0.2	10	2.5	9	2.2	15	3.7	43.282	12	<0.001
	25 to 34	97	24.1	21	5.2	11	2.7	30	7.5	35	8.7			
	35 to 44	116	28.9	34	8.5	30	7.5	24	6.0	28	7.0			
	45 to 54	96	23.9	24	6.0	28	7.0	27	6.7	17	4.2			
	55 to 64	58	14.4	20	5.0	22	5.5	11	2.7	5	1.2			
Number of Dependents	1 – 3	139	34.6	33	8.2	29	7.2	37	9.2	40	10.0	28.109	9	0.001
	4 – 6	215	53.5	55	13.7	48	11.9	58	14.4	54	13.4			
	7 – 9	40	10.0	7	1.7	21	5.2	6	1.5	6	1.5			
	10 and above	8	2.0	5	1.2	3	0.7	-	-	-	-			
Level of Education	Primary Complete	189	47.0	39	9.7	59	14.7	51	12.7	40	10.0	27.224	9	0.001
	Secondary Incomplete	37	9.2	10	2.5	12	3.0	2	0.5	13	3.2			
	Secondary Complete	148	36.8	40	10.0	27	6.7	37	9.2	44	10.9			
	Tertiary	28	7.0	11	2.7	3	0.7	11	2.7	3	0.7			
Marital Status	Never Married	78	19.4	15	3.7	20	5.0	21	5.2	22	5.5	22.294	12	0.034
	Married	254	63.2	67	16.7	52	12.9	66	16.4	69	17.2			
	Separated	17	4.2	3	0.7	6	1.5	5	1.2	3	0.7			
	Divorced	2	0.5	-	-	2	0.5	-	-	-	-			
	Widowed	51	12.7	15	3.7	21	5.2	9	2.2	6	1.5			
Source of Livelihood	Formal Employment	51	12.7	19	4.7	6	1.5	15	3.7	11	2.7	9.395	9	0.402
	SME Trading	51	12.7	11	2.7	14	3.5	14	3.5	12	3.0			
	Farming	294	73.1	69	17.2	79	19.7	70	17.4	76	18.9			
	Support from Children	6	1.5	1	0.2	2	0.5	2	0.5	1	0.2			

56

Women had more access to UHC (3.328) than men (3.319). Respondents between the ages of 15 and 24 years, those with three or less dependents, had completed secondary school, never been married and were involved in SME trading as their source of livelihood had the highest access to UHC (3.527, 3.350, 3.355, 3.360, and 3.378) respectively.

On the other hand, respondents between the ages 55-64 years, those with more than 10 dependents, had attained tertiary level of education, were widowed and in formal employment had the least access to UHC (3.161, 2.903, 3.159, 3.189, and 3.240, respectively). Table 4.5 is a summary of the mean of mean accessibility for socio-demographic characteristics.

Table 4.5: Mean of Mean Accessibility for Socio-demographic Characteristics

Independent variable	Category	Mean of Mean Accessibility
Sex (n = 402)	Male	3.319
	Female	3.328
Age (n = 402)	15 to 24	3.527
	25 to 34	3.456
	35 to 44	3.277
	45 to 54	3.277
	55 to 64	3.161
Number of Dependents (n = 402)	1 – 3	3.350
	4 – 6	3.333
	7 – 9	3.280
	10 and above	2.903
Level of Education (n = 402)	Primary Complete	3.336
	Secondary Incomplete	3.287
	Secondary Complete	3.355
	Tertiary	3.159
Marital Status (n = 402)	Never married	3.360
	Married	3.340
	Separated	3.346
	Divorced	3.333
	Widowed	3.189
Source of Livelihood (n = 402)	Formal employment	3.240
	SME* Trading	3.378
	Farming	3.330
	Support from children	3.352

SME – small and medium enterprise

4.5 Enrollment into Health Insurance Schemes

A majority of the respondents (71.1% [286/402]) were enrolled into a health insurance scheme. Out of the 28.9% who were not enrolled into any health insurance scheme, 64.7% cited lack of disposable income, while 35.3% cited high cost of premiums, lack of awareness on insurance schemes and not knowing where to register for insurance cover.

4.5.1 Association between Characteristics of Respondents Enrolled into Health Insurance schemes and Access to UHC

Out of the 71.1% who were enrolled into a health insurance scheme, 92.7% knew what the purpose of health insurance was. Of these, 57.7% stated that it assists with payment of medical bills, while 41.9% stated that health insurance enables one to seek better treatment during illness and facilitates faster access to treatment during medical emergencies. On average monthly income, 44.8% earned less than Kshs. 1,000 per month. When asked about their personal health status, 54.5% assessed their health status as being average and 93.4% were aware that their families could benefit from owning a health insurance cover.

Average monthly income ($\chi^2 = 32.605$, df = 9, p < 0.001), health status assessment ($\chi^2 = 20.352$, df = 9, p = 0.016) and awareness on benefit of being enrolled into a health insurance scheme ($\chi^2 = 16.150$, df = 6, p = 0.013) had statistically significant associations with access to UHC.

Enrollment into a health insurance scheme had a statistically significant association with access to UHC ($\chi^2 = 8.174$, df = 3, p = 0.043). Table 4.6 is a highlight of the association between characteristics of respondents enrolled into health insurance schemes and access to UHC.

Table 4.6: Association between Characteristics of Respondents Enrolled into Health Insurance Schemes and Access to UHC

Characteristic	Categories	Total (n = 286)		Mean Accessibility								Chi Square	df	P-Value
				Quartile 1 (Range: 1.889 – 3.111)		Quartile 2 (Range: 3.111 – 3.333)		Quartile 3 (Range: 3.333 – 3.556)		Quartile 4 (Range: 3.556 – 4.750)				
		No.	%	No.	%	No.	%	No.	%	No.	%			
Knowledge on purpose of health insurance	Yes	265	92.7	54	18.9	75	26.2	72	25.2	64	22.4	4.249	3	0.236
	No	21	7.3	7	2.4	2	0.7	6	2.1	6	2.1			
Average monthly income	0 – 999	128	44.8	11	3.8	41	14.3	42	14.7	34	11.9	32.605	9	<0.001
	1000 – 4,999	101	35.3	26	9.1	26	9.1	21	7.3	28	9.8			
	5,000 – 9,999	23	8.0	13	4.5	6	2.1	9	3.1	6	2.1			
	10,000 and above	34	11.9	11	3.8	4	1.4	6	2.1	2	0.7			
Assessment of personal health status	Excellent	12	4.2	0	0.0	2	0.7	5	1.7	5	1.7	20.352	9	0.016
	Good	75	26.2	16	5.6	11	3.8	20	7.0	28	9.8			
	Average	156	54.5	37	12.9	50	17.5	40	14.0	29	10.1			
	Poor	43	15.0	8	2.8	14	4.9	13	4.5	8	2.8			
Awareness on benefit of owning health insurance	Yes	267	93.4	54	18.9	73	25.5	74	25.9	66	23.1	16.150	6	0.013
	No	8	2.8	-	-	2	0.7	4	1.4	2	0.7			
	Don't Know	11	3.8	7	2.4	2	0.7	-	-	2	0.7			

4.5.2 Association between Health Conditions and Facilities Covered by Health Insurance Schemes and Access to UHC

The respondents who were enrolled into a health insurance scheme were further asked which health conditions were covered by their various insurance schemes and what health facilities were recognized by their insurance schemes. Majority of them (86.7%) reported that all health conditions were covered by their various insurance schemes and 80.4% reported that public health facilities were recognized by their insurance schemes. Recognition of health facilities by insurance schemes ($\chi^2 = 18.947$, df = 9, p = 0.026) had a statistically significant association with access to UHC. These findings are presented in Table 4.7.

Table 4.7: Association between Characteristics of Health Insurance Schemes and Access to UHC

Characteristic	Categories	Total (n = 286)		Mean Accessibility								Chi Square	df	P-Value
				Quartile 1 (Range: 1.889 – 3.111)		Quartile 2 (Range: 3.111 – 3.333)		Quartile 3 (Range: 3.333 – 3.556)		Quartile 4 (Range: 3.556 – 4.750)				
		No.	%	No.	%	No.	%	No.	%	No.	%			
Health conditions covered by insurance schemes	All conditions	248	86.7	58	20.3	66	23.1	68	23.8	56	19.6	20.505	12	0.058
	All conditions except maternity	7	2.4	-	-	-	-	4	1.4	3	1.0			
	All conditions except cancer	18	6.3	2	0.7	8	2.8	1	0.3	7	2.4			
	All conditions except AIDS*	12	4.2	1	0.3	2	0.7	5	1.7	4	1.4			
	Limited number of conditions	1	0.3	-	-	1	0.3	-	-	-	-			
Health facilities recognized by insurance schemes	Private	16	5.6	5	1.7	1	0.3	7	2.4	3	1.0	18.947	9	0.026
	Public	230	80.4	40	14.0	67	23.4	63	22.0	60	21.0			
	Faith based	2	0.7	-	-	1	0.3	1	0.3	-	-			
	All	38	13.3	16	5.6	8	2.8	7	2.4	7	2.4			

AIDS – acquired immune deficiency syndrome

4.5.3 Association between Perceptions on Health Insurance and Access to UHC

Opinion of respondents on health insurance was sought by enquiring about cost of treatment, affordability of insurance premiums, willingness to pay for health insurance and whether ownership of a health insurance cover should be made mandatory for the residents of Makueni Sub-County.

Majority of respondents (88.5%) were of the opinion that cost of treatment is too high, 37.5% that health insurance premiums are affordable, 46.2% that residents of Makueni Sub-County are willing to pay for health insurance and 55% stated that health insurance should not be made mandatory.

Chi square test was used to assess the association between perceptions on health insurance and access to UHC. The four perceptions on cost of treatment is too high, health insurance premiums are affordable, residents of Makueni Sub-County are willing to pay for health insurance and health insurance should be made mandatory had statistically significant associations with access to UHC ($\chi^2 = 35.188$, df = 12, p < 0.001; $\chi^2 = 37.586$, df = 12, p < 0.001; $\chi^2 = 32.033$, df = 12, p < 0.001; and $\chi^2 = 40.945$, df = 12, p < 0.001, respectively). Table 4.8 is a summary of responses on perceptions towards health insurance and their association with access to UHC.

Table 4.8: Association between Perception on Health Insurance and Access to UHC

Characteristic	Categories	Total (n = 402)		Mean Accessibility								Chi Square	df	P-Value
				Quartile 1 (Range: 1.889 – 3.111)		Quartile 2 (Range: 3.111 – 3.333)		Quartile 3 (Range: 3.333 – 3.556)		Quartile 4 (Range: 3.556 – 4.750)				
		No.	%	No.	%	No.	%	No.	%	No.	%			
Cost of treatment is too expensive	Strongly Disagree	10	2.5	-	-	-	-	2	0.5	8	2.0	35.188	12	<0.001
	Disagree	23	5.7	2	0.5	9	2.2	11	2.7	1	0.2			
	Neither Agree nor Disagree	13	3.2	4	1.0	1	0.2	5	1.2	3	0.7			
	Agree	113	28.1	32	8.0	32	8.0	23	5.7	26	6.5			
	Strongly Agree	243	60.4	62	15.4	59	14.7	60	14.9	62	15.4			
Health insurance premiums are affordable to residents of Makueni Sub-County	Strongly Disagree	50	12.4	13	3.2	21	5.2	3	0.7	13	3.2	37.586	12	<0.001
	Disagree	129	32.1	32	8.0	22	5.5	44	10.9	31	7.7			
	Neither Agree nor Disagree	72	17.9	28	7.0	19	4.7	14	3.5	11	2.7			
	Agree	134	33.3	25	6.2	36	9.0	36	9.0	37	9.2			
	Strongly Agree	17	4.2	2	0.5	3	0.7	4	1.0	8	2.0			
Residents of Makueni sub county are willing to pay for health insurance	Strongly Disagree	17	4.2	3	0.7	4	1.0	10	2.5	-	-	32.033	12	<0.001
	Disagree	111	27.6	27	6.7	24	6.0	20	5.0	40	10.0			
	Neither Agree nor Disagree	88	21.9	20	5.0	21	5.2	26	6.5	21	5.2			
	Agree	142	35.3	31	7.7	43	10.7	36	9.0	32	8.0			
	Strongly Agree	44	10.9	19	4.7	9	2.2	9	2.2	7	1.7			
Health insurance should be made mandatory for all residents of Makueni Sub-County	Strongly Disagree	170	42.3	26	6.5	40	10.0	49	12.2	55	13.7	40.945	12	<0.001
	Disagree	51	12.7	9	2.2	14	3.5	19	4.7	9	2.2			
	Neither Agree nor Disagree	70	17.4	23	5.7	19	4.7	16	4.0	12	3.0			
	Agree	44	10.9	18	4.5	16	4.0	6	1.5	4	1.0			
	Strongly Agree	67	16.7	24	6.0	12	3.0	11	2.7	20	5.0			

A statistical mean for perceptions on health insurance was calculated to show the direction of association with access to UHC. The total of mean accessibility for respondents of each perception was divided by the total number of respondents for a particular perception to get the mean of mean accessibility for that perception. The higher the mean of mean accessibility the more access to UHC, and the lower the mean of mean accessibility the less access to UHC. These results are shown in Figures 4.1, 4.2, 4.3, and 4.4.

Respondents who thought that cost of treatment is too expensive had less access to UHC than those who thought that treatment is not expensive (Figure 4.1).

Figure 4.1: Mean of Mean Accessibility for Perception on Cost of Treatment and Access to Universal Health Care
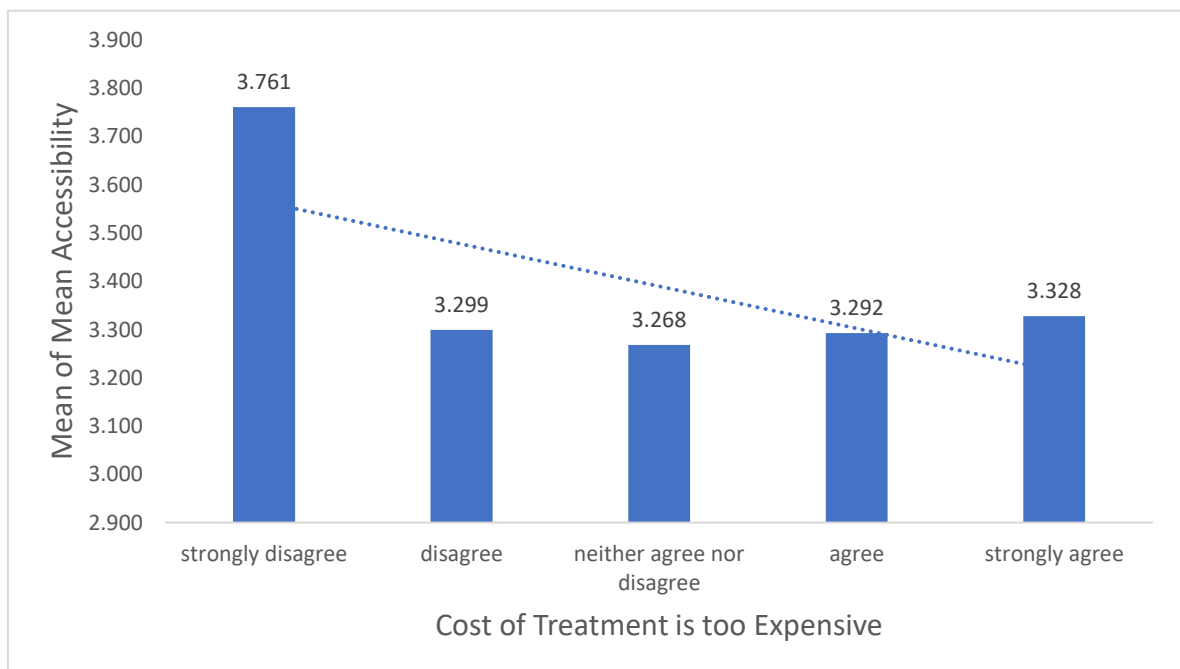
Respondents whose opinion was that health insurance premiums were highly priced for residents of Makueni Sub County had less access to UHC than those whose opinion was that they were affordable (Figure 4.2).

Figure 4.2: Mean of Mean Accessibility for Perception on Affordability of Health Insurance Premiums and Access to Universal Health Care
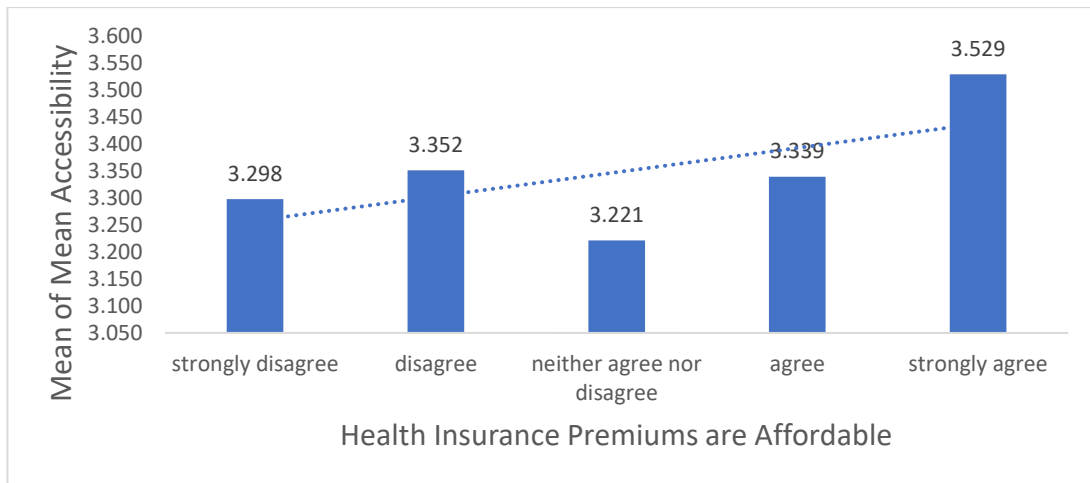
Respondents who stated that residents of Makueni Sub-County were not willing to pay for health insurance had more access to UHC than those who stated that they were willing to pay (Figure 4.3).

Figure 4.3: Mean of Mean Accessibility for Perception on Willingness to Pay for Health Insurance and Access to Universal Health Care
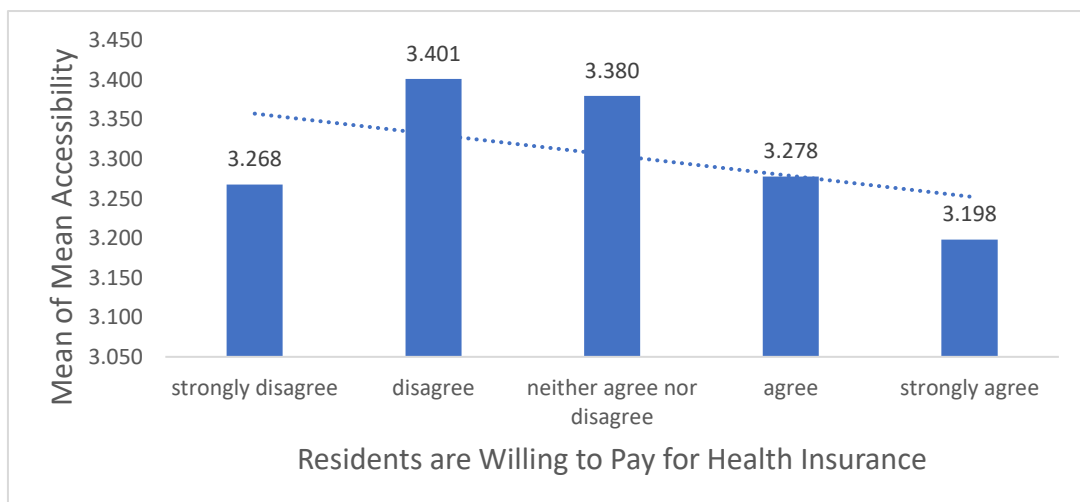
Respondents whose opinion was that health insurance should not be made mandatory had more access to UHC than those who stated that it should be mandatory (Figure 4.4).

Figure 4.4: Mean of Mean Accessibility for Perception on Health Insurance being Mandatory and Access to Universal Health Care
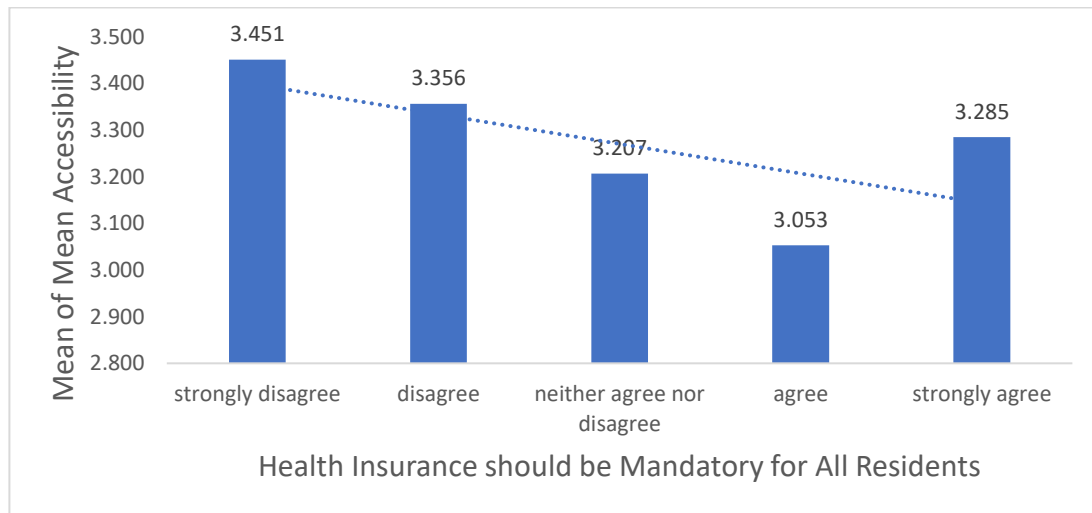
4.6 Type of Health Insurance

The variables that were studied in this section were knowledge on the concept of health insurance, knowledge on types of health insurance schemes, ownership of types of health insurance, mode of payment for health services delivered, amount considered to be a high medical bill, challenges encountered when paying for health services and how health financing in the county can be improved.

4.6.1 Association between Type of Health Insurance and Access to UHC

The variables that were used to test the association between type of health insurance and access to UHC were knowledge on types of health insurance schemes, type of health insurance enrolled with and mode of payment for health services.

Chi square test was used to test the association between type of health insurance one is enrolled in and access to UHC. Type of health insurance enrolled with (χ^2 = 33.255, df = 15, p = 0.004) and mode of payment used for health services delivered (χ^2 = 21.259, df = 12, p = 0.047) had statistically significant associations with access to UHC. Table 4.9 is a summary of the association between type of health insurance and access to UHC.

**Table 4.9: Association between Type of Health Insurance and Access to UHC**

Characteristics	Categories	Total (n = 402)		Access to UHC								Chi Square	df	P – value
				Quartile 1 (Range: 1.889 – 3.111)		Quartile 2 (Range: 3.111 – 3.333)		Quartile 3 (Range: 3.333 – 3.556)		Quartile 4 (Range: 3.556 – 4.750)				
		No.	%	No.	%	No.	%	No.	%	No.	%			
Knowledge on Types of Health Insurance	BRITAM	1	0.2	1	0.2	-	-	-	-	-	-	7.430	9	0.592
	NHIF	51	12.7	10	2.5	9	2.2	17	4.2	15	3.7			
	NHIF and MC	233	58.0	58	14.4	60	14.9	56	13.9	59	14.7			
	MC	117	29.1	31	7.7	32	8.0	28	7.0	26	6.5			
Type of Health Insurance Enrolled with	BRITAM	1	0.2	1	0.2	-	-	-	-	-	-	33.255	15	0.004
	NHIF	66	16.4	21	5.2	12	3.0	14	3.5	19	4.7			
	NHIF and MC	13	3.2	6	1.5	4	1.0	3	0.7	-	-			
	MC	145	36.1	21	5.2	45	11.2	48	11.9	31	7.7			
	Not Indicated	61	15.2	12	3.0	16	4.0	13	3.2	20	5.0			
	NONE	116	28.9	39	9.7	24	6.0	23	5.7	30	7.5			
Mode of Payment for Health Services	Cash	142	35.3	36	9.0	39	9.7	42	10.4	25	6.2	21.259	12	0.047
	NHIF	54	13.4	21	5.2	11	2.7	8	2.0	14	3.5			
	Private Insurance	8	2.0	2	0.5	1	0.2	5	1.2	-	-			
	Community-Based Insurance	81	20.1	19	4.7	23	5.7	16	4.0	23	5.7			
	Employment-Based Insurance	1	0.2	1	0.2	-	-	-	-	-	-			
	Not Applicable	116	28.9	21	5.2	27	6.7	30	7.5	38	9.5			

BRITAM – British American Insurance, NHIF – National Hospital Insurance Fund, MC – Makueni Care

Fifty eight percent of respondents were aware of both NHIF and Makueni Care (the local UHC programme in the county), 36.1% were enrolled with Makueni Care and 35.3% paid for health services out of pocket.

To know which type of health insurance enrolled with had higher accessibility to UHC, a statistical mean of access for each type of health insurance was calculated. Respondents who did not indicate the type of health insurance scheme they were enrolled with had the highest accessibility to UHC. Among those enrolled into a health insurance scheme, respondents with MC had the highest accessibility to health services. Figure 4.5 is a summary mean of mean accessibility for type of health insurance enrolled in.

Figure 4.5: Mean of Mean Accessibility for Type of Health Insurance Enrolled with
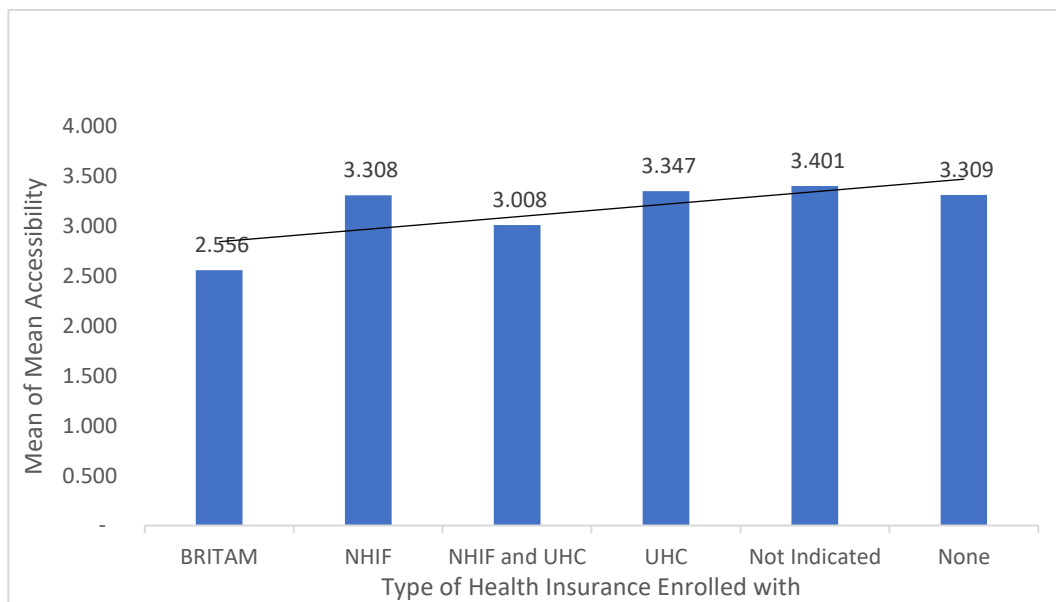
For the other variables that were studied, 83.8% of respondents had a basic understanding of the concept of health insurance. Respondents were further asked how much they would consider to be a high medical bill and 37% reported that a bill of less than Kshs. 999 would

be high for them, whereas only three people reported that a bill of more than Kshs. 1,000,000 would be high for them (Figure 4.6).

Figure 4.6: Amount Considered to be a High Medical Bill
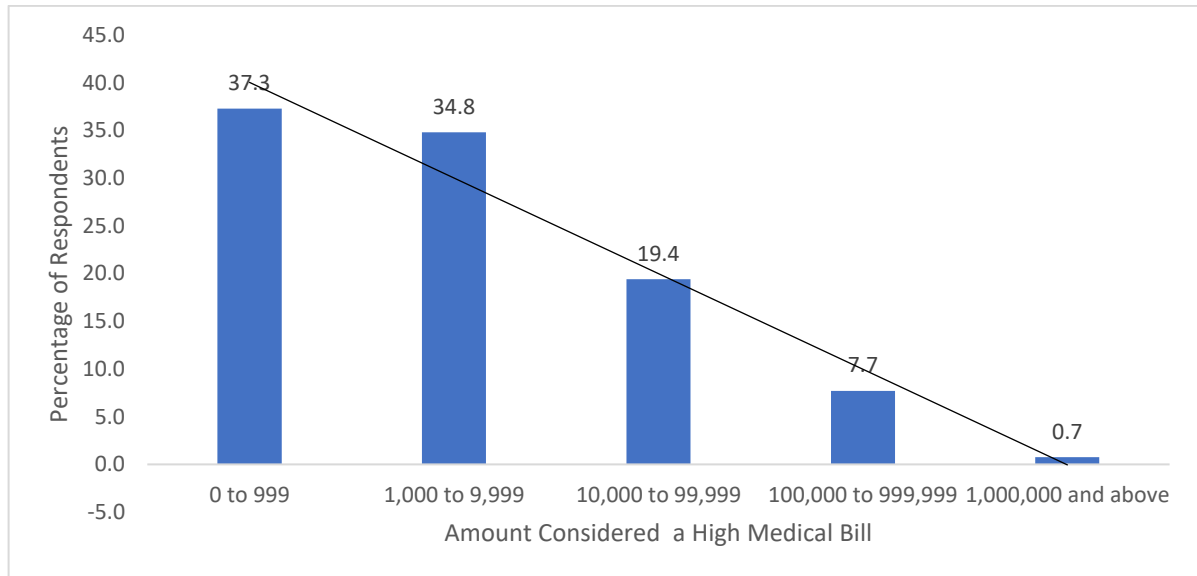
Participants were asked to indicate the challenges they encountered in relation to payment for health services. Responses given included deactivation of health insurance in case of default, long queues in health facilities, poor internet connectivity, poor computer network within the system in some health facilities, slow remittance of bills to insurance schemes, some services not covered by insurance schemes, lack of acceptance of health insurance cards in some facilities, few paying stations, slow cashiers and high cost of mobile money transactions.

Lastly, study participants were asked to provide views on how health financing in the county could be improved. Respondents suggested that new health facilities be constructed in the villages, vital medicines be well stocked, raise awareness on health insurance so that more people can enroll into Makueni Care, county government to partner with NGOs for health care development, budget for health services to be increased, the national

government to also increase its financial support to the county government and reactivation of health insurance cover be quickened.

CHAPTER FIVE: DISCUSSION OF FINDINGS

5.1 Socio-Demographic Characteristics of Respondents and Access to UHC

In this study, women had more access to UHC than men (mean of mean accessibility = 3.328 for women and 3.319 for men), however the association between sex of participant and access to UHC was not statistically significant (p = 0.537). These findings agree with those of Nguru (2018) who found that there was a statistically significant relationship between sex and uptake of health insurance (p = 0.001). According to that study, there was more uptake of health insurance among women than men. This could be because women tend to seek treatment when unwell therefore would be more inclined to enroll into a health insurance scheme to minimize their out-of-pocket expenses.

Age had a statistically significant association with access to UHC (p < 0.001). This finding was also supported by the mean of mean accessibility, which showed that younger respondents had more access to UHC (mean of mean accessibility = 3.527) compared to older respondents (mean of mean accessibility = 3.161). These findings disagree with those of Nguru, (2018) who established that there was no relationship between age and uptake of health insurance (p = 0.083). The reason for this inconsistency could be because Nguru's respondents were patients seeking treatment at both public and private health facilities irrespective of age while in this study, respondents were strictly between the ages of 18 and 64 years.

Number of dependents had a statistically significant association with access to UHC (p = 0.001). The mean of mean accessibility also supported this finding by showing that respondents who had less than three dependents had more access to UHC (mean of mean accessibility = 3.350) compared to those who had more than ten dependents (mean of mean accessibility = 2.903). These findings validate those of Mwami (2017) that a small family

is likely to help a member who falls sick to visit a health facility for treatment unlike a large family ($p < 0.001$). This is because the resources in a small family are adequate to meet needs unlike in a large family where resources available must be stretched to meet family needs. The results also validate the findings of Nzioki (2015) that a woman's number of children determine her utilization of health services.

Level of education had a statistically significant association with access to UHC ($p = 0.001$). This finding was validated by the mean of mean accessibility which showed that respondents who completed secondary level of education had the highest accessibility to UHC (3.355). These findings support the results by Ombiro (2019) which showed that post-secondary education was statistically significantly associated with increased NHIF enrollment ($OR = 7.875$, $p = < 0.001$). His study sought to assess utilization of NHIF among community members in Embu County.

Marital status had a statistically significant association with access to UHC ($p = 0.034$). This finding was supported by the mean of mean accessibility which showed minimal difference in access to UHC between the never married, married, separated and divorced (3.360, 3.340, 3.346, and 3.333, respectively). These results agree with the findings by Chamileke (2017), which established that married women were more likely to make use of PNC services due to the joint decision with husband to do so compared to a situation where only the woman has to make the decision ($OR=4.5$, $p<0.05$).

Source of livelihood had a statistically non-significant association with access to UHC ($p = 0.402$). However, the mean of mean accessibility showed that respondents who were involved in SME trading had the highest accessibility to UHC (mean of mean accessibility $= 3.378$) compared to those in formal employment (mean of mean accessibility $= 3.240$). These results agree with the findings of Kimani D, Mugo M and Kioko U (2016) who

established that people who work in the informal sector visit health facilities when it is necessary unlike those in formal employment who rarely seek treatment because they invest more in their health and nutrition thereby not needing to utilize health services often (p = 0.044).

5.2 Enrollment into Health Insurance Schemes and Access to UHC

This section of the study was divided into three parts; characteristics of respondents enrolled into health insurance schemes, health conditions and facilities covered by health insurance schemes and perceptions on health insurance.

5.2.1 Characteristics of Respondents Enrolled into Health Insurance Schemes

Majority of respondents (71.1%) were enrolled into a health insurance scheme. Out of these, 92.7% were aware of the purpose of health insurance and 93.4% were aware that their families could benefit from owning a health insurance cover. These results concur with the findings of Masengeli (2017) who stated that the more one understands the advantages of having health insurance, the more likely one is to enroll into a scheme and those of Chengula (2019) who established that appreciating the role of health insurance increases enrollment to health insurance schemes. These results are also in agreement with those of Kituku (2016) whose findings showed that knowing the benefits of health insurance, understanding the technical terms of insurance and having some appreciation of how pooled funds are utilized increases chances of enrolling into a health insurance scheme. On the contrary, they disagree with the findings of (Nosratnejad, Rashidian, & Dror, 2016) that rural populations generally have partial awareness of health insurance.

Residents of Makueni Sub County are from a rural population yet 92.7% of those enrolled into a health insurance scheme were aware of the purpose of health insurance.

Eighty percent of respondents enrolled into a health insurance scheme earned less than Kshs. 4,999, while only 20% earned more than Kshs. 5,000. These results disagree with those of Shirin Nosratnejad (2016) that high family income makes it possible to acquire health insurance which in turn increases demand for the same.

Majority of respondents (80.7%) assessed their health status as good and or average. Seventy one percent of all respondents were enrolled into a health insurance scheme. These results support the findings of Mwami (2017) that a noble assessment of one's health status increases chances for enrollment into a health insurance scheme so as to reduce costs that would be incurred during regular checkups.

In Makueni Sub County, 71% of the residents are enrolled into a health insurance scheme. Out of these, 30% have paid for health services using health insurance while 41% have paid using cash. These results support the findings of El-Sayed, Vail and Kruk (2018) who determined that ineffective insurance in LMICs was an obstacle to UHC. Ineffective insurance was defined as having health insurance but being unable to obtain treatment for diagnosed non-communicable disease, delivering outside of a health facility for women and borrowing money or selling household assets to pay for health services.

Out of the 71.1% of respondents enrolled into a health insurance scheme, 95% preferred to seek treatment from government health facilities. From the 28.9% who were not enrolled into a health insurance scheme, 80% preferred to seek treatment from government health facilities. These results agreed with the findings of Atake (2020) that over 60% of policy holders irrespective of whether public or private sought health care services from public health centers.

About 91% of respondents preferred seeking treatment from government health facilities. These results agreed with those of Otieno, Wambiya, Mohamed, Donfouet, Mutua (2019) who found out that families that seek health services from state owned hospitals are not inclined to enroll for insurance because services provided in these facilities are partly sponsored by the government making them affordable. Government health facilities, therefore, offer more access to health services compared to other health facilities.

In terms of association between respondents enrolled into a health insurance scheme and access to UHC, respondents who were enrolled into a health insurance scheme ($p = 0.043$), their average monthly income ($p < 0.001$), personal assessment of health status ($p = 0.016$) and awareness of benefits of being enrolled into a health insurance scheme ($p = 0.013$) had statistically significant associations with access to UHC. The better assessment an individual has of their health status and with knowledge of benefits of being enrolled into a health insurance scheme, the higher the chances of enrollment with a health insurance scheme.

5.2.2 Health Conditions and Facilities Covered by Health Insurance Schemes

Most of the respondents who were enrolled into a health insurance scheme (86.7%) reported that all health conditions were covered by their various insurance schemes and 80.4% reported that public health facilities were recognized by their insurance schemes. This result agrees with Vera Whole Health (2019) who explained that the National Health Insurance model of a health care system allows health facilities and health care workers to provide and deliver health services without thinking about the intricacies of insurance plans and policies. In this model, the government pays for health services through insurance to private and public providers. Health services are accessed by all irrespective of ability to

pay, there is no competition for profits and all dues are paid. The government of Makueni County pays for health services through Makueni Care (the local UHC programme in the county) while the national government pays for health services through NHIF.

In terms of association between health conditions and facilities covered by health insurance schemes and access to UHC, health facilities recognized by insurance schemes had a statistically significant association with access to UHC ($p = 0.026$). If an individual's preferred health facility is recognized by a particular health insurance scheme, this increases chances of enrollment and vice versa.

5.2.3 Perceptions towards Health Insurance

Majority of the residents of Makueni Sub County (80.1%) earn less than Kshs. 4,999, 28.9% of them were not enrolled with any type of health insurance scheme and only 46.2% were willing to pay for health insurance. Despite the low socio-economic status of the residents of Makueni Sub County, 71.1% of residents were enrolled into a health insurance scheme hence their willingness to pay for health insurance. However, the calculated statistical mean of accessibility for perceptions on health insurance showed that respondents who were not willing to pay for health insurance had more access to UHC (mean of mean accessibility = 3.401) than those who were willing to pay (mean of mean accessibility = 3.198). This could be because people who are not willing to pay for health insurance would rather seek health services from state owned hospitals since services provided in these facilities are sponsored by the government making them affordable (Otieno, Wambiya, Mohamed, Donfouet, Mutua, 2019).

Health insurance premiums were not affordable for 44.5% of the residents of Makueni Sub County. These results agreed with those of Masengeli (2017) who stated that high cost of

premiums discourage people from enrolling with health insurance while low premiums attract enrolment. He also stated that even with low cost of monthly premiums, regular payments for the same is a challenge for many rural people. Masengeli further stated that not being able to meet the requirements for regular payment of premiums can result in not enjoying the benefits of having insurance cover when needed even though some premiums have been paid. This reveals the ineffectiveness of insurance in LMICs which is an obstacle to UHC (El-Sayed, Vail, Kruk 2018).

Overall, 28.9% of the residents of Makueni Sub County were not enrolled with any type of health insurance scheme. Some of the reasons for non-enrollment were lack of a disposable income, no extra source of income, high cost of premiums and lack of knowledge of where to register. In addition to this, PHC services are provided free of charge in dispensaries, health centers, sub county hospitals and at the county referral hospital (Gathara, 2018). These findings were supported by those of Mukangendo, (2018) who determined that majority of residents in Cameroon are low-income earners who do not have extra sources of income to enroll themselves with CBHI schemes. The way premiums are paid for is cumbersome and also discourages people from enrolling with CBHI schemes.

5.3 Types of Health Insurance and Access to UHC

This study determined that type of health insurance enrolled with had a statistically significant association with access to UHC (p = 0.004). These results concur with the findings by Fang (2020) that type of health insurance influences access to health services. Private health insurance is procured by affluent citizens and employers to cover costly services not paid for by public insurance as well as deductibles, copayments and other cost

sharing and thus private health insurance is associated with improved access to health services compared to public health insurance.

The respondents who were enrolled with a health insurance scheme were either covered by BRITAM, NHIF or Makueni Care (some were covered by both NHIF and Makueni Care). This result agrees with Matsuda (2020) who stated that Japan has been able to achieve UHC through the Statutory Health Insurance System which covers 99% of the population (59% through Employment-Based Insurance and 40% through Residence-Based Insurance). This result also agrees with Fronstin (2019) who stated 62% of Americans were covered by Employer-based health insurance. The health care system for the USA is predominantly funded through health insurance which is both private and public.

Majority of the respondents who were enrolled with a health insurance scheme were covered by Makueni Care. The scheme was introduced by the county government in 2016 to increase access to health services (Government of Makueni County, 2018). Within four years, 91,059 (37.2%) HHs were registered with the scheme (Government of Makueni County, 2020) out of a total of 244,669 HHs (Kenya National Bureau of Statistics, 2019). The success of the scheme is in sharp to contrast to the NHIS in Nigeria where only 4% of citizens are enrolled with the scheme as at December 2016, ten years after introduction of the scheme in the country as was established by Ernst and Young Global Limited (2018). The scheme is also more successful than the NHIP in India through which health services are delivered. The scheme was introduced in the country in 2008, and, by the end of 2018 only 37% of citizens were enrolled with any type of medical cover (Gupta, 2020). Introduction of Makueni Care and enrollment with the scheme has increased access to health services.

In terms of mode of payment for health services, 35.3% of respondents paid for health services OOP. This result was in agreement with that of Gupta (2020) who showed that India is still heavily dependent on OOP payments which contribute 65% of THE to finance the health care system. In Ghana, the European Union (2019) established that financing for health is sourced from government expenditure which contributes 50% of THE with the other 50% coming from the private sector (6% from private insurance, 10% from NGOs and 34% from OOP payments). In South Africa, Rispel (2018) found out that the country spends 8.5% of its GDP on health care. Half of this money is allocated to the private sector and the other half to the public health system where OOP payments are made for health services and to which 84% of the population accesses health services from. These results are backed by those of Mills (2014) who established that 50% of the sources of funds for health care in underdeveloped countries is from OOP payments unlike 30% in average income countries and 14% in developed countries.

5.4 Strengths and, Limitations of the study and how they were Minimized

Different variables were used to evaluate access to health services, which fall under the five measurements of access which must be used together to get an authentic evaluation of access to health services. Given that they must be used simultaneously, a statistical mean was calculated to account for this guideline. Responses to the variables that were used in the study were assigned a value from one to six in ascending order. The higher the value assigned, the more access to UHC and the lower the value assigned, the less access to UHC. A mean for these values was calculated for each respondent to determine access to UHC (mean accessibility) for each respondent. This approach allowed comprehensive evaluation of access to UHC.

Respondents of the study were sourced from Makueni Sub County which has a mix of both rural and urban communities; a characteristic that is representative of the entire county. As a result, the findings can be generalized to Makueni County but not the entire country because Makueni County has a special health care programme that is unique to itself and is not common in other counties in the country. Nevertheless, information availed can be used to enrich UHC in the country.

At the time of proposal development and approval, there were 32 CHUs attached to health facilities. During data collection, the number of CHUs attached to health facilities had increased to 49. However, the study was still restricted to 32 CHUs. To avoid selection bias, the 32 CHUs were selected using simple random sampling.

Respondents to be interviewed were identified from community health registers in the 32 CHUs selected to participate in the study. This locked out residents who may never have visited the CHUs that participated in the study. However, because the respondents live in different villages, the sampling procedure ensured there was equal chance of selection for all respondents.

CHAPTER SIX

CONCLUSIONS AND RECOMMENDATIONS

6.1 Conclusions of the Study

i) Enrollment into a health insurance scheme increases access to UHC. The factors that influence enrollment are level of income, personal assessment of health status, awareness on benefit of owning health insurance, health facilities recognized by insurance schemes and perception on health insurance.

ii) The more an individual is aware of the benefit of being enrolled into a health insurance scheme, has a good assessment of their personal health status as well as perception on health insurance and their preferred health facility is recognized by their health insurance scheme, the more one is likely to enroll themselves into a health insurance scheme irrespective of income level.

iii) The type of health insurance scheme an individual is enrolled with determines their access to UHC. Specifically, enrollment into Makueni Care, compared to other health insurance schemes, results in the highest access to UHC among residents of Makueni County.

6.2 Recommendations

The following recommendations are made.

i) Registration for enrollment with Makueni Care should be decentralized so as to encourage more heads of households to enlist with the insurance scheme.

ii) Government of Makueni County should consider monthly installment payments for the annual fee charged on registration into Makueni Care to encourage more HHs to register themselves with the health insurance programme. This is because out of the 28.9% of respondents who were not enrolled into any health insurance scheme,

64.7% cited lack of disposable income, while 35.3% cited high cost of premiums, lack of awareness on insurance schemes and not knowing where to register for insurance cover.

6.3 Dissemination of Findings

Findings of this research will be distributed as follows.

i) A copy of the dissertation shall be submitted to the Department of Public and Global Health, University of Nairobi for future reference by scholars seeking information on health insurance.

ii) A report on the results of the study shall be shared with the County Director Health Services, Makueni County. The investigator shall request for a face-to-face meeting with the director to elaborate further on details of the report and observations made when collecting data. The investigator shall also request that same information be shared with the County Executive Committee Member for Health for policy consideration.

iii) An executive summary of the dissertation shall be submitted to the Kenyatta National Hospital-University of Nairobi Ethics and Research Committee to be part of the data base that will be consulted in future when processing related research studies to minimize chances of duplication or plagiarism.

iv) A manuscript shall be submitted to a peer-reviewed journal for possible publication.

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Appendix I: MAP OF MAKUENI COUNTY
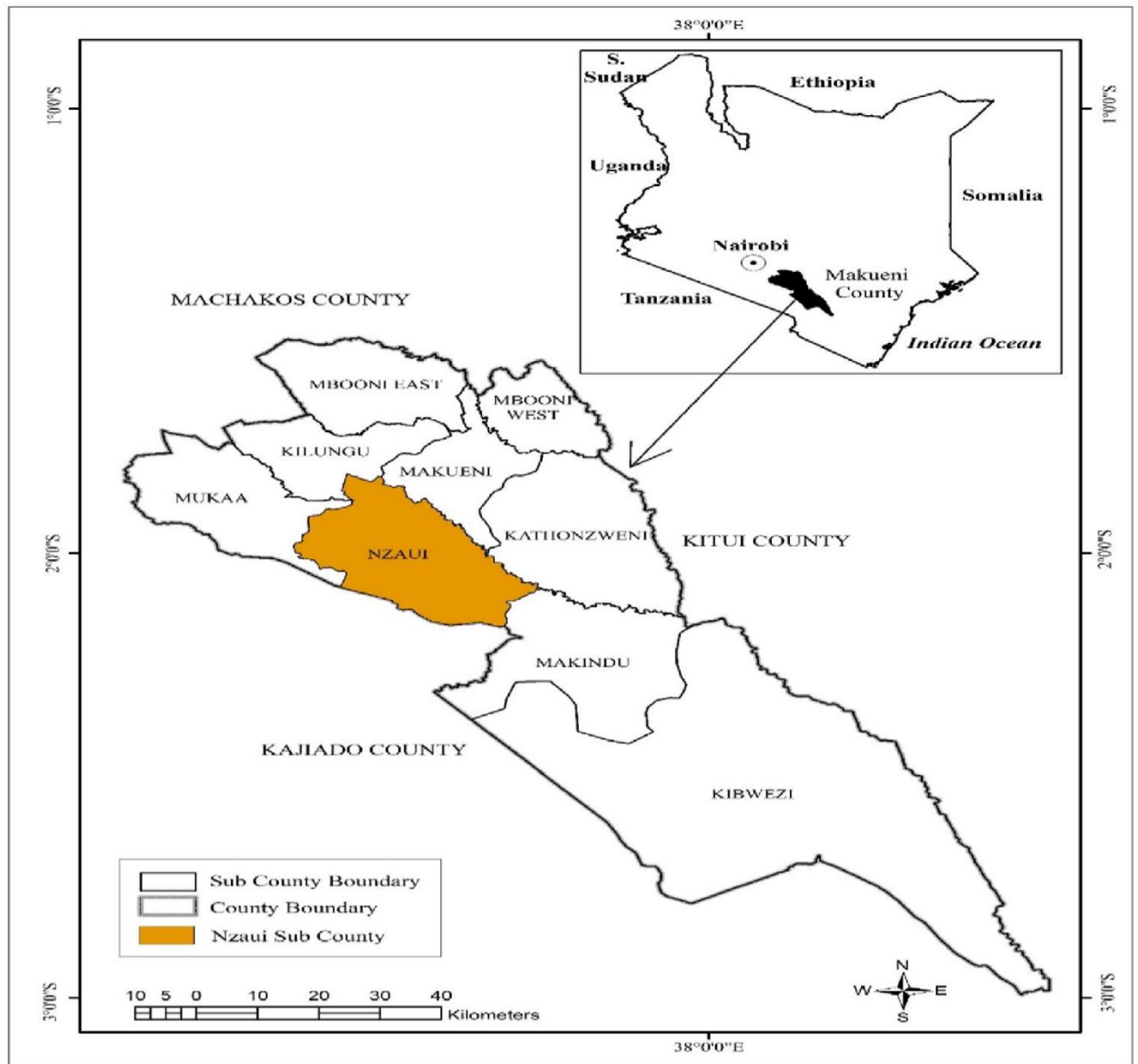
Appendix II: HOUSEHOLD SURVEY QUESTIONNAIRE (ENGLISH)

I am a student at the Department of Public and Global Health, Faculty of Health Sciences, University of Nairobi pursuing a Master's degree in Public Health. I am currently conducting a research project to **ASSESS THE ASSOCIATION BETWEEN HEALTH INSURANCE AND ACCESS TO UNIVERSAL HEALTH CARE IN MAKUENI COUNTY, KENYA.** I request for your participation in the research by sparing some time to answer the following questions. I will appreciate if you could answer all the questions; however, feel free not to answer any question you are not comfortable with.

Guideline: Tick the appropriate box and write answers on the spaces provided where applicable.

Questionnaire number _____

Community Unit _____

Village _____

Ward _____

Sub-County _____

Interviewer ID _____

Date _____

SECTION A: SOCIO-DEMOGRAPHIC INFORMATION

1. Sex of participant? Male [   ] Female [   ]

2. What is your age? _____

3. What is your date of birth? _____

4. How   many dependents   do   you/   the   head   of   your

      household   have?

5. What is the highest level of school you attended?

      Primary [ ] Vocational [ ] Secondary [ ] Higher [ ]

6. What is your current marital status?

      Never married [ ] Married [ ] Separated [ ] Divorced [ ] Widowed [ ]

7. What is your source of livelihood?

Formal Employment [ ] SME Trading [ ] Farming [ ] Support from children [ ] Other,

specify_____

SECTION B: ENROLMENT OF HEALTH INSURANCE

8. Do you know what the purpose of health insurance is?   Yes [ ]   No [ ]

    i)   What   then   is   the   purpose   of   health
    insurance? _____

9. Are you enrolled into a health insurance scheme?   Yes [ ]   No [ ]

i) If you are not enrolled into a health insurance scheme, why is that the case?

_____

10.   What health conditions are covered by the insurance?

    All conditions [ ]   All conditions except maternity [ ] All conditions except cancer [
    ]

        All conditions except AIDS [   ] Limited number of conditions (specify)
    _____ _____

11.   Which health facilities are recognized by your health insurer?

     Private [ ] Public [ ] Faith based [ ] All [ ] Other, specify _____

12.   What is   your   average   monthly   level of   income? _____

13.   How would you assess your own health status?

          Excellent [ ] Good [ ] Average [ ] Poor [ ]

14.   Are you aware that you and your family members can benefit from owning a health
insurance cover?   Yes [ ]   No [ ]   Do not know [ ]

15.   Tick the appropriate box in the table below to indicate your opinion on health
insurance.

Perceptions	Strongly Agree (5)	Agree (4)	Neither Agree nor Disagree (3)	Disagree (2)	Strongly Disagree (1)
Cost of treatment is too expensive.					
Health insurance premiums are affordable to residents of Makueni Sub County.					
Residents of Makueni Sub County are willing to pay for health insurance.					
Health insurance should be made mandatory for all residents of Makueni Sub County.					

SECTION C: TYPES OF HEALTH INSURANCE

16. Do you know what health insurance is? Yes [ ] No [ ]

    i) What types of health insurance do you know? _____

17. Out of these types of health insurance you have mentioned, which one do you have? _____

18. Have you paid for health services in the past? Yes [ ] No [ ]

i) How did you make the payments? Cash [ ] NHIF [ ] Private Insurance [ ] Community Based Insurance [ ] Employment Based Insurance [ ] Other, (specify) _____

    ii) If you have never paid for health services, why is that the case? _____
_____

19. How much would you consider to be a high medical bill?
_____

20. What are some of the challenges you have encountered in relation to paying for health services? _____
_____

    21. How can health financing in the county be improved? _____

SECTION D: ACCESS TO UNIVERSAL HEALTH CARE

22. What is your preferred source of health care in case of illness or need for other health services?

No action [ ]
Traditional/herbal healer [ ]
Government health facility [ ]
Private health facility [ ]
Faith-Based health facility [ ]
Self-medication/visit a pharmacy [ ]
Spiritual intervention [ ]
Other (specify) _____

23.In the past 12 months is there an instance when you needed health services but could not access them because of cost? Yes [ ] No [ ]

23. Have you incurred transport costs to seek treatment at a health facility in the past?

Yes [ ] No [ ]

i) If you have incurred transport costs, how much did you pay? _____

ii) If you have not incurred transport costs, why is that the case? _____

25. Was the sickness you were seeking treatment for well diagnosed? Yes [ ] No [ ]

i) If the sickness was well diagnosed, how did you know? _____

_____

ii) If the sickness was not well diagnosed, why do you say so? _____

_____

26. How long did it take you to get treatment from the time you arrived at the health facility mentioned above? _____

27. What means of transport did you use to access the health facility where you sought treatment?

Walking [ ] Matatu [ ] Donkey Cart [ ] Taxi [ ] Motor Bike [ ] Other, specify _____

28. How long on average did it take you to travel to that health facility for treatment?
_____

29. How many times have you visited a health facility for treatment in the past 12 months? _____

30. To what extent do you agree with the statement that "health services are accessible?

Strongly Agree [ ] Agree [ ] Neither Agree nor Disagree [ ] Disagree [ ] Strongly Disagree

Thank you for your time and participation!

Appendix III: <u>MAKULY'O KWA EKALI MA MAKUENI.</u>

Nyie ni mumanyiwa kuma sukulu wa kisomo kya Iulu wa Nairobi, nisomea maundu makonanitw'e na utheu wa ene nthi na ino ni degree yakwa ya keli sukuluni usu. Kwa uu ta mumanyiw'a, ndyianisya mawatho ma sukulu nikolanya mausungio ma maukuly'o aa kuma kwa ekali ma makueni vala ngwithiwa ndisisya utaanyo kati wa uima wa mwii na utumiki wa mbesa wa ene nthi Maitetheka kwisila sivitali kilioni kya County ya Makueni (**ASSESS THE ASSOCIATION BETWEEN HEALTH INSURANCE AND ACCESS TO UNIVERSAL HEALTH CARE IN MAKUENI COUNTY, KENYA).**

Kwoou, nimukuly'a kwa ndaia mundetheesye na masungio ma makuly'a aa. Ni useu ku sungia makuly'a unthe, lakini, mundu nu atie ila iona atatonya kusungia.

Mutalatala wa kusungia: Andika usungio kasandukuni kala kaneganitwe na uyikia kawonanyo vala vailite (/).

Namba ya ikulyo _____

Sivitali wa vakuvi _____

Utui _____

Kilio _____

Kisio_____

Namba ya kivandi ya mukulya _____

Matuku _____

<u>KILUNGU KYA A: MAUNDU MA KUMANYANA KWA ULIKU.</u>

1.   Wi munduume kana mundu muka? Mundu Uume [   ] Mundu Muka [   ]

2.   Myiaka   yaku   ni   yiana? _____

3.   Matuku   maku   makusyawa? _____

4.   Wi   na   syana   syiana /kana   kwaku mwikalaa   mwi   meana? _____

5.   Usomete ukavika va? Sukulu wa Musingi [ ] Sekondali [ ] Sukulu wa Kisomo kya Iulu [ ]   Sukulu ya Umanyisi wa Useuvya syiendu [ ]

6.   Wi mutwae/nutwanite kana nduna amba utwawa /kutwaana?

       Ndimutw'ae [ ] Nimutw'ae[ ] Nitutianite [ ] Nitwataanisye [ ] Ndiwa [ ]

7.   Uthukumaa wia wiva kukwata mukate wa kila mutheya?

Ni Muandike [ ]   Viasala ( ) Kuima [ ] Ndethaw'a ni syana [ ] Nzia ingi, elesya

96

KILUNGU KYA B: MAWIIYLANDIKITHYA KWA MUUNGAMII MA UIMA WA MWII.

8.   We ni wisi kitumi kya kwithiwa na uiiti wa kuungamiwa?   Yii[ ]   Ayiee[ ]

   i)   Ethiwa   ni   yii,   elesya?
_____

9.   We   wina   uiiti   wiva   wa   kuungamiwa mauwau? _____

10.   Ala makuungamie maunduni ma uiiti wa uima wa mwii, maungamiaa mauwau meva?

   Mouwau monthee [ ]   Mauwau monthe ateo kutetheka (kusyaa) [ ] Mowau

monthee ateo wa "cancer" [ ] Mowau monthee ateo ukimwi [ ] Mowau manyuve

(Elesya) _____ _____

11.   Ni sivitali syiva uivia ula ukuungamie utonye kwosa uiiti wendekana?

Syaene [ ] Sya Silikali [ ] Sya Makanisa [ ] Syoonthe [ ] Ingi, Tasyiva

_____

12.   Kwa   kusisya   nita   ukwataa   mbesa syiana ata   kwa   mwei?
_____

13.   Utonya kwasya ata iulu wa maundu ma uima waku wa mwii?

     Maseo vyu[ ] Maseo [ ] Mekatikati [ ] Nimathuku [ ]

14.   We niwisi kana we na nyumba yaku nomutetheke kwisila kuungamiwa maunduni ma

uiiti?   Yii [ ]   Aiyee[ ]   Ndyisi [ ]

Mawooni	Ningwitikila vyu (5)	Nigwitikila (4)	No nitikilane kana ongaleana (3)	Ningule ana(2)	Ninalea na vyu (1)
Moiiti me ngalama na mbesa mbingi?					
Uivio wa ungamie wa moiiti niwitikalanilye na mivuko ya ekali ma Makueni Sub County.					

Ekali ma Makueni Sub County nimeyumbanity'e kuivia uugamiwa maundu ma umia wa mwii.					
Kuungamiwa kwa uiiti kwa ekali ma Makueni Sub County nikwailit'e kwithiwa kwi lazima.					

15. Tumia wonany'o (/) vala vailite kasandukuni unengane woni waku maunduni ma uungamie wa uima wa mwii.

KILUNGU SYA C: MITHEMBA YA MAUUNGAMII MA MOIITI.

16. We niwisi uiiti wa kuungamiwa ni kyau? (Health insurance) Yii [ ]   Ayiee [ ]

   i) Ethiwa ni yiie, wielewa ata maundu ma uiiti wa kuungamiwa? _____

17. Nthini wa miviani isu ya uungamie wa uiiti waweta, we waku ni wiva? _____

18. Nuiviia maundu ma uiiti?   Yii [ ]   Aiyee [ ]

i)   Ethiwa ni yii, uivia aata? Mbesa syaku [ ] NHIF [ ] Ungamii wa ene [ ]
     Kwisila kikundi kha ene nthi [ ] Kuiviwa ni kampuni ula ukuandikite wia [ ]
     Nzia ingi, (elesya) _____

ii) ii) Ethiwa ni ayiee, elesya
     kitumi_____

19. Nita mbesa syiana ila utonya kwasya ni mbingi maunduni ma uiiti mundu utonya kwitw'a sivitali? _____

20. Ni maundu meva utonya kwasya me viny'a uvitilite uyiivia maudu mamoiiti ma uima wa mwii?

_____

21. Ni kyau ukwona twailite kwika ukethia ngalama ya uiiti ite yiulu kwa mwene nthi na uyithia maundu ma uima wa mwii ni maaila? _____

KILUNGU SYA. D .KUVIKILA KWA MOIITI OONTHE MA UIMA WA MWII

22.   Utony'a kwendeew'a ni nzia yiva ya uiiti wa uima wa mwii vaneethiwa ve vata wa uiiti?

Vati umwe [ ]

Sivitali ya Ene [ ]

Sivitali ya Silikali [ ]

Sivitali ya Makanisa [ ]

Kuvoyewa ni Muthukumi wa Ngai [ ]

Uiiti wa ndawa sya miti /mundu mue [ ]

Kwi yiita mwene kana kuuw'a ndawa
ndukani ya ndawa [ ]

Nzia ingi (Elesya) _____

23.   Novatonyekane kana myei 12 mivitu ni wiithiw'e na vata wa uiiti wa mwii na waemwa kuiitwa sivitale nunndu twii na mbesa sya kuivia uiiti? Yii [ ]   Aiyee [ ]

24.   Nuivaa tikiti wa kuthi umantha maundu ma uiiti?   Yii [ ]   Aiyee[ ]

i)   Ethiwa   Ni   yii,   ni   ta   mbesa syiana ata? _____
ii)   Ethiwa   ni   aiyee, elesya niki   utaivaa _____
_____

25. Uwau ula wamathaa kutetheka, niwamanyikanie nesa? Yii [ ] ayiee [ ]

i)   Ethiwa   ni   yii,   wamanyie   ata? _____
ii)   Ethiwa   ni   ayiee, elesya kitumi kya   kulea? _____
_____

26.   Wekalile   ta   ivinda yiana ata   uikwata   uiiti kuma wa
        vika   sivitali? _____

27.   Watumie nzia yiva ya kuthi sivitali ukakwate uiiti?

Naendie na mauu [ ] Matatu [ ] Ing'oi [ ] Ngali ya mwene [ ] kamota [ ] Ngali yakwa [
] kisululu [ ] Nzia ingi (elesya) _____

28.   Wakuie masaa meana kuvika sivitali? _____

29.   Ni mala meana uendete sivitali kwa kavinda ka myei 12 mivitu? _____

30.   Utonya kwitikila ata tuyasya "niwaw'o moiiti ma uima wa mwii nimakwatikanaa"

Nineetikila vyu [ ] Nineetikila [ ] Nonitikile kana Ongalea [ ] Ninaleana [ ] Naleana vyu [ ]

Nimuvea muno nundu wa kutunenga masaa na kutwitikilila kyithwa kilio kya amwe ala makusungia makuly'o!

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Facebook: ttps://www.facebook.com/uonknh.erc
Twitter: @UONKNH_ERC ttps://twitter.com/UONKNH_ERC

KENYATTA NATIONAL HOSPITAL (KNH)
P O BOX 20723 Code 00202
Tel: 726300-9
Fax: 725272
Telegrams: MEDSUP, Nairobi

PARTICIPANT INFORMATION AND CONSENT FORM

FOR ENROLLMENT IN THE STUDY

(To be administered in English or any other appropriate language e.g Kiswahili translation)

Title of Study: Association between Health Insurance and Access to Universal Health Care in Makueni County, Kenya.

Principal Investigator\and institutional affiliation: Ruth Wambua, University of Nairobi

Co-Investigators and institutional affiliation:

Introduction

I would like to tell you about a study being conducted by the above listed researchers. The purpose of this consent form is to give you the information you will need to help you decide whether or not to be a participant in the study. Feel free to ask any questions about the purpose of the research, what happens if you participate in the study, the possible risks and benefits, your rights as a volunteer, and anything else about the research or this form that is not clear. When we have answered all your questions to your satisfaction, you may decide to be in the study or not. This process is called 'informed consent'. Once you understand and agree to be in the study, I will request you

to sign your name on this form. You should understand the general principles which apply to all participants in a medical research: i) Your decision to participate is entirely voluntary ii) You may withdraw from the study at any time without necessarily giving a reason for your withdrawal iii) Refusal to participate in the research will not affect the services you are entitled to in this health facility or other facilities. We will give you a copy of this form for your records.

May I continue? YES / NO

This study has approval by The Kenyatta National Hospital-University of Nairobi Ethics and Research Committee protocol No—————————————————

WHAT IS THIS STUDY ABOUT?

The researchers listed above are interviewing individuals who are residents of Makueni Sub

County. The purpose of the interview is to find out whether there is an association between health insurance and access to universal health care. Participants in this research study will be asked questions about health insurance. Participants will also have the choice to undergo test such as N/A.

There will be approximately 423 participants in this study randomly chosen. We are asking for your consent to consider participating in this study.

WHAT WILL HAPPEN IF YOU DECIDE TO BE IN THIS RESEARCH STUDY?

If you agree to participate in this study, the following things will happen:

You will be interviewed by a trained interviewer in a private area where you feel comfortable answering questions. The interview will last approximately 30 minutes and will cover topics such as socio-demographic information, enrollment into health insurance schemes, types of health insurance and access to universal health care.

After the interview has finished, we will ask for a telephone number where we can contact you if necessary. If you agree to provide your contact information, it will be used only by people working for this study and will never be shared with others. The reasons why we may need to contact you include: clarifying any information that may not be clear from your questionnaire.

ARE THERE ANY RISKS, HARMS DISCOMFORTS ASSOCIATED WITH THIS STUDY?

Medical research has the potential to introduce psychological, social, emotional and physical risks. Effort should always be put in place to minimize the risks. One potential risk of being in the study is loss of privacy. We will keep everything you tell us as confidential as possible. We will use a code number to identify you in a password-protected computer database and will keep all of our paper records in a locked file cabinet. However, no system of protecting your confidentiality can be absolutely secure, so it is still possible that someone could find out you were in this study and could find out information about you.

Also, answering questions in the interview may be uncomfortable for you. If there are any questions you do not want to answer, you can skip them. You have the right to refuse the interview or any questions asked during the interview.

ARE THERE ANY BENEFITS BEING IN THIS STUDY?

You may benefit by receiving free health information from the Community Health Volunteers who are assisting with conducting the research. We will refer you to a hospital for care and support where necessary. Also, the information you provide will help us better understand access to universal health care in the sub county. This information is a contribution to science and research.

WILL BEING IN THIS STUDY COST YOU ANYTHING?

Participating in this study will not cost you anything, however, you will be required to spare some time for answering the questions.

WILL YOU GET REFUND FOR ANY MONEY SPENT AS PART OF THIS STUDY?

There will be no monetary compensation for participation in this research.

WHAT IF YOU HAVE QUESTIONS IN FUTURE?

If you have further questions or concerns about participating in this study, please call or send a text message to the study staff at the number provided at the bottom of this page. For more information about your rights as a research participant you may contact the Secretary/Chairperson, Kenyatta National Hospital-University of Nairobi Ethics and Research Committee Telephone No. 2726300 Ext. 44102 email uonknh_erc@uonbi.ac.ke. The study staff will pay you back for your charges to these numbers if the call is for study-related communication.

WHAT ARE YOUR OTHER CHOICES?

Your decision to participate in research is voluntary. You are free to decline participation in the study and you can withdraw from the study at any time without injustice or loss of any benefits.

CONSENT FORM (STATEMENT OF CONSENT)

Participant's Statement

I have read this consent form or had the information read to me. I have had the chance to discuss this research study with a study counselor. I have had my questions

answered in a language that I understand. The risks and benefits have been explained to me. I understand that my participation in this study is voluntary and that I may choose to withdraw any time. I freely agree to participate in this research study. I understand that all efforts will be made to keep information regarding my personal identity confidential. By signing this consent form, I have not given up any of the legal rights that I have as a participant in a research study.

I agree to participate in this research study: **Yes**   **No**

I agree to provide contact information for follow-up: Yes   No

Participant printed Name: _____

Participant Signature / Thumb Stamp: _____ **Date**:

_____

Researcher's statement

I, the undersigned, have fully explained the relevant details of this research study to the participant named above and believe that the participant has understood and has willingly and freely given his/her consent.

Researcher's Name:_____ Signature: _____ **Date**:

_____

Role in the study: *[i.e. study staff who explained informed consent form.]*

For more information contact Ruth Wambua at +254 714 151 354 from 9:00am to 5:00pm

Witness Printed Name (*If witness is necessary, A witness is a person mutually acceptable to both the researcher and participant*)

Name _____ **Contact information**_____

Signature /Thumb Stamp: _____ **Date**: _____

Appendix V: INFORMED CONSENT FORM (KIKAMBA)

UNIVERSITY OF NAIROBI (UoN)
COLLEGE OF HEALTH SCIENCES
P O BOX 19676 Code 00202
Telegrams: varsity
(254-020) 2726300 Ext 44355

KNH-UoN ERC
Email: uonknh_erc@uonbi.ac.ke
Website: http://www.erc.uonbi.ac.ke
Facebook: ttps://www.facebook.com/uonknh.erc
Twitter: @UONKNH_ERC ttps://twitter.com/UONKNH_ERC

KENYATTA NATIONAL HOSPITAL (KNH)
P O BOX 20723 Code 00202
Tel: 726300-9
Fax: 725272
Telegrams: MEDSUP, Nairobi

Maundu ma ayuve na witikilany,o wa kukulywa mokulyo masomoni aa na mutalatala wa andu aima.

maundu ma uelesyo kwa uliku wa mukulya wa mausungio ma makulyo na witikilano wa kukulyw'a

kwitikilywa kwithywa kilio kya masomo aa.

Kieleelo kya masomo:Utaanyo wa Uugamiwa wa Uitii na Ukwati wa Moiiti thini wa Kaounti ya Makueni

Muthiana wa makulyo: Ruth Wambua, University of Nairobi

Mutetheesya wa Mothiani ma Mokulyo:

mwambiliiyo :

Eka nose mwanya wa ukuelesya iulu wa uthiani uu ukwikwa ni thiani aa munaniywi vau iulu. Kitumi kya ithangu yii ni kukwata kimbithi kwoondu wa kwika utwi wa kwitikilana kana kuleana na makulyo .Nundu wa ou ithiwa wi na uthasyo munene kukulya makulyo withiwa na Mo Kwoondu wa kwitikila Kwithwa umwe wa mukulyw'a ona kethiwa ni muisyo ula utonya kumana na mausungio ala uunegane Kana kindu withiwa Utekuelewa Nesa ithanguni Yii kana utethyo ukwata kwisila kwiiyumya kusungio maukulyo . Twa kwatiania Kusugia Mokulyo ithaguni yii No witikIle kana ukaleana na noiwe utonya kwika utwi waku mwene. Weetikilana

106

nuukuly'wa Wikie saii wa kana niweetikila nokana withiwe wimwianie no tikwa kusukumiimwa. II nikumana na maundu ta ala methiawa mauduni Ma uthiani ta aa:

a. Kwitikilya kukulywa ti kwa kusukumiiwa, nikwiiyumya.

b. No uleane   na mothiani ivida yonthe utonya kulea kwondu wa itumi syaku mwene.

c. kuleana na kusugia kwitonya Kutuma wia waku ukwatwa ni mathina kana ulika muisyoni.

Itina wa maundu onthe nukanegwa   ithagu   yimwe wie ya kililikany'o sya kusugia makuly'o.

Kwondu wa uu , nukwitikila kana nukuleana?   Yii/ayee

Uthiani uu   niwitikilitwe Ni   muvia   wa Sivitali   munene   wa Kenyatta vanmwe   na mutalatala wake na walanyo wothe wa uugamii Wa sivitali usu.

Kisomo kii kikonanity'e na syau?

Uthiani uu Uwetetwe Ni wa mokulyo Kwa ekali on the Ma Makueni kaunti kwondu wa kukwata utaany'o iulu wa ugamie wa mooiti na ukwati wa mo kilioni kiu.

Esililyw'a ala matonya ala   matony'a kukulya maokulyo Ni 423 Ala menyuvwa oou vatekusakua.

.

kutonya Kwikika ata weetikilana na masomo aa?

Aa ni mo Maundu matonya kwikika kumana na witikilano wa masomo aa

If you agree to participate in this study, the following things will happen:

I. Ukakulywa Makulyo ni aundu mena utuika wivandu vaku va kimbithi mwene kwa kavida ka datika ta 30 kwisilana na maudu thayu misyini,moiiti ma kuugamiwa Ni mivia ,na mithemba ya moiiti.

.

itina wa mokulyo mundu nutonya kuelesya maundu angi methywa mamuthinasya ta kumya thakame ,Na mautai ma Muuo wa kyongo na angi ta asu.

Okavidani kau tukeethiwa tuyiukulya namba syaku sya imu nokana tumanye nzia ya kukukwata ila twenda uelesyo kwa uliku kwondu wa masomo aa, twi kuikithya kana namba syaku sya simu ikanenganwe kwa mundu ungi ateo we.

nokutonyeke Kukethiwa na muisyo kana nzika kumana na masoma aa. ?

 Andu mena umanyi na utuika mwigi mena vinya wa kusiia maundu ma misyo ,mawiisilyo Kumana na masomo aa.   Maundu ta kumaalya maudu ma kimbithi maku makeethiwa Masiilitwe Na namba ya kimbithi ila itakumanyithany'a .

Novatonyeka ukethywa makulyo amwe utekwenda kusingizia. No   uekane   namo nikwithya wi nauthasyo wa kisugia kana kulea kusungia. II nikwiana na wendi wa ngoo yaku .

Nokethiwa makulyo amwe makwithasya woo walilikana .alamakulasya methiawa Na utuika wakukulya na kukiakiasya Ngoo Yaku Ndukathinike Ni kiu.

Nokethiwa ukwata moumisya   kwisilana masomo aa ,noukune namba ya simu ila yimwiso wa ithangu yii na nukutetheka kwa mituki. ve mauseo Kwisila masomo aa?

-Notonya kutetheka na kuutwa vate ndivi Kisila masono aa kana utakumwa sivitali igi ikaunega maoiiti ma uima wa mwii.

-Kwisila mausugio nitutonya kwambatasya mouuiti Thini wa kaunti

ya makueni   -mausugia   aa nomatumike kuthiana   dawa   sya

mauwau kivathukanyo. **ve kindu   kikwendeka   nikana withywe**

umwe wa musugia wa mokulyo?

Kwitha wi umwe vati kindu nongi kikwendekana Ateo datika na masaa maku mwene makusungia mokulyo.

(LiliKana)Uu ti wia ai wasungia mokulyo witye ndivi. Va ti Ndivi

nowithiwe wina ikulyo ivinda Yukite.?

No utume utumane kwa no isu tuneganite na nuukwata kutetheka. Kama ukakuna sivitali munene wa kenyatta kwisila nambani ila ineganitwe.Telephone No. 2726300 Ext. 44102 email uonknh_erc@uonbi.ac.ke.

Ula usikanite na maundu maSivitani akakusugia makulyo oonthe na nuutetheka. Nowithiwe na moyuvi angi?

Kwiiyumya Ni unyuvi waku ilu wa masomo aa.

Ithangu ya witikilano

Maundu ma mwitikili wa mokulyo.

Ninisomete na kaelewa ithangu yii kwisila maundu ma mivia ya uthiani .nisugiitwe mokulyo monthe na ngaelesywa vati ndivi nikwiiyumya na misyo yoonthe ninieleetwe Ni mundu wina utuika na ngetikila kiiyumya Mana. Kwondu wa uo nigwikia saii ta wonany'o WA witikilo wakwa .

nigwitikila masomo aa	Yie	Aiyee
Nigwitikila mausugio metumika mithenya yukite. :	Yie	Aiyee
Nigwitikila kunegane namba ya simu Kwa kuatiiwa :	Yie	Aiyee

Isyitwa ya mukulywa / saii wa Syaa..Sya kwoko................... Matuku......
Maundu ma mukulywa. ....

Nyie, Ta Muthiani uandikitwe Ninieleetye mukulywa uyu maundu ma ithangu yii na akaelewa na eenengane mana kutetheesya masomo aa Mana vatekusukumiiwa. .

Isyitwa ya Muthiani : _____ Saii: _____ Matuku: __

Kieleelo sya masomo aa: *[i.e. study staff who explained informed consent form.]kwa* uvoo kwa uliku. Kuna simu kwa Ruth Wambua at +254 714 151 354 Kuma 9:00am to 5:00pm (mukussiie ethiwa ve umwe........

Isyitwa: _____ **Saii wa syaa sya kwoko:**

_____ Nzia sya kuneena: _____

Matuku: _____

Appendix VI: KENYATTA NATIONAL HOSPITAL UNIVERSITY OF NAIROBI ETHICS AND RESEARCH COMMITTEE

UNIVERSITY OF NAIROBI
COLLEGE OF HEALTH SCIENCES
P O BOX 19676 Code 00202
Telegrams: varsity
Tel:(254-020) 2726300 Ext 44355

KNH-UON ERC
Email: uonknh_erc@uonbi.ac.ke
Website: http://www.erc.uonbi.ac.ke
Facebook: https://www.facebook.com/uonknh.erc
Twitter: @UONKNH_ERC https://twitter.com/UONKNH_ERC

KENYATTA NATIONAL HOSPITAL
P O BOX 20723 Code 00202
Tel: 726300-9
Fax: 725272
Telegrams: MEDSUP, Nairobi

Ref: KNH-ERC/A/85

4th March 2021

Ruth Mwelu Wambua
Reg. No.H57/8123/2006
School of Public Health
College of Health Sciences
University of Nairobi

APPROVED
0 4 MAR 2021
KNH/UoN-ERC

Dear Ruth

RESEARCH PROPOSAL – ASSOCIATION BETWEEN HEALTH INSURANCE AND ACCESS TO UNIVERSAL HEALTH CARE IN MAKUENI COUNTY, KENYA   (P586/10/2020)

This is to inform you that the KNH- UoN Ethics & Research Committee (KNH- UoN ERC) has reviewed and **approved** your above research proposal. The approval period is 4th March 2021 – 3rd March 2022.
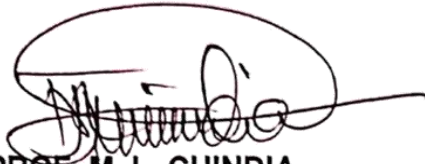
This approval is subject to compliance with the following requirements:

a. Only approved documents (informed consents, study instruments, advertising materials etc) will be used.
b. All changes (amendments, deviations, violations etc.) are submitted for review and approval by KNH-UoN ERC before implementation.
c. Death and life threatening problems and serious adverse events (SAEs) or unexpected adverse events whether related or unrelated to the study must be reported to the KNH-UoN ERC within 72 hours of notification.
d. Any changes, anticipated or otherwise that may increase the risks or affect safety or welfare of study participants and others or affect the integrity of the research must be reported to KNH- UoN ERC within 72 hours.
e. Clearance for export of biological specimens must be obtained from KNH- UoN ERC for each batch of shipment.
f. Submission of a request for renewal of approval at least 60 days prior to expiry of the approval period. (*Attach a comprehensive progress report to support the renewal*).
g. Submission of an *executive summary* report within 90 days upon completion of the study. This information will form part of the data base that will be consulted in future when processing related research studies so as to minimize chances of study duplication and/ or plagiarism.

Protect to discover

111

For more details consult the KNH- UoN ERC website**http://www.erc.uonbi.ac.ke**

Yours sincerely,

PROF. M. L. CHINDIA
SECRETARY, KNH-UoN ERC

c.c.   The Principal, College of Health Sciences, UoN
         The Senior Director, CS, KNH
         The Chairperson, KNH- UoN ERC
         The Assistant Director, Health Information Dept, KNH
         The Director, School of Public Health, UoN
         Supervisors: Dr. Richard Ayah, School of Public Health, UoN
                      Dr. Jacqueline Chesang, School of Public Health, UoN

Appendix VII: NATIONAL COMMIION FOR SCIENCE, TECHNOLOGY AND INNOVATION

REPUBLIC OF KENYA

NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION.

Ref No: 475426

Date of Issue: 30/April/2021

RESEARCH LICENSE

This is to Certify that Miss.. Ruth Mwelu Wambua of University of Nairobi, has been licensed to conduct research in Makueni on the topic: Association Between Health Insurance and Access to Universal Health Care in Makueni County, Kenya for the period ending : 30/April/2022.

License No: **NACOSTI/P/21/10265**

475426

Applicant Identification Number

Director General
NATIONAL COMMISSION FOR
SCIENCE,TECHNOLOGY &
INNOVATION

Verification QR Code

NOTE: This is a computer generated License. To verify the authenticity of this document.
Scan the QR Code using QR scanner application.

THE SCIENCE, TECHNOLOGY AND INNOVATION ACT, 2013

The Grant of Research Licenses is Guided by the Science, Technology and Innovation (Research Licensing) Regulations, 2014

CONDITIONS

1. The License is valid for the proposed research, location and specified period

2. The License any rights thereunder are non-transferable

3. The Licensee shall inform the relevant County Director of Education, County Commissioner and County Governor before commencement of the research

4. Excavation, filming and collection of specimens are subject to further necessary clearance from relevant Government Agencies

5. The License does not give authority to transfer research materials

6. NACOSTI may monitor and evaluate the licensed research project

7. The Licensee shall submit one hard copy and upload a soft copy of their final report (thesis) within one year of completion of the research

8. NACOSTI reserves the right to modify the conditions of the License including cancellation without prior notice

National Commission for Science, Technology and Innovation

off Waiyaki Way, Upper Kabete,

P. O. Box 30623, 00100 Nairobi, KENYA

Land line: 020 4007000, 020 2241349, 020 3310571, 020 8001077

Mobile: 0713 788 787 / 0735 404 245

E-mail: dg@nacosti.go.ke / registry@nacosti.go.ke

Website: www.nacosti.go.ke

Appendix VIII: COUNTY DIRECTOR HEALTH SERVICES

REPUBLIC OF KENYA COUNTY

GOVERNMENT OF MAKUENI

OFFICE OF COUNTY DIRECTOR HEALTH SERVICES
PO BOX 89-90300 MAKUENI
Email:countyhealthmkn@gmail.com   contact@makueni.go.ke
Website: www.makueni.go.ke

REF: GMC/DOH/CDH/GEN.VI/ (190)   17th May, 2021

Ruth Mwelu Wambua
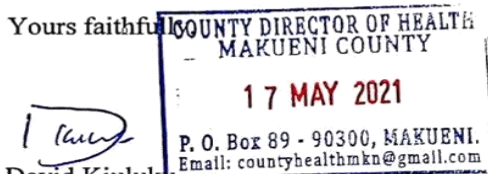University of Nairobi

RE: AUTHORIZATION TO CARRY OUT RESEARCH

Reference is made to the letter referenced:475426 dated 30th April, 2021 regarding the above matter.

You are hereby authorized to undertake research on *"Associatin between Health Insurance and Access to Universal Health Care. A Case of Makueni County"*

By a copy of this letter, the SCMOH – Makueni is requested to accord you the necessary assistance for the success of your research work.

Yours faithfully

COUNTY DIRECTOR OF HEALTH
MAKUENI COUNTY

1 7 MAY 2021

P. O. Box 89 - 90300, MAKUENI.
Email: countyhealthmkn@gmail.com

David Kiuluku
Director Health Services
Makueni County
Cc:
- ECM –Health Services
- CO –Health Services
- Director(s) Health
- SCMOH- Makueni

115

Appendix IX: COUNTY COMMISSIONER MAKUENI COUNTY

OFFICE OF THE PRESIDENT
MINISTRY OF INTERIOR AND COORDINATION OF NATIONAL GOVERNMENT

Telegram:
Telephone: 0743-987-177
Fax:
Email: *cc.makueni@interior.go.ke*

COUNTY COMMISSIONER
MAKUENI COUNTY
P.O. Box 1-90300
MAKUENI

Ref: MKN/CC/ADM.6/1 VOL.IV/67

17th May, 2021

Ruth MweluWambua
UNIVERSITY OF NAIROBI

RE: RESEARCH AUTHORIZATION

Reference is made to Director General National Commission for Science Technology and Innovation Research License **Ref. No. NACOSTI/P/21/10265** dated **30th April, 2021** on the above subject.

You are hereby authorized to undertake research on **"Association between Health Insurance and Access to Universal Health Care in Makueni County"** for the period ending *30th April, 2022.*

By a copy of this letter the Deputy County Commissioners are requested to give you the necessary assistance.

P. NYORO
FOR: Ag. COUNTY COMMISSIONER
MAKUENI

C.C.
County Director of Education
MAKUENI COUNTY

Deputy County Commissioners
MAKUENI COUNTY