UTILIZATION OF THE NATIONAL HOSPITAL INSURANCE FUND AMONG COMMUNITY MEMBERS IN EMBU COUNTY, KENYA

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A RESEARCH PROJECT SUBMITTED IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE AWARD OF THE DEGREE OF MASTER OF SCIENCE IN PUBLIC HEALTH SYSTEMS MANAGEMENT AND APPLICATION IN THE SCHOOL OF PUBLIC HEALTH AND APPLIED HUMAN SCIENCES OF KENYATTA UNIVERSITY

FEBRUARY, 2019
DECLARATION

This project is my original work and has not been presented for a degree in any other University.

Signature ………………………………………… Date ………………………………

Oren Nyambane Ombiro
Q142/39048/2016

Supervisor:

This project has been submitted for review with my approval as University Supervisor.

Signature………………………………………………… Date ……………………..

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DEDICATION

This project is dedicated to my parents and my sister; as well as all Kenyans who seek health services in the context of constrained resources.
ACKNOWLEDGEMENTS

I thank God for His grace during the entire project period. I thank all my lecturers at Kenyatta University, School of Public Health and Applied Human Sciences, as well as those from the Improving Public Health Management for Action (IMPACT) program of the US Centers for Disease Prevention and Control (CDC) from whom I have learned a lot. I am particularly grateful to my supervisor Dr. George O. Otieno, as well as Alison Yoos for their unwavering support, guidance and feedback throughout the project period. Moreover, I appreciate Prof. Ephantus Kabiru, Dr. Harun Kimani, Dr. Peterson Warutere, Erika Willacy, Grace Wanjau, Dr. Joseph Kibachio and Dr. Gladwell Gathecha for the mentorship, inspiration and encouragement they offered me during my studies.

To my loving mother Yuniah Ombiro and my sister Eva Mokeira, thank you very much for your support, encouragement and understanding throughout my study period. I further extend my gratitude to the county health management team, health workers, data collectors and all the respondents in Embu County who participated in this project. To my classmates many thanks for the support system you provided.
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<th>Full Form</th>
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<tbody>
<tr>
<td>CDC</td>
<td>Centers for Disease Prevention and Control</td>
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<tr>
<td>CHV</td>
<td>Community Health Volunteer</td>
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<tr>
<td>FGD</td>
<td>Focus Group Discussion</td>
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<td>GOK</td>
<td>Government of Kenya</td>
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<tr>
<td>HISP</td>
<td>Health Insurance Subsidy Program</td>
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<tr>
<td>IMPACT</td>
<td>Improving Public Health Management for Action</td>
</tr>
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<td>KDHS</td>
<td>Kenya Demographic and Health Survey</td>
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<tr>
<td>KEPH</td>
<td>Kenya Essential Package for Health</td>
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<tr>
<td>KII</td>
<td>Key Informant Interview</td>
</tr>
<tr>
<td>KNBS</td>
<td>Kenya National Bureau of Statistics</td>
</tr>
<tr>
<td>KIPPPRA</td>
<td>Kenya Institute for Public Policy Research and Analysis</td>
</tr>
<tr>
<td>MOH</td>
<td>Ministry of Health</td>
</tr>
<tr>
<td>NACOSTI</td>
<td>National Commission for Science, Technology and Innovation</td>
</tr>
<tr>
<td>NHIF</td>
<td>National Hospital Insurance Fund</td>
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<tr>
<td>OOP</td>
<td>Out-of-Pocket payments</td>
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<tr>
<td>SID</td>
<td>Society for International Development</td>
</tr>
<tr>
<td>SDGs</td>
<td>Sustainable Development Goals</td>
</tr>
<tr>
<td>SPSS</td>
<td>Statistical Package for Social Sciences</td>
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<tr>
<td>UHC</td>
<td>Universal Health Coverage</td>
</tr>
<tr>
<td>UN</td>
<td>United Nations</td>
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<td>WHO</td>
<td>World Health Organization</td>
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DEFINITION OF TERMS

Adverse selection- Tendency of health insurance uptake to be more skewed towards persons likely to get ill and therefore likely to draw from the risk pool (Parmar et al, 2012).

Capitation- A payment arrangement for health care service providers e.g. for health insurance where a set amount is given for each enrolled person assigned to them per given period of time, whether or not the enrollee seeks care (Miller, 2009).

Catastrophic health expenditure- This is out-of-pocket expenditure exceeding an individual/household’s ability to pay; usually defined at a threshold of ten percent of total household consumption and/or forty percent of non-food spending (Kimani & Maina, 2015).

Dependent variable – This is usually the outcome measure in a study. That which a researcher is usually interested in predicting. The characteristic/factor influenced, affected or predicted by other characteristics/factors in the study (Flannelly et al, 2014).

Impoverishing health expenditure-Expenditure on adverse health event(s) that forces a household to divert spending away from essential non-medical budget items e.g. food to such an extent that they are pushed below the poverty line (Xu, 2005).

Independent variable – A measurable characteristic or factor that is presumed to have an effect on/predict another characteristic (Flannelly et al, 2014)
Out-of-pocket expenditure – A form of payment for health services directly incurred (usually in cash) by individuals or households at the time of service use (World Health Organization, 2017).

Universal Health Coverage - A framework aimed at ensuring all people access quality and effective health services while ensuring that utilization of these services doesn’t result in financial ruin (WHO, 2016).

Sustainable Development Goals - A set of 17 goals agreed upon by UN member states as a follow up to the Millennium Development Goals whose term elapsed in 2015. They are set to be achieved by 2030 (United Nations, 2015).
ABSTRACT

Health insurance schemes have been recognized as among the major tools to finance Universal Health Coverage (UHC). The Kenyan government has identified the National Hospital Insurance Fund (NHIF) as one of the vehicles towards achievement of UHC, with the goal to cover 100% of the population by 2022. Catastrophic health expenditure in Embu County stands at 9%, higher than the national average of 6.2%, yet NHIF coverage remains low. There is paucity of data on the extent of NHIF utilization and whether it meets the needs of the insured. Consequently, this study set out to determine the utilization of NHIF in Embu County, Kenya. The study employed a mixed-methods study design that incorporated both quantitative and qualitative methods. A community based cross-sectional survey was conducted on households identified through systematic sampling. Data was collected using a semi-structured pre-tested questionnaire, focus group discussions and key informant interviews. Quantitative data was analyzed using the Statistical Package for Social Sciences software version 23 while qualitative data was analyzed thematically. Less than half of the respondents (n=113; 40.8%) were enrolled with NHIF despite a vast majority (n=262; 94.6%) reporting to have ever heard of the fund. Among those enrolled with NHIF, only about a third (37.2%) were predominantly using the fund to meet their health service needs. Majority of the respondents (n=255; 92.1%) routinely paid for health services despite abolition of user fees in primary care facilities. Over half (54.9 %) of the respondents reported that they had ever failed to access a health service they needed because of cost in the preceding 12 months. Majority (n=147; 53.1%) reported paying out of pocket to access health services. Socio-demographic factors were shown to influence enrollment into NHIF. Employment status was significantly associated with NHIF enrollment, with enrolment being highest among those employed (69%) compared to the self-employed (37.3%) and the unemployed (24.2%) (p=0.007). Increase in wealth index was significantly associated increasing NHIF enrollment, with the proportion of those in lowest wealth quintile having NHIF being 16.1% compared with 67.6% among those in the highest wealth quintile (p=0.033). Of those who were not enrolled with NHIF, 53.7% reported the premiums were too high, 25% reported they didn’t know how to enroll or how the fund works, 17.6% reported they didn’t find NHIF useful and 3.7% were not interested. Availability of services and commodities, flow of capitation/reimbursement funds from NHIF through the county accounts to health facilities, requirement to co-pay in some facilities, distance to an accredited facility and limited knowledge on the scope of services covered influenced the extent to which those enrolled with NHIF actually utilized the fund to meet their health service needs. In conclusion, NHIF utilization in this community was low and was influenced by socio-demographic and health system determinants. The assessment recommended targeted enrollment in the informal sector, better means of creating awareness about NHIF services and packages, improved flow of capitation/reimbursement funds, increased number of accredited facilities and strengthened service delivery especially at lower level facilities to improve the effectiveness of the fund.
CHAPTER ONE: INTRODUCTION

1.1 Background of the Study

Globally, about 100 million people are pushed into extreme poverty annually due to excessive out-of-pocket spending on health (WHO, 2016). Further, high out-of-pocket payments can discourage communities from seeking or continuing healthcare (United Nations, 2013). It is against this backdrop that the United Nations (UN) member states agreed to work towards achievement of Universal Health Coverage (UHC) by 2030 in line with the Sustainable Development Goals (United Nations, 2015). The third Sustainable Development Goal (SDG3) where UHC falls aims at improving access to quality and effective healthcare for the entire population while protecting against catastrophic and impoverishing health expenditure (United Nations, 2015).

Africa and Asia have 1.4% and 1.9% rates of impoverishment respectively. These two regions account for 97% of the world’s population impoverished through out-of-pocket health spending. The African region has the fastest increase in population facing catastrophic health expenditure globally at an average 5.9% per annum. (WHO & World Bank, 2017). This is despite the fact that Africa faces a public health crisis, with a lingering burden of communicable diseases and rising incidence of non-communicable diseases and injuries (World Health Organisation, 2014). The WHO Regional Committee for Africa recommends prepayment schemes to expand health insurance coverage and reduce out-of-pocket payments (Carapinha et al, 2010).

While the constitution guarantees access to quality health services as a fundamental right (GoK, 2010), millions of Kenyans are unable to enjoy this right, largely because they cannot afford to pay for all their health service needs. Approximately 83% of the Kenyan population have inadequate financial protection from health care costs, with
about 1.5 million being pushed into poverty annually due to expenditure on health (Ministry of Health, 2014). About 16% of ill persons do not get medical attention because of financial limitations and 38% are forced to either borrow or sell their belongings so as to meet their health needs (Luoma et al., 2010).

High out of pocket health spending (approximately a third of the total health expenditure) is a big barrier to accessing health services in Kenya and easily drives households into poverty (World Bank Group, 2014). In line with WHO recommendations, the country has adopted contributory prepayments (general tax revenues and the National Health Insurance Fund) as the main means for financial protection against catastrophic health spending and has given a target of 100% coverage by 2022 (KIPPRA, 2018). With this target the country has essentially adopted the global UHC tagline of ‘leaving no one behind’ in as far as access to essential health services is concerned (Government of Kenya, 2017). However, despite the fact that public health insurance has been available in the country since 1966, insurance coverage is estimated to be at 19% (Kenya National Bureau of Statistics, 2018b). Formal research studies conducted on health insurance in Embu County have mostly focused on population sub-groups e.g. pregnant women, with National Hospital Insurance Fund (NHIF) projections for the county as at 2014 estimating a low coverage of 33.5% (Ministry of Health, 2015).

1.2 Statement of the Problem

In Embu County, catastrophic health expenditure stands at 9%, higher than the national average of 6.2% (Ministry of Health, 2014), yet NHIF coverage is low. This is compounded by the fact that a third of the Embu community live below the poverty line (Kenya National Bureau of Statistics, 2018b). Even among those who are enrolled in NHIF (subsequently referred to as the fund), there is paucity of data on the
extent of utilization and whether it meets the needs of those insured. Low insurance enrollment coupled with poor utilization keeps people from using the services they need, or they stand a risk of being impoverished through high out-of-pocket expenditure. Taking these into consideration, this study therefore sought to explore the various modes of payment for health services and the determinants of utilization of NHIF in Embu County.

1.3 Justification

The role of NHIF in the proposed and continuing reforms on health financing in Kenya makes it an important driver towards the attainment of UHC and therefore a critical subject for in-depth assessment. In a county with fairly high rates of catastrophic health spending, high poverty levels compounded by projected low insurance coverage, this study has the potential to reveal important findings that would inform health financing interventions for Embu and even the country at large.

1.4 Research Questions

1. What modes of payment for health services are used by community members in Embu County?

2. What socio-demographic determinants influence the utilization of NHIF in the Embu community?

3. Which health system factors influence the utilization of NHIF among the Embu County community members?

1.5 Hypothesis

$H_0$: Socio-demographic and health system factors do not determine utilization of the National Health Insurance Fund among community members in Embu County.
1.6 Objectives

1.6.1 Broad Objective

To assess utilization of National Hospital Insurance Fund among community members in Embu County, Kenya.

1.6.2 Specific Objectives

This assessment addressed three specific objectives:

1. To determine the modes of payment for health services by community members in Embu County
2. To determine the socio-demographic characteristics of the Embu community that influence utilization of NHIF
3. To assess the health system determinants of utilization of NHIF among Embu County community members

1.7 Significance

The Kenyan Government has over the years aspired towards universal health coverage, with NHIF being identified as one of the key financiers for this. The study findings will help both the National and Embu County Government to understand not just the enrollment, but the entire spectrum of utilization so as to devise interventions to maximize the effectiveness of the fund. The greatest beneficiary will be the general public who seek health services, as the findings will inform what is working well and areas of improvement to protect them from impoverishing and catastrophic expenditure on health. In return this will potentially improve access to health services and achieve UHC towards better health outcomes.
1.8 Limitations and Delimitations

The study was limited in scope to the users of NHIF i.e. community members and health facility managers rather than the provider i.e. NHIF as an institution. However, work has been done to assess the processes and management of NHIF as an institution (Government of Kenya, 2016; Health Policy Project, 2016; Munge et al, 2017; Mwaura et al., 2015), and we made reference to these studies where needed.

The assessment collected cross-sectional observational data, thus just association and not causality can be inferred.

The study was delimited by geographic boundaries i.e. within the county of Embu in Kenya.

1.9 Conceptual framework

This study relied on the conceptual framework adopted from Dror et al, 2013 to understand the determinants of utilization of NHIF in Embu County, Kenya. The framework looks at determinants of voluntary social/national health insurance, under which NHIF fits. According to this conceptual framework, demographic characteristics such as age, sex, marital status and residence determine whether one gets enrolled with voluntary social health insurance and consequently the extent of its utilization. This is also the case for socio-economic and behavioral factors such as the level of education, occupation, wealth index, household size and preferred source of health services. Health system factors may also determine utilization of health insurance. For instance, access to needed health services may determine whether one sees the benefit of utilizing health insurance. Similarly, the cost of premiums and information dissemination about the scheme and its benefits might influence the likelihood of utilizing health insurance. Health financing systems in a given jurisdiction may also facilitate or hinder how health insurance is utilized. The focus of
this study was to interpret the dependent variable as a likelihood of utilizing NHIF given other explanatory/independent variables.

Figure 1.1 outlines the proposed interaction among the hypothesized variables that were used in this study as derived from this conceptual framework.

<table>
<thead>
<tr>
<th><strong>Independent variables</strong></th>
<th><strong>Dependent variable</strong></th>
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<tr>
<td><strong>Demographic characteristics</strong></td>
<td>NHIF Utilization</td>
</tr>
<tr>
<td>Age</td>
<td></td>
</tr>
<tr>
<td>Sex</td>
<td></td>
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<td>Marital status</td>
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<td>Residence</td>
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<tr>
<td><strong>Socio-economic and behavioral factors</strong></td>
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<tr>
<td>Education</td>
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<tr>
<td>Occupation</td>
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<tr>
<td>Wealth index</td>
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<td>Household size</td>
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<td>Preferred source of health services</td>
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<td><strong>Health System Factors</strong></td>
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<td>Access to needed services</td>
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<td>Cost of premiums</td>
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<td>Information availability</td>
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<td>Health financing systems</td>
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Source: Adopted and modified from Dror et al., (2013)

Figure 1.1: Conceptual framework for utilization of NHIF
CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

This chapter explores the existing literature related to utilization of health insurance, forms of health financing and health financing reforms in Kenya including NHIF. It also discusses the socio-demographic and health system determinants of health insurance utilization, while highlighting the knowledge gaps which need to be addressed.

2.2 Utilization of health insurance

Utilization refers to both enrollment with health insurance and the extent to which it is used to meet the health service demands of the enrollee (Wang et al., 2013). Studies have shown that coverage does not necessarily translate to utilization of insurance. For instance, Wang et al, (2013) state that despite high health insurance coverage in China, it is not used in all instances that require health services. Fang et al, (2012) and Sussmuth-Dyckerhoff & Jin, (2010) in their studies in Taiwan and China respectively reported that even households under health insurance coverage incurred substantial out of pocket costs, at times even beating the point of being insured in the first place. This leads to inequitable access to health services. Utilization has been shown to provide a better measure of effectiveness of health insurance than just coverage (Nguyen et al., 2012). Optimal utilization of health insurance has the potential to cut down out-of-pocket expenditure and thereby increase access to health care as well as mitigate financial ruin on households (Qingyue et al, 2011). Even as Kenya and individual counties push for increased insurance coverage particularly through NHIF, understanding the whole scope of utilization is important to ensure its effectiveness in meeting its intended objectives of achieving UHC.
2.3 Forms of health financing

Countries and various jurisdictions use a variety of mechanisms to finance their health services. These include direct payments (e.g. out-of-pocket) and taxation/government allocation. Another way is private/commercial insurance, which is for profit and entails payment of pre-set premiums. Community health insurance has also been recently recognized, and membership is usually associated with community based initiatives e.g. women groups. Another form that has gained prominence is public/national health insurance schemes. A jurisdiction may have a mix of several forms, even if one or more are dominant. The predominant form(s) has a major impact on the way health care is accessed and delivered (OECD & WHO, 2017).

2.3.1 Out of pocket health expenditure

This mode of payment is ordinarily incurred in the form of user fees and co-payments. User fees were introduced in many African countries during the 1980s as a response to economic constraints and increasing donor pressure (Maina & Kirigia, 2015). Countries that use this form of financing argue that it helps to cater for service delivery costs through additional revenue and rationalize utilization of health services. However, this has been shown to be counterproductive as it constitutes a major barrier to access and leads to catastrophic health expenditure (World Health Organization, 2017). Given that out-of-pocket payments are often fixed amounts regardless of socio-economic group, revenues generated through this form of health expenditure are regressive or unfair as they place a larger financial burden on the most disadvantaged members of society. Their disregard to the patient’s ability to pay hinders equity, a major pillar of UHC (World Health Organization, 2018).
2.3.2 Pre-payment health financing systems

Prepayments such as contributory (health insurance) and non-contributory mechanisms (general government revenues) are regarded as some of the most efficient financing systems for UHC (WHO, 2010). Their popularity stems from their potential to raise and pool large revenues, foster income and risk cross subsidization, in addition to increasing financial access to health services (WHO, 2017). Owing to their tendency to include a large proportion of the population, they address adverse selection, take advantage of economies of scale and enhance equity in access to health services. Further, being largely domestic sources makes pre-payment methods more sustainable and predictable, promotes country ownership and is a departure from overreliance on donor funding (McIntyre, 2012).

2.3.3 Evolution of health financing in Kenya

Financing reforms to make health care affordable and accessible in the country started shortly after independence with Sessional Number 10 of 1965 that provided for NHIF and a National Provident Fund (Government of Kenya, 1965). Out-of-pocket expenditure was formally introduced through cost sharing in 1989 due to budgetary constraints and declining donor support (Mwabu et al, 1995). In 2004, the Government drastically reduced user fee to Kenya Shillings (Kshs.) 10 in dispensaries and Kshs. 20 in health centers, popularly known as the 10/20 policy (Chuma et al, 2009; Ministry of Medical Services, 2012). However, this policy did not achieve the expected impact due to non-compliance by service providers, as well as the fact that out-of-pocket payments of whatever level tend to negatively impact on health seeking behavior (Chuma et al., 2009).

More recent reforms include abolishing user fees in primary care facilities, free maternity care (Calhoun et al, 2017; Chuma et al, 2013) and waivers (Chuma et al,
However, the higher-level hospitals continue to be the main drivers of health expenditure (approximately 33% of total public health expenditure) due to high cost of specialist services and larger patient flows (World Bank Group, 2014). Moreover, compliance with policies that reduce or abolish user fees in Kenya has been shown to be poor due to commodity shortages, low revenue and poor planning and implementation (Chuma et al., 2009). Waiver implementation has also been problematic. For instance, the decision on who should be waived is often difficult and subjective, and the process of getting a waiver is usually unknown to patients, complex and time consuming (Chuma et al., 2009). These challenges explain why out-of-pocket expenditure has remained high despite the numerous reforms. Households contribute to 32.8% of current health expenditure (Ministry of Health, 2017). This is largely untenable in a country where 36.1% of its population live below the poverty line (Kenya National Bureau of Statistics, 2018b; World Bank Group, 2018). The country thus adopted a phased approach to eventually achieve national insurance coverage in the medium term (Fund, 2010).

### 2.3.4 The National Hospital Insurance Fund

This fund is a prepayment public contributory health insurance mechanism that was established in 1966 under the Ministry of Health and is the oldest government health insurance program in Africa (Lagomarsino et al, 2012). NHIF was established as a state corporation through an Act of Parliament in 1998 that was later amended in 2012 (Republic of Kenya, 2012). It receives funds mainly through member contributions which are statutory deductions from persons employed in the formal sector (based on income level) and voluntary (flat-rate) for those in the informal sector/self-employed. In its strategic plan 2014-2018, NHIF committed to expand coverage in the informal sector and among indigent populations through government support (NHIF, 2014).
Some of the initiatives to achieve this included health insurance subsidy programs (Mwaura et al., 2015; World Bank, 2014), health insurance for the elderly and people with severe disabilities program (Kenya National Bureau of Statistics, 2018a) and a package for all public secondary school students (NHIF, 2018). Contributors and their dependents have access to comprehensive inpatient services in government-owned health facilities. Some private facilities may however ask for co-payment. There are also packages that provide access to a variety of outpatient services (Munge et al., 2017). The benefit package has been expanded to include outpatient, inpatient, diagnostic, emergency evacuation and some specialized services such as surgery, treatment of cancer and kidney disease (National Hospital Insurance Fund, 2018).

The Government has declared UHC as one of its ‘Big Four’ agenda, an elaborate plan for the country’s development in the period 2018-2022. NHIF has been adopted as one of the vehicles towards achievement of UHC, with a target of 100% coverage by 2022 (Government of the Republic of Kenya, 2017), as well as 50% reduction in out-of-pocket expenditure by the same year (KIPPRA, 2018).

However, despite the existence of NHIF in the country for over five decades and several policy recommendations, the coverage still remains low. Literature and government sources report varying coverage. Sessional Paper No. 7 on UHC reported a 25% coverage. This was a Government report deriving the figures from NHIF database (Ministry of Medical Services, 2012). The Kenya Demographic Health Survey (KDHS) of 2014 reported that 14.3% of women and 17.6% of men were covered under NHIF. The World Bank, in a 2015 publication estimated NHIF coverage to be 18% (Mwaura et al., 2015) while the Kenya Integrated Household Budget Survey 2015/16 estimates the national insurance coverage to be 19% (Kenya National Bureau of Statistics, 2018b). The Kenya Institute for Public Policy Research
and Analysis in its March 2018 Policy Monitor reported that the Fund had about 6 million registered members i.e. about 15% of Kenyans, benefitting about 36% of the population given that each registered member had an average of 3 dependents. The figures were derived from NHIF database (KIPPRA, 2018). Studies on health insurance in Embu have mostly focused on population sub-groups e.g. pregnant women (Maina et al, 2016), with projections estimating a low coverage of 33.5% (Ministry of Health, 2015).

2.4 Determinants of health insurance utilization

Individual and social factors have been shown to influence the utilization of health insurance. For instance, age, level of education and employment status have been reported in studies in numerous low-and-middle income countries such as Kenya, Zimbabwe, Nigeria and China as influencing insurance utilization (Kimani et al, 2014; Mhere, 2013; Oyekale, 2012; Thuita, 2017; Wang et al., 2013). Level of education was also shown to be associated with health insurance utilization by Nguyen et al., (2012) in a cross-sectional study in Vietnam where they conducted a household survey. Fang et al, (2012) in their study in Taiwan reported that household size and residence (urban vs. rural) were significantly associated with health insurance coverage. Numerous studies in multiple low-and-middle income countries such as Sri Lanka, Taiwan, India, Kenya, Ghana and China have also demonstrated that the higher the wealth index, the greater the likelihood of being in a health insurance scheme (Bendig, 2011; Fang et al, 2012a; Ghosh, 2013; Kimani et al, 2012; Owusu-Sekyere & Chiaraah, 2014; Wang et al., 2013). Sex (Badu et al, 2018; Kimani et al., 2012), marital status (Badu et al., 2018; Kimani et al., 2012) and religion (Badu et al., 2018) have also been cited as determinants of health insurance utilization in studies in Ghana and Kenya. Dalaba et al, (2012) in a quantitative cross-sectional study
conducted through a household survey in Ghana demonstrated that the preferred source of health services influenced utilization of health insurance. System factors such as the structure and functioning of the insurance scheme have also been shown to affect utilization of health insurance in Kenya (Health Policy Project, 2016; Munge et al., 2017; Mwaura et al., 2015). This includes the adequacy and predictability of the flow of funds to health facilities (WHO, 2018). Other health system determinants identified in literature in studies conducted in Africa and Asia include the cost of premiums (Boateng & Awunyor-Vitor, 2013; Fenny et al., 2016; Lagomarsino et al., 2012; Oyekale, 2012; Sundays et al., 2015), need to co-pay/additional out of pocket spending, misunderstanding of the insurance system and limited coverage depth (Khan & Ahmed, 2013; Owusu & Ackah, 2012). Availability of adequate services and commodities in health facilities (Kotoh et al., 2017; Masengeli et al., 2017; Oyekale, 2012) and distance to accredited health facilities (Duku, 2018) have also been shown to influence both enrollment and extent of utilization of health insurance services in Ghana, rural Kenya and Nigeria.

2.5 Summary of literature review and gaps identified

In summary, various forms of health financing exist, with the preferred ones being prepayment methods. Kenya has made strides in reforming its health financing towards UHC. Numerous studies and projections have been done on NHIF coverage, and they report varying but low coverage. The studies reviewed also show that socio-demographic and health system factors influence health insurance utilization. While there are several studies and government reports and projections on NHIF coverage, there is however paucity of data and studies that explicitly explore the entire continuum of utilization of NHIF, and the factors that influence this utilization both in Embu County and even at national level.
CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction
This chapter elaborates the study design, variables, study population, the sample size determination technique and data collection methods that were used. It also describes the data analysis techniques that were employed as well as ethical considerations.

3.2 Study Design
A cross-sectional study design incorporating mixed-methods i.e. quantitative methods (household survey) and qualitative methods was used. Cross-sectional study is an observational study design whereby the investigator measures the outcome and the exposures (dependent and independent variables) in the participants concurrently at a given point in time (Setia, 2016). Mixed methods of data collection provided the advantage of quantifying the study variables and their relationships, as well as eliciting deeper views, opinions and attitudes from the community.

3.3 Variables
3.3.1 Dependent variables
The dependent variable is the outcome of interest for the study. It is the characteristic presumed to be determined or predicted by other characteristics/factors (Flannelly et al., 2014). For this study, the dependent variable of interest was utilization of NHIF. Utilization was described as current enrollment to NHIF either as a contributor or dependant and the extent to which one was able to access all their health service needs through the fund.

3.3.2 Independent variables
Independent variables are measurable characteristics or factors that are presumed to have an effect on or predict another characteristic (Flannelly et al., 2014). In this
study, independent variables were grouped in three sets. Demographic variables included age, sex, marital status and residence. Residence was categorized either as urban/peri-urban, rural-agrarian and rural-semi arid. Socio-economic variables included level of education, occupation, wealth index, household size (number of children) and preferred source of health services. Wealth index was assessed using the Kenya National Bureau of Statistics (KNBS) matrix, which gives 5 wealth quintiles based on consumptive expenditure (KNBS & SID, 2013). The third set was health system variables such as accessibility to the services subscribed for, health financing systems, cost of premiums and availability of information on how to enroll/how the fund works.

3.4 Location of the study

Embú County lies approximately 120 kilometers north-east of Kenya’s capital, Nairobi, at 0.5803° S, 37.6324° E. It covers an area of 2,818km² and consists of 4 administrative sub-counties. The current projected population of the county is 577,390, with 284,441 males and 292,949 females. The county is served by 157 health facilities and 48 community units (County Government of Embú, 2013).

This location was chosen because Embú is one of the most diverse counties, having an urban, rural agricultural as well as rural semi-arid populations, representing virtually all the possible settings in the country. It is also a cosmopolitan county, hosting people of different tribes, races and religions (County Government of Embú, 2013). This diversity within a relatively limited geographic area made it a suitable site to cost-effectively and efficiently assess the utilization of public health insurance.
Figure 3.1: Map of Embu and its position within Kenya

3.5 Study population

The study population for the cross-sectional survey was community members aged 18 years and above. The target population includes the entire population of Embu that would benefit from the National Hospital Insurance Fund. Key informants included health facility managers of the link health facilities of the targeted community units. Focus group discussion (FGD) participants included community health volunteers (CHVs) and general community members.

3.5.1 Inclusion criteria

Adults aged 18 years and above who were usual residents of Embu County were included in the study.
3.5.2 Exclusion criteria

Minors, persons who were not usual residents of Embu County and those who did not give consent were excluded from the study.

3.6 Sampling technique

Three of the four sub-counties in the county were purposively sampled owing to the fact that they are geographically distinct i.e. one is predominantly urban/peri-urban (Manyatta), one is rural-agrarian (Runyenjes) and one is rural- semi arid (Mbeere South). Mbeere North is partly agrarian and partly semi-arid hence not as distinct as the other three and was not included in the study. One community unit was selected per sub-county using simple random sampling. According to the Kenya Essential Package for Health (KEPH), a community unit is the first level in the hierarchy of Kenya’s levels of health care (Ministry of Health Kenya, 2014). The community units that were selected include Dallas (Manyatta sub-county), Karurumo (Runyenjes sub-county) and Kiritiri (Mbeere South sub-county). The community unit household register was used as the sampling frame. Systematic sampling was then used to identify the households to participate, whereby every kth household was included in the study. K was determined by dividing the total number of households within the community unit by the sample size. The household head or the senior-most person available was interviewed by trained personnel.

For the FGDs, participants were sampled purposively. All the community health volunteers (10 per community unit) in the 3 units were invited to participate. For the general community FGDs, the subjects were approached in local gathering areas of the villages, but the actual discussions were carried out either in social halls, health
facilities or other quiet locations where the subjects could talk freely and openly. Discussion then led to identifying further groups and individuals to participate in a snowball manner till we reached saturation. The participants were selected from different backgrounds including village elders, women and youth group representatives as well as leaders of religious institutions to ensure diversity of views.

3.7 Sample size determination

Sample size was determined using Fisher's *et al.*, (1998) formula i.e.: 

\[ n = \frac{Z^2 pq}{d^2}, \]

where:

\( n \) = desired sample size;

\( Z \) = standard normal deviate – set at 1.96 at 95% confidence level;

\( p \) = proportion of the subjects having the characteristic of interest; for this assessment \( p \) was estimated at 0.26, the average uptake from studies and government projections for this setting;

\( q \) = 1 – \( p \);

\( d \) = absolute precision/acceptable margin of error - set at 0.05 for this assessment

The sample size for this assessment was therefore:

\[ n = \frac{(1.96^2 \times 0.26 \times 0.74)}{0.05^2} = 292. \]

Given that the response rate for similar studies in similar settings ranges from 90% to 100% (J. M. Maina et al., 2016; Ndung’u, 2015), the sample size was adjusted upwards by 5% to cater for possible non-response/spoilt questionnaires, giving a final sample size of 306. This was distributed equally among the three community units, given that a community unit is defined by a standard number of households.
For the focus group discussions, group sizes of ten participants each were used, since the recommended size for an FGD is six to twelve participants (Guest et al, 2017).

**3.8 Research instruments**

A semi-structured, paper-based questionnaire (appendix II) was used to collect data on the variables of interest. Interviews (appendix III) and FGD (appendix IV) guides were used to collect qualitative data. A recorder was used to capture the discussions of the interviews and focus group discussions.

**3.9 Pre-testing**

The tools were pre-tested during a stakeholders’ meetings in the county to introduce the study. The participants of the stakeholders’ meetings included some members of the county health management team, health facility staff in the study sites, community health personnel and community leaders.

**3.10 Validity**

Validity was established during pre-testing where questions were standardized to ensure they collected the required information as per the study variables.

**3.11 Reliability**

Reliability was ensured through recruiting and training experienced research assistants, support supervision and regularly going through filled data collection tools for accuracy, completeness and consistency.

**3.12 Collection of data**

The household survey was conducted through a pretested, paper-based questionnaire administered by trained interviewers on eligible respondents following informed consent. Key informant interviews were conducted with health facility managers and
FGDs with general community members and CHVs. Interviews and focus group discussions were recorded then transcribed.

3.13 Data Analysis

The software Statistical Package for Social Sciences (SPSS) version 23 was used to analyze quantitative data. Descriptive statistics were used to summarize and present statistical information. Inferential statistics were employed to determine relationships between variables in the study. Binary logistic regression was used to calculate odds ratios and derive p-values. A p-value of ≤0.05 was considered significant. Qualitative data was transcribed verbatim then analyzed through a thematic framework approach. This entailed content analysis of the transcripts to determine common themes across and within interviews and FGDs and relationships among these themes were formulated. Findings from the different data sources were then triangulated to draw conclusions and inform recommendations.

3.14 Ethical and Logistical Considerations

The project proposal was submitted to Kenyatta University Graduate School for approval (appendix V) and a research permit was obtained from the National Commission for Science, Technology and Innovation (appendix VI). Informed consent (appendix I) was sought from participants before being recruited. Participation was voluntary and participants could withdraw from the study at any time. The information that was collected was kept locked to safeguard the privacy of participants. Data was collected anonymously and no specific identification information was collected.
CHAPTER FOUR: RESULTS

4.1 Introduction

This chapter presents the findings of the study. A total of 277 respondents participated in the household survey, representing a response rate of 91%. A total of six FGDs and three key informant interviews were conducted. The chapter presents the socio-demographic characteristics of the respondents of the household survey, NHIF utilization, forms of payment for health services in the county and determinants of NHIF utilization in line with the study objectives. The results are presented in form of narrative texts, tables and figures.

4.2 Socio–demographic characteristics of the respondents

In this assessment, majority (n=161; 58.1%) were female. Those aged 35-59 years were 131, constituting 47.3% of the respondents. This was followed by respondents of ages 18-34 years and ≥60 years who made up 34.3% and 18.4% of the sample respectively. The findings also showed that majority (n=181; 65.3%) of the respondents were married.

In terms of religious affiliation, Christians constituted the largest percentage (92.8%) while Muslims constituted 7.2%. The distribution of level of education showed that 118 (42.6%) respondents had secondary education and 102 (36.8%) had primary education. Those who had post-secondary education were 29 (10.5%) while 28 (10.1%) had no formal education. Majority of the respondents were self-employed (55.2%). Those who were in formal employment were 58 (20.9%) while 66 (23.8%) were unemployed. Further, the data showed that majority of the respondents were in the second and middle wealth quintiles at 82 (29.6%) and 78 (28.2%) respectively. In terms of household size, 128 respondents (46.2%) had 1-3 children, 72 (26%) had 4-6 children, 41 (14.8%) had 7 or more children while 36 (13%) had no children.
Majority of the respondents (n=141; 50.9%) preferred to visit a government facility when ill. This was followed by 89 (32.1%) who preferred to self-medicate/visit a pharmacy, while 28 (10.1%) and 19 (6.9%) had private and faith-based health facilities respectively as their preferred choices. Table 4.1 summarizes the socio-demographic characteristics of the respondents.

Table 4.1 Socio-demographic characteristics of the respondents

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Category</th>
<th>n</th>
<th>(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex</td>
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<td>41.9</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>161</td>
<td>58.1</td>
</tr>
<tr>
<td>Age</td>
<td>18-34</td>
<td>95</td>
<td>34.3</td>
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<tr>
<td></td>
<td>35-59</td>
<td>131</td>
<td>47.3</td>
</tr>
<tr>
<td></td>
<td>≥60</td>
<td>51</td>
<td>18.4</td>
</tr>
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</tr>
<tr>
<td></td>
<td>Currently married</td>
<td>181</td>
<td>65.3</td>
</tr>
<tr>
<td></td>
<td>Separated/Divorced</td>
<td>21</td>
<td>7.6</td>
</tr>
<tr>
<td></td>
<td>Widowed</td>
<td>31</td>
<td>11.2</td>
</tr>
<tr>
<td>Residence</td>
<td>Peri-urban</td>
<td>94</td>
<td>33.9</td>
</tr>
<tr>
<td></td>
<td>Rural semi-arid</td>
<td>93</td>
<td>33.6</td>
</tr>
<tr>
<td></td>
<td>Rural agrarian</td>
<td>90</td>
<td>32.5</td>
</tr>
<tr>
<td>Religion</td>
<td>Christian</td>
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<td>92.8</td>
</tr>
<tr>
<td></td>
<td>Muslim</td>
<td>20</td>
<td>7.2</td>
</tr>
<tr>
<td>Level of Education</td>
<td>No formal schooling</td>
<td>28</td>
<td>10.1</td>
</tr>
<tr>
<td></td>
<td>Primary school</td>
<td>102</td>
<td>36.8</td>
</tr>
<tr>
<td></td>
<td>Secondary school</td>
<td>118</td>
<td>42.6</td>
</tr>
<tr>
<td></td>
<td>Post-secondary</td>
<td>29</td>
<td>10.5</td>
</tr>
<tr>
<td>Employment Status</td>
<td>Unemployed</td>
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<td>23.8</td>
</tr>
<tr>
<td></td>
<td>Self-employed</td>
<td>153</td>
<td>55.2</td>
</tr>
<tr>
<td></td>
<td>Employed</td>
<td>58</td>
<td>20.9</td>
</tr>
<tr>
<td>Wealth Quintile</td>
<td>Lowest</td>
<td>31</td>
<td>11.2</td>
</tr>
<tr>
<td></td>
<td>Second</td>
<td>82</td>
<td>29.6</td>
</tr>
<tr>
<td></td>
<td>Middle</td>
<td>78</td>
<td>28.2</td>
</tr>
<tr>
<td></td>
<td>Fourth</td>
<td>52</td>
<td>18.8</td>
</tr>
<tr>
<td></td>
<td>Highest</td>
<td>34</td>
<td>12.3</td>
</tr>
<tr>
<td>Number of children</td>
<td>0</td>
<td>36</td>
<td>13.0</td>
</tr>
<tr>
<td></td>
<td>1-3</td>
<td>128</td>
<td>46.2</td>
</tr>
<tr>
<td></td>
<td>4-6</td>
<td>72</td>
<td>26.0</td>
</tr>
<tr>
<td></td>
<td>≥7</td>
<td>41</td>
<td>14.8</td>
</tr>
<tr>
<td>Preferred source of health services</td>
<td>Public</td>
<td>141</td>
<td>50.9</td>
</tr>
<tr>
<td></td>
<td>Private</td>
<td>28</td>
<td>10.1</td>
</tr>
<tr>
<td></td>
<td>Faith-based organization</td>
<td>19</td>
<td>6.9</td>
</tr>
<tr>
<td></td>
<td>Self-medication</td>
<td>89</td>
<td>32.1</td>
</tr>
</tbody>
</table>
4.3 Utilization of NHIF

Utilization was measured at two levels i.e. the proportion of respondents enrolled with NHIF, as well as the extent to which those enrolled used the fund to meet their health service needs.

4.3.1 NHIF enrollment among respondents

Figure 4.1 provides a summary of NHIF enrollment among the respondents. Less than half of the respondents (n=113; 40.8%) were enrolled with NHIF either as contributors or dependants, despite a vast majority (n=262; 94.6%) reporting to have ever heard of the fund.

![Figure 4.1: Awareness and enrollment status of NHIF](image)

4.3.2 Extent of utilization of NHIF for health service needs

Among those enrolled with NHIF, only 42 (37.2%) were predominantly using the fund for their health service needs. Fifty four respondents, constituting 47.8% of those enrolled had to routinely use out-of-pocket expenditure in addition to NHIF while 17 (15.0%) did not routinely use NHIF to meet their health service needs. These findings are demonstrated in figure 4.2.
Figure 4.2: Extent of NHIF utilization for needed health services

4.4 Modes of payment for health services

Most respondents (n=255; 92.1%) routinely paid for health services despite abolition of user fees in primary care facilities (forgone use fees reimbursed through Government subsidies). On further exploration of this in the FGDs, participants reported they often bypassed lower level facilities to either self-medicate/visit a pharmacy, or to higher level facilities in which they were required pay. This they reported was because of availability of most of the services they needed in the higher level facilities. One participant reported ‘Every time I go to the dispensary they send me to a private lab or to the big hospital in Embu. Why should I go back to the dispensary again?’ Further, more than half (54.9 %) of the respondents reported that they had ever failed to access a health service they needed because of cost in the preceding 12 months.

Majority of the respondents (n=147; 53.1%) reported paying out of pocket to access their health service needs. Those who paid through NHIF were 42 (15.2%) while those who paid both out of pocket and NHIF were 54 (19.5%). Eight (2.9%) paid for
their health services via private insurance while 4 (1.4%) used community-based health insurance. These findings are summarized in figure 4.3.

![Chart showing forms of payment for health services among the respondents](chart)

Figure 4.3: Forms of payment for health services among the respondents

### 4.5 Socio-demographic determinants of NHIF utilization

#### 4.5.1 Demographic determinants of NHIF utilization

Table 4.2 summarizes the analysis of the hypothesized demographic determinants that were assessed in this study. The measure of utilization that was used in this section was the enrollment status into NHIF. A slightly higher proportion of females (41.6%) were enrolled with NHIF compared to males (39.7%), with an odds ratio (OR) of 1.085. However, this difference was not statistically significant (p=0.743). The age group 35-59 had the highest proportion of respondents enrolled with NHIF (43.5%), slightly higher than the age group 18-34 (41.1%). Of those aged 60 years and above, only 33.3% were enrolled with NHIF. Overall, age was not statistically significantly associated with NHIF enrolment (p= 0.457). In relation to marital status, those who were married at the time of the assessment had the highest proportion of NHIF enrollment (44.2%) followed by those who were separated/divorced (38.1%), those who were widowed (35.5%) and those who had never been married (31.8%). Overall,
marital status was not statistically significantly associated with NHIF enrollment (p=0.434). Residents of rural semi-arid and rural agrarian regions had lower proportions of NHIF enrollment (31.2% and 37.8% respectively) compared to those in urban settings (53.2%). These differences were statistically significant with lower odds of enrollment for those in rural semi-arid (OR=0.399; p=0.003) as well as those residing in rural agrarian settings (OR=0.534; p=0.037). Overall, residence was statistically significantly associated with NHIF enrollment status (p=0.008).
Table 4.2 Demographic determinants of NHIF enrollment

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Category</th>
<th>NHIF enrolled</th>
<th>OR (95% CI)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>No (%)</td>
<td>Yes (%)</td>
<td></td>
</tr>
<tr>
<td>Sex</td>
<td>Male</td>
<td>60.3</td>
<td>39.7</td>
<td>Ref: 1.000</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>58.4</td>
<td>41.6</td>
<td>1.085 (0.667, 1.764)</td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>18-34</td>
<td>58.9</td>
<td>41.1</td>
<td>Ref: 1.000</td>
</tr>
<tr>
<td></td>
<td>35-59</td>
<td>56.5</td>
<td>43.5</td>
<td>1.106 (0.648, 1.889)</td>
</tr>
<tr>
<td></td>
<td>≥60</td>
<td>66.7</td>
<td>33.3</td>
<td>0.718 (0.352, 1.462)</td>
</tr>
<tr>
<td>Marital status</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Never married</td>
<td>68.2</td>
<td>31.8</td>
<td>Ref: 1.000</td>
</tr>
<tr>
<td></td>
<td>Currently married</td>
<td>55.8</td>
<td>44.2</td>
<td>1.697 (0.844, 3.414)</td>
</tr>
<tr>
<td></td>
<td>Separated/Divorced</td>
<td>61.9</td>
<td>38.1</td>
<td>1.319 (0.445, 3.904)</td>
</tr>
<tr>
<td></td>
<td>Widowed</td>
<td>64.5</td>
<td>35.5</td>
<td>1.179 (0.446, 3.114)</td>
</tr>
<tr>
<td>Residence</td>
<td></td>
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</tr>
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<td></td>
<td>Peri-urban</td>
<td>46.8</td>
<td>53.2</td>
<td>Ref: 1.000</td>
</tr>
<tr>
<td></td>
<td>Rural semi-arid</td>
<td>68.8</td>
<td>31.2</td>
<td>0.399 (0.219, 0.725)</td>
</tr>
<tr>
<td></td>
<td>Rural agrarian</td>
<td>62.2</td>
<td>37.8</td>
<td>0.534 (0.297, 0.962)</td>
</tr>
</tbody>
</table>

* = Statistically significant at p=<0.05
Ref. = Reference category

4.5.2 Socio-economic determinants of NHIF utilization

Table 4.3 summarizes the analysis of the hypothesized socio-economic determinants of NHIF enrollment that were assessed in this study. A higher proportion of Christians (41.2%) were enrolled with NHIF compared to their Muslim counterparts (35%). However, this difference was not statistically significant (OR=0.767; p=0.585).

The proportion of those enrolled with NHIF increased with increasing level of education, with those with no formal education having the lowest proportion at 25%, those with primary education at 32.4%, those with secondary education at 44.1% and those with post-secondary education at 72.4%. However, compared with having no
formal education, it is only post-secondary education that was significantly associated with increased the odds of NHIF enrollment (OR=7.875; p=0.001). Overall, level of education was statistically significantly associated with NHIF enrollment (p=0.001).

In regards to household size, those who had 1-3 children had the highest proportion of NHIF enrollment (46.9%) followed by those with no children (41.7%), those with 4-6 children (37.5%) and those with 7 or more children (26.8%). Overall, there was no statistically significant association between household size and NHIF enrollment (p=0.140).

The proportion of NHIF enrollment increased with employment status. Among those who were not employed at the time of the assessment, 24.2% were enrolled with NHIF compared with 37.3% among the self-employed (OR=1.855; p= 0.063). Among those in formal employment, 69% were enrolled with NHIF and had close to 7 times higher odds of being enrolled compared with the unemployed (OR= 6.944; p=<0.001). Overall, employment status was statistically significantly associated with NHIF enrollment status (p=<0.001). Similarly, the proportion of NHIF enrollment increased with increasing household wealth, with the proportion in the lowest wealth quintile being 16.1% compared with 67.6% among those in the highest wealth quintile. Those in the second quintile had close to thrice higher odds of being enrolled with NHIF compared with those in the lowest wealth quintile (OR=2.553; p=0.084). However, compared with the lowest quintile, statistically significant association was only noted with the middle quintile (OR=3.078; p=0.038), the fourth quintile (OR=6.557; p=0.001) and the highest quintile (OR=10.873; p=<0.001).

In terms of preferred source of health services, NHIF enrolment was highest in those who seek services in faith-based organizations (57.9%) compared to 44.0% among those who seek services in government health facilities (OR=1.752; p=0.257).
Enrollment was lowest among those who self-medicate/visit a pharmacy when ill (28.1%) compared to those who seek services in government facilities, and this difference was statistically significant (OR=0.498; p=0.016). Overall, preferred source of health services was statistically significantly associated with NHIF enrollment status (p=0.015).
<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Category</th>
<th>NHIF enrolled</th>
<th>OR (95% CI)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
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<td></td>
<td></td>
<td>No (%)</td>
<td>Yes (%)</td>
<td></td>
</tr>
<tr>
<td>Religion</td>
<td>Christian</td>
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<td>41.2</td>
<td>Ref: 1.000</td>
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<tr>
<td></td>
<td>Muslim</td>
<td>65.0</td>
<td>35.0</td>
<td>0.767 (0.296-1.987)</td>
</tr>
<tr>
<td>Level of Education</td>
<td>No formal schooling</td>
<td>75</td>
<td>25</td>
<td>Ref: 1.000</td>
</tr>
<tr>
<td></td>
<td>Primary school</td>
<td>67.6</td>
<td>32.4</td>
<td>1.435 (0.555, 3.712)</td>
</tr>
<tr>
<td></td>
<td>Secondary school</td>
<td>55.9</td>
<td>44.1</td>
<td>2.364 (0.933, 5.987)</td>
</tr>
<tr>
<td></td>
<td>Post-secondary</td>
<td>27.6</td>
<td>72.4</td>
<td>7.875 (2.417, 25.654)</td>
</tr>
<tr>
<td></td>
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<td></td>
</tr>
<tr>
<td></td>
<td>Number of children</td>
<td>0</td>
<td>58.3</td>
<td>Ref: 1.000</td>
</tr>
<tr>
<td></td>
<td>1-3</td>
<td>53.1</td>
<td>46.9</td>
<td>1.235 (0.585, 2.610)</td>
</tr>
<tr>
<td></td>
<td>4-6</td>
<td>62.5</td>
<td>37.5</td>
<td>0.840 (0.371, 1.901)</td>
</tr>
<tr>
<td></td>
<td>≥7</td>
<td>73.2</td>
<td>26.8</td>
<td>0.513 (0.197, 1.337)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Employment Status</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Unemployed</td>
<td>75.8</td>
<td>24.2</td>
<td>Ref: 1.000</td>
</tr>
<tr>
<td></td>
<td>Self-employed</td>
<td>62.7</td>
<td>37.3</td>
<td>1.855 (0.967-3.559)</td>
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<tr>
<td></td>
<td>Employed</td>
<td>31.0</td>
<td>69.0</td>
<td>6.944 (3.147, 15.323)</td>
</tr>
<tr>
<td></td>
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<td></td>
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<td></td>
</tr>
<tr>
<td></td>
<td>Wealth Quintile</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Lowest</td>
<td>83.9</td>
<td>16.1</td>
<td>Ref: 1.000</td>
</tr>
<tr>
<td></td>
<td>Second</td>
<td>67.1</td>
<td>32.9</td>
<td>2.553 (0.883, 7.384)</td>
</tr>
<tr>
<td></td>
<td>Middle</td>
<td>62.8</td>
<td>37.2</td>
<td>3.078 (1.065, 8.897)</td>
</tr>
<tr>
<td></td>
<td>Fourth</td>
<td>44.2</td>
<td>55.8</td>
<td>6.557 (2.177, 19.746)</td>
</tr>
<tr>
<td></td>
<td>Highest</td>
<td>32.4</td>
<td>67.6</td>
<td>10.873 (3.285, 35.983)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Preferred source of</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>health services</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Public</td>
<td>56.0</td>
<td>44.0</td>
<td>Ref: 1.000</td>
</tr>
<tr>
<td></td>
<td>Private</td>
<td>46.4</td>
<td>53.6</td>
<td>1.470 (0.652, 3.317)</td>
</tr>
<tr>
<td></td>
<td>Faith-Based Organization</td>
<td>42.1</td>
<td>57.9</td>
<td>1.752 (0.664, 4.620)</td>
</tr>
<tr>
<td></td>
<td>Self-medication</td>
<td>71.9</td>
<td>28.1</td>
<td>0.498 (0.282, 0.880)</td>
</tr>
</tbody>
</table>

* = Statistically significant at p=<0.05
4.5.3 Contribution of independent socio-demographic predictors
To determine the contribution of each explanatory variable while controlling for other variables, all socio-demographic variables which had shown significant relationships were further subjected to binary logistic regression analysis. The results are summarized in table 4.4. Only two variables remained statistically significant, with the strongest association being with employment status (p=0.007) and wealth index (p=0.033).

Being in formal employment was significantly associated with being enrolled with NHIF by close to four-fold compared to those who were unemployed (O.R = 3.542; p = 0.005). Being in the middle wealth quintile was significantly associated with increased odds of being enrolled with NHIF by close to 4 times higher (O.R = 3.935; p=0.022) compared to those in the lowest quintile. Those in the fourth quintile had 6.2 times (OR=6.222; p= 0.003) while those in the highest quintile had 5.3 times (OR=5.283; p= 0.017) higher odds of NHIF enrollment compared to those in the lowest quintile.

While overall, preferred source of health services was not significantly associated with NHIF enrollment (p=0.131), those who preferred self-medication/visiting a pharmacy had significantly lower odds of being NHIF enrolled (OR=0.502; p=0.034) compared to those who visit government health facilities.
Table 4.4: Independent socio-demographic predictors

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>OR</th>
<th>95% C.I for OR</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Lower</td>
<td>Upper</td>
</tr>
<tr>
<td>Residence</td>
<td>0.287</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Urban (Reference category)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rural semi-arid</td>
<td>0.592</td>
<td>0.294</td>
<td>1.194</td>
</tr>
<tr>
<td>Rural agrarian</td>
<td>0.902</td>
<td>0.442</td>
<td>1.838</td>
</tr>
<tr>
<td>Level of education</td>
<td>0.205</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No formal education (Reference category)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Primary school</td>
<td>1.034</td>
<td>0.350</td>
<td>3.054</td>
</tr>
<tr>
<td>Secondary school</td>
<td>1.413</td>
<td>0.478</td>
<td>4.174</td>
</tr>
<tr>
<td>Post-secondary school</td>
<td>3.142</td>
<td>0.795</td>
<td>12.418</td>
</tr>
<tr>
<td>Employment status</td>
<td>0.007*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unemployed (Reference category)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Self-employed</td>
<td>1.187</td>
<td>0.552</td>
<td>2.552</td>
</tr>
<tr>
<td>Employed</td>
<td>3.542</td>
<td>1.458</td>
<td>8.606</td>
</tr>
<tr>
<td>Wealth Quintile</td>
<td>0.033*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lowest (Reference category)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Second</td>
<td>2.589</td>
<td>0.822</td>
<td>8.153</td>
</tr>
<tr>
<td>Middle</td>
<td>3.935</td>
<td>1.217</td>
<td>12.719</td>
</tr>
<tr>
<td>Fourth</td>
<td>6.222</td>
<td>1.833</td>
<td>21.116</td>
</tr>
<tr>
<td>Highest</td>
<td>5.283</td>
<td>1.349</td>
<td>20.691</td>
</tr>
<tr>
<td>Preferred source of health services</td>
<td>0.131</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Government/public health facility (Reference category)</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Private health facility</td>
<td>1.021</td>
<td>0.395</td>
<td>2.639</td>
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<tr>
<td>Faith-based health facility</td>
<td>1.428</td>
<td>0.477</td>
<td>4.271</td>
</tr>
<tr>
<td>Self-medication/pharmacy</td>
<td>0.502</td>
<td>0.265</td>
<td>0.949</td>
</tr>
</tbody>
</table>

*= Statistically significant at p< 0.05

4.6 Health system determinants of NHIF utilization

4.6.1 Health system factors affecting enrollment with NHIF
Of the 164 respondents who were not enrolled with NHIF, 88 (53.7%) reported the premiums were too high, 41 (25.0%) reported they didn’t know how to enroll or how the fund works, 29 (17.6%) reported they didn’t find NHIF useful and 6 (3.7%) were not interested. These findings are summarized in figure 4.4 below.
Figure 4. 4: Reasons for not being enrolled with NHIF

When this was further explored in the follow up open-ended questions in the questionnaire and in the FGDs, it is not just knowledge about how to enroll/how the fund works that was deficient. There seemed to be varied perceptions and misunderstandings about NHIF. For instance, one middle aged man from Runyenjes reported ‘I thought NHIF is only for those who are employed’.

4.6.2 Health system factors influencing extent of utilization of NHIF

The reasons that determined to what extent those enrolled with NHIF actually used the fund to meet their health service needs (i.e. predominant use of NHIF vs. need to use out of pocket expenditure in addition to NHIF vs. not routinely using NHIF) were explored through follow-up open ended questions in the questionnaire as well as in the FGDs. The emerging themes revolved around the health system. The common reasons mentioned for having to spend out-of-pocket in addition to NHIF included not having all the services available in the facility where one is registered. One NHIF member from Kititiri reported ‘They often send us for laboratory and x-ray to another hospital. There I have to pay cash’. Other common reasons for out-of-pocket expenditure mentioned included being told to buy drugs that were out of stock and when one falls ill far from the facility they were registered in.
When we sought clarification on this from the key informants, they reported the financing structure in the county caused delays in availability of commodities in the facilities. The capitation/reimbursement funds from NHIF would be deposited in a central county account, and the county would then procure commodities for the facilities centrally. One key informant from an accredited facility reported, ‘they delay to buy for us commodities, at times they buy too few or they give us what we don’t need.’ It also emerged that many private facilities routinely asked for co-payments more from those enrolled with NHIF than those enrolled with private insurance. When probed further on the possible reasons for this, some FGD participants reported that this would be because of the lower and delayed reimbursements given by NHIF compared to private insurance companies.

For those who did not ordinarily use their NHIF, one of the common emerging reasons was distance to an accredited facility. A hypertensive patient from Karurumo in Runyenjes reported ‘the nearest accredited facility is too far. The money I would pay for transport I would rather buy drugs from the nearby pharmacy’. It also emerged that this would affect retention in the fund. An elderly grocer from Kiritiri reported ‘I even stopped paying the monthly contributions. The facility I was enrolled in was too far. NHIF was of no use to me.’ This was corroborated by the key informants, where of the 3 health facility sites visited, only one was NHIF accredited. Other respondents, especially those who were employed opted to enroll for private insurance, either individually or through employer–arranged corporate schemes due to perceptions of inefficiency and what a young man from Dallas in an FGD described as ‘too limited scope of services that can be accessed’. Emerging also was limited knowledge on the scope of services offered, with some FGD participants saying they didn’t know NHIF covers outpatient services. One middle aged man from Kiritiri
reported, ‘I always pay cash whenever I feel unwell, and since I have never been admitted, I have never used my NHIF’.
CHAPTER FIVE: DISCUSSION, CONCLUSION, RECOMMENDATIONS

5.1 Introduction
This chapter discusses the key findings and relates them to literature from other studies. It describes the conclusions based on the results, recommendations and suggestions for further research.

5.2 Discussion
5.2.1 Utilization of NHIF
Less than half of the respondents (40.8%) were enrolled with NHIF at the time of the assessment, and even among those enrolled, only about a third (37.2%) were predominantly using the fund to meet their health service needs.

The level of enrollment was low given that the target population coverage for NHIF is 56% for the year 2018 (Government of the Republic of Kenya, 2017). It was however slightly higher than reported in a study in Western Kenya (31%) by Masengeli et al. (2017). However, the study in Western Kenya was hospital-based while this assessment was community-based. A study by Kimani et al., (2012) reported that only 10% of their respondents were participating in NHIF. Their study was however in a slum setting, characterized mostly by residents who earn low and irregular incomes. Moreover, NHIF has been conducting enrollment campaigns since the time of their study (National Hospital Insurance Fund, 2018), with possibly higher enrollment currently.

In regard to extent of utilization of NHIF, majority of those enrolled (62.8%) still had to pay out of pocket or even use alternative means to meet their health service demands. This is despite the fact that NHIF has expanded its benefit package to include outpatient, inpatient, diagnostic, radiological, emergency road evacuation, specialized services e.g. cancer treatment and dialysis, as well as overseas treatment
with no age or pre-existing condition limitations (National Hospital Insurance Fund, 2018). Sussmuth-Dyckerhoff & Jin, (2010) reported similarly high levels of out-of-pocket payments even among those under China’s health insurance scheme. These findings are in concordance with WHO’s assertion that health insurance should, but does not always guarantee financial protection (World Health Organization, 2018). This situation is likely to slow progress towards UHC, as it has been shown that out-of-pocket payments of whatever form generally hinder people from seeking care (Riggs & Ubel, 2014). Driscoll et al, (2012) also reported that participating in a health insurance scheme does not always lead to improved access to needed services, in part because of additional out-of-pocket payments.

5.2.2 Forms of payment for health services

Over 90% of the respondents routinely paid for health services despite abolition of user fee in primary care facilities, with the foregone user fees being reimbursed through Government subsidies. This might be explained by the fact that this directive was not being uniformly complied with, as only one of the assessment’s three facility sites did not charge patients at all. These findings resonate with the observation of Chuma et al., (2009) that adherence to policies that reduce or abolish user fees was poor in Kenya, in part because of shortages of commodities, reduced revenue and poor design and enforcement of policies. Participants in the FGDs also reported they often bypassed lower level facilities to either self-medicate/visit a pharmacy, or to higher level facilities, in which they were required pay. This tendency of the public to bypass primary care facilities in favor of higher level facilities because of perceived higher quality services was also observed by Abeno, (2014). It was also noted in Kenya’s Health Sector Referral Strategy (MoH-Kenya, 2014).
Despite the Government’s commitment to increase NHIF coverage and reduce out of pocket expenditure, the main form of payment for health services was found to be out of pocket expenditure (53.1%). Even among those who had NHIF, close to half of them (47.8%) had to still pay out-of-pocket. This would explain why over half (54.9%) of the respondents reported that they had ever failed to obtain a health service they needed because of cost in the preceding 12 months, as out-of-pocket expenditure has been shown to be a major barrier to access to health services (World Bank Group, 2014).

The implications of the findings for this objective is that out-of-pocket expenditure is still the main mode of payment for health services in this community, out-pacing the utilization of NHIF. Even among those enrolled with NHIF, majority had to still pay out of pocket or use alternative means of payment altogether, further limiting the utilization of NHIF. This is likely to hinder progress towards UHC.

5.2.3 Socio-economic and demographic determinants of NHIF utilization

Socio-economic factors were shown to influence enrollment into NHIF with employment status and wealth index showing the strongest significant association. Those in formal employment had the highest odds of being covered by the fund compared with the self-employed and unemployed. This is likely due to the fact that the law mandates employers to deduct premiums from wages and salaries of those in formal employment (Republic of Kenya, 2012). Despite recent efforts and campaigns to increase coverage among the self-employed and those in the informal sector (NHIF, 2014), enrollment among these groups was found to be low. But even among those in formal employment, only 69% were subscribed with NHIF, meaning some employers were not adhering with the mandatory deduction policy. Kimani et al., (2012) reported similar findings in their study in Nairobi, Kenya, where those in
formal employment were more likely to be enrolled with NHIF compared with those in the informal sector. In Zimbabwe however, Mhere, (2013) found no significant association between employment status and health insurance enrollment. This would be because the country did not have mandatory deductions into any insurance scheme, and largely relied on voluntary subscriptions either directly by individuals or via employer-initiated programs (Mhere, 2013). Despite subsidy programs to cover the poor, vulnerable and indigent, NHIF enrollment was still more prevalent among those in the higher wealth quintiles. The findings agree with those of Kimani et al., (2012) in Kenya, Owusu-Sekyere & Chiaraah, (2014) and Sarpong et al., (2010) in Ghana, Bendig, (2011) in Sri Lanka, Ghosh, (2013) in India as well as Fang et al, (2012) in Taiwan who reported that those in high wealth categories were more likely to subscribe to public health insurance programs compared with those in low wealth categories.

NHIF enrollment increased with level of education, with those with post-secondary education having the highest proportion of enrollment. While this was found to be statistically significant in the bivariate analysis, level of education was not found to be an independent predictor of NHIF enrollment when subjected with other explanatory variables to logistic regression. This finding is similar to that reported by Kimani et al., (2012) who after adjusting for other factors, did not find a significant relationship between education and NHIF enrollment in Nairobi, Kenya. Boateng & Awunyvor-Vitor, (2013) also found no significant relationship between level of education and enrollment in Ghana’s national health insurance scheme. The findings are however contrary to those by Mhere, (2013) in Zimbabwe, who found a significant association between level of education and insurance enrollment. The difference in study settings would have contributed to this contrast, as Zimbabwe did not have mandatory
deductions for insurance unlike Kenya. The mandatory deductions in Kenya are applied to all employees regardless of education level. In a free market where health insurance is predominantly voluntary, those with higher education levels tend to have a higher likelihood to choose to enroll compared with those with lower education levels (Mhere, 2013).

Those who preferred self-medication/visiting a pharmacy had significantly lower odds of being NHIF-subscribed compared to those who visited health facilities. This attests to the fact that being under health insurance cover is a motivating factor to seek the right medical attention. The findings concur with those of Dalaba et al., (2012) who in their study in Ghana reported that those who were insured were more likely to seek care from a formal health facility rather than resorting to self-medication compared to those who were not insured.

Other socio-demographic factors that have been shown to influence enrollment into health insurance in other studies were not significantly associated with NHIF enrollment in this community. For instance, while the proportion of those enrolled was highest in urban settings compared to rural semi-arid and rural agrarian, residence was not found to be an independent predictor of NHIF enrollment. This would be because the three settings are within the same county. Fang et al., (2012) reported contrary findings, where health insurance enrollment was significantly different between those residing in urban and rural areas. They however did not further segment their rural population as was done in this assessment.

The proportion of NHIF enrollment was highest among those aged 35-59 and lowest among those aged 60 years and above. However, these differences were not statistically significant. These findings were similar to those reported by Kimani et al., (2012) in Nairobi, Kenya, who found that age was not significantly associated
with participation in NHIF. Oyekale, (2012) however found that in rural Nigeria, enrollment into the national health insurance scheme was significantly lower among the elderly. His study was however focused on a more limited study population of rural farmers.

This assessment did not find any statistically significant association between household size and NHIF enrollment. This is in contrast to findings by Fang et al, (2012), where in a study in Taiwan, households with smaller sizes were more likely to have higher coverage of public health insurance. Fang and colleagues however had a much bigger scope, covering all major counties and cities in the country.

Other determinants that have been found to statistically significantly influence enrollment into health insurance in other studies such as sex and marital status (Badu et al, 2018; Kimani et al., 2012) and religion (Badu et al., 2018) were not significant in this assessment. This is possibly because of differences in study setting e.g. Kimani et al, (2012) had a predominantly peri-urban informal study population while inter-country differences with the setting in Ghana (the study was conducted in one of the four most underserved municipalities in Ghana while Embu is fairly diverse) might have influenced the contrasting findings reported by Badu et al., (2018).

The implications of the findings for this objective are that indeed some socio-demographic characteristics determine NHIF utilization. In this study, just like in other studies in similar settings, employment and wealth status were the main socio-demographic determinants of NHIF utilization. This means that efforts to expand coverage to the informal sector and Health Insurance Subsidy Programs (HISPs) for the poor and indigent are yet to bear their intended fruits to increase NHIF utilization and subsequently increase financial protection for these vulnerable populations.
5.2.4 Health system determinants of NHIF utilization

More than half (53.7%) of those not enrolled with NHIF cited cost of premiums as the reason for non-enrollment. This is similar to findings by Sundays et al (2015) who in their study in Western Kenya reported that 63% of those not enrolled with NHIF attributed it to the cost of premiums. High cost of premiums was also found to be a barrier to enrollment into a national health insurance scheme in rural Nigeria (Oyekale, 2012) and in Ghana (Boateng & Awunyor-Vitor, 2013; Fenny et al, 2016). These findings support the assertions of Lagomarsino & Kundra, (2008) that if the objectives of health insurance are to be met especially in areas with large proportions of people working in the informal sector, setting premiums should take into account affordability as well as predictability of incomes.

A quarter (25%) of those who were not enrolled with NHIF reported they did not know how to enroll or how the fund works, 17.6% reported they did not find NHIF to be useful and 3.7% were not interested. Further, it was noted from the FGDs that limited knowledge on eligibility and the scope of services offered under NHIF influenced the extent of its utilization. Similar to the findings of Mathauer et al., (2008), some thought NHIF was only for those in the formal sector. Mathauer et al., (2008) similarly found inadequate knowledge about the enrollment options and procedures, especially for informal sector workers to be a barrier for demand for NHIF. Owusu & Ackah, (2012) also reported inadequate knowledge of basic insurance concepts, particularly on insurance products and premiums in Ghana. Khan & Ahmed, (2013) found a significant increase in willingness to pay for health insurance after an educational interventional that involved training on basic concepts, rationale for health insurance and enrollment procedures in Bangladesh.
Inconsistent availability of services and commodities was reported to be a major barrier to NHIF utilization; hindering enrollment and retention in the fund and forcing those enrolled to incur out of pocket expenditure when they seek alternative sources of care. This is similar to findings reported by Masengeli et al, (2017) in their study in Western Kenya that stock-outs of essential drugs and supplies in accredited health facilities discouraged enrollment to insurance schemes. Oyekale, (2012) made similar observations that inadequacy of health infrastructure, commodities and personnel in rural Nigeria hindered the community from fully benefiting from the national health insurance scheme. A study in Ghana also reported service delivery challenges such as shortage of drugs in health facilities as major barriers to enrolment and retention in the country’s national health insurance scheme (Kotoh et al, 2017).

Slow flow of capitation/reimbursement funds from NHIF through the county accounts, as well as centralized management of these and other funds at county headquarters rather than facility level were reported as hindrances to procurement of needed commodities in a timely manner to optimize service delivery. This is in line with WHO’s assertion that if UHC is to be more than just empty rhetoric, there should be adequate, reliable and predictable flow of funds to health facilities so as to ensure effective delivery of health services to those who need them (WHO, 2018). Further, unstable cash flow is a major contributor to shortages of essential medicines and other critical supplies in public facilities, and those without funds to seek care privately may not be able to access the services they need (WHO, 2018).

Distance to accredited health facilities also influenced the extent to which those enrolled with NHIF actually utilized the fund to meet their health service needs and ultimately retention to the fund. If the accredited facility was far, subscribers reported they preferred to incur out of pocket expenditure in a nearby facility or self-medicate,
with some in the FGDs saying they didn’t see the point of being enrolled with NHIF in such circumstances. These findings corroborate those of Duku, (2018) who found that distance to the nearest accredited health facility was inversely related to demand for health insurance in Ghana.

The implications of the findings for this objective are therefore that health system factors such as cost of premiums, knowledge on how to enroll/entitlements, inconsistent availability of services and commodities, poor flow of capitation/reimbursement funds and distance to accredited health facility also determine utilization of NHIF in this community.

5.2.5 Summary

NHIF utilization is low in Embu County. Like in many low-and-middle income settings, the predominant form of payment for health services in this community still remains out-of-pocket expenditure, even among those enrolled with NHIF. Socio-demographic characteristics determine utilization of NHIF, particularly employment and wealth status. Health system factors such as cost of premiums, knowledge on how to enroll/entitlements, inconsistent availability of services and commodities, poor flow of capitation/reimbursement funds and distance to accredited health facility also determine utilization of NHIF in this community.

5.3 Conclusion

NHIF has received tremendous attention given its role towards achievement of universal health coverage in Kenya. This assessment concluded that NHIF enrolment in this community is low at 40.8%, and majority of those enrolled still have to pay out of pocket or even use alternative means to meet their health service demands thus predisposing them to catastrophic health spending. The predominant form of payment for health services in this community is out of pocket expenditure, further limiting the
utilization of NHIF. Socio-demographic and health system determinants were found to influence NHIF utilization. While efforts have been made to increase NHIF coverage in the informal sector and among the vulnerable and indigent, enrolment was still more prevalent among the employed and low among those in the lower wealth quintiles. Health system barriers to utilization of NHIF, particularly the cost of premiums, inadequate information and difficulty accessing needed services threaten to reverse the gains made so far in health insurance and universal health coverage. These findings can assist in the development of interventions to increase the usefulness and effectiveness of NHIF.

5.4 Recommendations

5.4.1 Recommendations from this study

Based on the findings of this assessment, the following recommendations are made to NHIF, the county and national government and other stakeholders in health financing;

1. Efforts to increase NHIF utilization should be intensified. This should include increasing enrolment into the fund and making the fund more useful to those enrolled so that they do not have to incur additional out of pocket expenditure or use alternative means to pay for health services.

2. Given the demerits of out-of-pocket expenditure, efforts should be made to reduce this as the predominant form of payment for health services in this community.

3. To address the main socio-demographic determinants of NHIF utilization identified in this study, those in the informal sector, the indigent and vulnerable populations should be more targeted with awareness and NHIF subsidy programs to fulfil the ‘leave no one behind’ UHC adage.

4. To address the objective on health system determinants of NHIF utilization:
a. The assessment recommends subsidizing the premiums and/or differentiated premium levels that are convenient to different socio-economic groups among those who are self-employed/in the informal sector to mirror what happens for those in formal employment.

b. There should be more sustained awareness creation about NHIF services, packages and eligibility criteria.

c. NHIF should work out mechanisms with county governments to streamline the flow of capitation/reimbursement funds, including independence of health facilities to manage their own funds.

d. The number of accredited facilities should be increased and service delivery strengthened, especially at lower level facilities to improve public confidence, enhance effectiveness of the fund and provide value for money for those enrolled. The benefit package should be reviewed and enforced in all accredited health facilities in a manner that ensures maximum benefit to the insured to reduce the need to incur out-of-pocket expenditure or failure to access needed services.

4.4.2 Recommendations for further studies

This assessment considered the utilization of NHIF in Embu County, which is just one of Kenya’s 47 counties. Similar studies should be carried out in other parts of the country for comparison purposes to have stronger evidence to inform policy. The assessment also recommends further investigation on whether extent of utilization of NHIF influences catastrophic health expenditure.
REFERENCES


Lagomarsino, G., & Kundra, S. S. (2008). Overcoming the challenges of scaling


Masengeli, N. L., Mwaura-tenambergen, W., Mutai, J., & Simiyu, B. W. (2017). Determinants of Uptake of Health Insurance Cover Among Adult Patients Attending Bungoma County Referral Hospital, 2(4), 145–151. https://doi.org/10.11648/j.hep.20170204.11


APPENDICES

Appendix I: Informed consent for respondents

This form is meant to obtain informed consent from community members in Embu County aged 18 years and above whom I am inviting to participate in this assessment on financial access to health services. The assessment title is "Utilization of the National Hospital Insurance Fund among Community Members in Embu County, Kenya". The principal investigator of the assessment is Oren Nyambane Ombiro, a post-graduate student pursuing a Master of Science in Public Health Systems Management and Application at Kenyatta University.

Part A: General Information

I am __________________________ and kindly requesting for your participation in this study meant to assess the utilization of NHIF in Embu County. This information will assist the government and other stakeholders to make NHIF more responsive and useful to the people of Embu County and even Kenya as a whole.

You are requested to participate in this assessment because as a resident of Embu County, you may have insights and experiences that will help us better understand the status of health financing and NHIF in the county.

Your identity and the information you provide will be kept confidential and safe. Your participation is voluntary and you are free to withdraw at any time. Further, you do not have to answer any question you are not comfortable with, or take part in the survey/group discussion/interview if you do not wish to do so. You are also under no obligation to give any reason for not answering any question, or for declining to participate.
The assessment will take about ………………of your time (time will differ depending on whether it is key informant interview, FGD or survey). Feel free to seek any clarification before deciding whether or not to participate.

If you need any clarifications later, kindly contact Oren Nyambane Ombiro on phone number: 0724751499 or email: orennyamben@gmail.com

**Part B: Consent Form**

I have understood the information that I have read/that has been given to me and I voluntarily agree to be a respondent in this assessment.

Yes [ ]

No [ ]

Respondent/participant signature ………………………………………………………

If respondent/ participant is illiterate:

Respondent’s thumb print ………………………………………………………………..

Signature of literate witness selected by the respondent…………………………

Date…………………………………………………………………………………..

*I have provided a copy of this informed consent form to the respondent/participant*

Interviewer name……………………………………………………………………

Interviewer signature………………………………………………………………

Date………………………………………………………………………………
Appendix II: Household Survey Questionnaire

Utilization of the National Hospital Insurance Fund among Community Members in Embu County, Kenya

Questionnaire number…………………………

Sub-County: …………………..Ward……………………Community Unit…………

Village: ………………………………………Date: ………………………………………

Interviewer ID: ……………………………

A. Demographics
   a) Date of Birth: ………………………………………………………………………

   b) Age: …………………………………………………………………………………

   c) Sex: 1. Male 2. Female

   d) Highest level of education:
      1. No formal schooling 2. Primary School incomplete
      3. Primary school completed 4. Secondary School incomplete
      5. Secondary school completed 6. A-level completed
      7. College/University completed 8. Post graduate degree
      99. Refused

   e) Marital Status:
      99. Refused

   f) Number of Children: ……………
g) Median household expenditure per month

1. $\leq$ KES 1,440
2. KES 1,441 - 2,840
3. KES 2,841 - 3,880
4. KES 3,881 - 7,200
5. > KES 7,200

h) Main occupation:

1. Unemployed
2. Self-employed
   Specify……………………………………………………………………
3. Employed
   Specify……………………………………………………………………

i) Religious affiliation

1. Christian
2. Hindu
3. Muslim
4. Other (specify)………………..

B. Financial Access to Health Services

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

1. No action     2. Traditional/herbal healer
3. Government health facility     4. Private health facility
5. Faith-Based health facility

6. Self-medication/visit a pharmacy

7. Spiritual intervention

8. Other (specify)………………………………………………

b) Do you pay for health services? □Yes □No

If yes, how do you pay for the services?

Out-of-pocket □Yes □No

NHIF □Yes □No

Private Insurance □Yes □No

Community based insurance □Yes □No

Others (specify)…………………………………………………………

c) In the past 12 months is there an instance when you needed health services but could not access them because of cost?
□Yes □No

d) Have you ever heard of NHIF?
□Yes □No

e) If yes, do you have access to NHIF? (either as contributor or dependant)
□Yes □No

If no, what is the reason (s)?

1. Can’t afford
2. Not interested
3. Do not know it works/how to get
4. Not useful
5. Other (specify)……………………………………
f) If you have NHIF, are there instances you have to pay with cash when seeking services?

□ Yes □ No □ Not applicable

If yes, in which instances?

.................................................................................................................................
.................................................................................................................................
.................................................................................................................................


g) If enrolled with NHIF, are there instances when you were not able to use it?

□ Always □ Often □ Rarely □ Never □ Not applicable

If there are instances when you were not able to use it, why were you unable to use it?

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h) If enrolled to NHIF, are there any challenges you have encountered in using it? If yes, which ones?

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i) What are some of the challenges you have encountered in relation to paying for health services?
j) How would you recommend for financing for health in the county to be improved?
Appendix III: Key Informant Interview Guide

Utilization of the National Hospital Insurance Fund among Community Members in Embu County, Kenya

Interview Guide: Facility In-Charge

Date…………/…………/……………….Venue……………………………………
Interviewer's name……………………………………
Designation of the key informant…………………………
Time: Start………… Finish…………
Time for discussion: 45 minutes.

Instructions
1. Introductions.
2. Explain purpose of study.
3. Assure key informant of confidentiality.
4. Ask key informant for their informed consent to participate in the discussion.
5. Explain importance of recording the discussion.

Questions
1. What mix of services does the facility offer?
2. What is your role as the in-charge of this health facility? What is your role when it comes to financial management?
3. Does the facility have a health facility management committee? If it does what is the composition? What is their role in the management of the facility, and more specifically in the management of finances?
4. What are some of the Government policies you are aware of that relate to financial management for facilities of your level? How well are they being implemented in the facility?
5. What are the sources of revenue for the facility?
6. Are patients asked to pay for services? If yes, which ones and what are the rates? How does the facility handle those who are not able to pay? What modes of payment do you accept from patients?
7. Is your facility NHIF accredited? What is your experience with administration of NHIF (advantages, challenges, patient education about it)
8. Are patients who are enrolled on NHIF required to co-pay? If yes, in which circumstances/for what services?

9. How do you handle NHIF clients when some services they require are not available in the facility?

10. What are some of the strengths and potential areas of improvement regarding financial access to services for your clients?

*Give the key informant space to raise any other issues that they feel are relevant*

Thank you for your cooperation

**END**
Appendix IV: Focused Group Discussion Guide

Utilization of National Hospital Insurance Fund among Community Members in Embu County, Kenya

FDG Guide

Date………/………. /………… Venue………………………………………………

Facilitator…………………………… Moderator…………………………

No. of discussants……….Time for discussion 1hr. Start……… Finish………..

Instructions

1. Introductions.

2. Explain purpose of study.

3. Assure discussants of confidentiality.

4. Ask discussant for their informed consent to participate in discussion.

5. Explain importance of recording the discussion.

Questions

1. What do you and others do to stay healthy?

2. What health problems do you see as most significant in your community?

3. Where do families from your community go for health care services?

4. What are some of your experiences in seeking health services? What are the strengths and challenges of the health services available in Embu County?

5. How do people pay for healthcare in this community?

6. Have you ever heard of NHIF? What is your experience with the use of NHIF?

7. Are there any other insurance schemes you use to pay for health services?

8. What is your view on access to services using health insurance? What about NHIF? (Probe about the determinants of enrollment and extent of utilization)

9. What are some of the benefits you have seen with using NHIF? Are there any hindrances to access or use of health insurance, particularly NHIF? If yes, which are they?

*Give the group space to raise any other issues that they feel are relevant*
Appendix V: Letter of approval from Graduate School

KENYATTA UNIVERSITY
GRADUATE SCHOOL

E-mail: dean-graduate@ku.ac.ke
Website: www.ku.ac.ke

FROM: Dean, Graduate School
DATE: 16th October, 2018

TO: Oren Nyambane Omboiro
C/o Health Management and Informatics Dept.

SUBJECT: APPROVAL OF RESEARCH PROJECT PROPOSAL

This is to inform you that Graduate School Board at its meeting of 11th October, 2018 approved your Research Project Proposal for the MPH Degree Entitled, “Utilization of the National Hospital Insurance Fund among Community Members in Embu County, Kenya”.

You may now proceed with your Data Collection, Subject to Clearance with Director General, National Commission for Science, Technology and Innovation.

As you embark on your data collection, please note that you will be required to submit to Graduate School completed Supervision Tracking Forms per semester. The form has been developed to replace the Progress Report Forms. The Supervision Tracking Forms are available at the University’s Website under Graduate School webpage downloads.

Thank you.

HARRIET ISKOKE
FOR: DEAN, GRADUATE SCHOOL

cc: Chairman, Health Management & Informatics Department,
Supervisors:

1. Dr. George Oheno
C/o Department of Health Management & Informatics
Kenyatta University
Appendix VI: NACOSTI Research Permit

NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY AND INNOVATION

Ref. No. NACOSTI/P/18/65923/26352

Dr. Oren Nyambane Ombiro
Kenyatta University
P. O Box 43844-00100
NAIROBI

Date: 3rd November, 2018

RE: RESEARCH AUTHORIZATION

Following your application for authority to carry out research on “Utilization of the National Hospital Insurance Fund among community members in Embu County, Kenya” I am pleased to inform you that you have been authorized to undertake research in Embu County for the period ending 1st November, 2019.

You are advised to report to the County Commissioner and the County Director of Education, Embu County before embarking on the research project.

Kindly note that, as an applicant who has been licensed under the Science, Technology and Innovation Act, 2013 to conduct research in Kenya, you shall deposit a copy of the final research report to the Commission within one year of completion. The soft copy of the same should be submitted through the Online Research Information System.

BONIFACE WANYAMA
FOR: DIRECTOR-GENERAL/CEO

Copy to:

The County Commissioner
Embroid County.

The County Director of Education
Embroid County.