

**DETERMINANTS OF UTILIZATION OF NHIF COVER IN PUBLIC
HEALTH FACILITIES BY PUBLIC HEALTH CARE WORKERS IN
MAKUENI COUNTY**

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**A THESIS SUBMITTED IN PARTIAL FULFILLMENT FOR THE DEGREE
OF MASTER OF SCIENCE IN HEALTH SYSTEMS MANAGEMENT OF
KENYA METHODIST UNIVERSITY**

OCTOBER, 2022

DECLARATION

I declare that this research project is my original work and has not been presented for a degree or any other award in any other University

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DEDICATION

This research project is dedicated to my loving parents for setting the foundation for my academic journey and for their continuous encouragement and support. I also want to thank my family for their unwavering support as the course progressed.

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I'd want to thank the Almighty God for providing me with the grace and power to write this research proposal. I'd also like to express my gratitude to Dr Kezia Njoroge and Mr Musa Oluoch, my supervisors, for their unwavering support, encouragement, patience, and continuous interest in my research. Finally, I'd want to express my gratitude to Kenya Methodist University's entire administration for providing a wonderful and conducive learning atmosphere during my studies. Thank you very much, and God bless you.

ABSTRACT

Robust healthcare funding systems are seen as critical for guaranteeing universal healthcare access. This implies that health services should be adequately accessible to everyone ensuring the health situation doesn't reduce the patient and their family to poverty. This study's primary goal was to analyze the determinants of utilization of NHIF cover in public health facilities by public health workers in Makueni County. Specifically, the study examined how the perceived quality of NHIF services, NHIF Scheme characteristics, NHIF communication approaches, and alternative insurance covers the influence of utilization of NHIF cover in public health workers by health care workers. The study used a descriptive research design. The target population was 1183 health workers in public healthcare facilities in Makueni County. This study followed a probabilistic approach. A stratified random sampling technique was used to sample the facilities across the different levels. The study sample was 291. The data was gathered using structured questionnaires. SPSS version 25 was used to code and analyze the data. The study found that there was a statistically significant correlation between the alternative cover and utilization of NHIF cover $r=0.332(p<0.00)$. Perceived quality of health services and utilization, $r =0.306 (p<0.00)$, NHIF communication strategy and utilization, $r 0.289 (p<0.00)$. The study concluded that at the significance level of 95%, alternative insurance covers and perceived quality of health services were the most significant in influencing utilization of NHIF cover with significance values of .000. NHIF communication strategy was a significant determinant of the utilization of NHIF cover with a significance value of .005. NHIF scheme characteristics were an insignificant determinant of utilization of NHIF cover. The study recommended that the NHIF management should invest in innovations that would help in promoting the competitive edge of NHIF compared to other covers; a mobile-based app should be developed and made available for the users as one of the major concerns is the delay experienced during the placing of claims; With autonomy for the employees, the quality of the NHIF services would be expected to rise as the processing would do away with any rigid procedures or waiting for commands from above the hierarchy; The NHIF should adopt a horizontal system of leadership to promote the relationships between the management and the employees and that NHIF management should install a modern system of communication that reduces the movements between the NHIF and the healthcare providers.

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LIST OF ABBREVIATIONS AND ACRONYMS

KIPPRA	Kenya Institute for Public Policy Research and Analysis
NACOSTI	National Commission for Science, Technology & Innovation
NACOSTI	National Commission for Science and Technology innovation
NHIF	National Health Insurance Fund
NHIS	National Health Insurance Scheme
PHI	Private Health Insurance
HCW	Healthcare workers
SERC	Science and Ethical Review committee
SPSS	Statistical Package for social science
UHC	Universal health coverage
WHO	World Health Organization

CHAPTER ONE: INTRODUCTION

1.1 Background

This chapter presents the background of the study, statement of the problem objectives of the study, research questions and justification of the study, limitation of the study, delimitations of the study, significance of the study, assumptions of the study and assumptions of the study and the operational definitions of the terms.

As COVID-19 presents a significant danger to healthcare systems, the economy, and society as we know them, the globe is presently facing an unprecedented health concern. The current COVID-19 epidemic has highlighted existing vulnerabilities within our health-care systems and the need to protect frontline health workers (Nagesh & Chakraborty, 2020). Health care workers as the front-line workers in the provision of health care services have the greatest risk of contracting infections such as COVID-19 (Greenberg, 2020). Health insurance for these populations is critical.

Without insurance cover, healthcare workers would lead large out-of-pocket medical costs while seeking medical treatment (Chaganti et al. 2020). Access to healthcare (medical care provision services) is still a global problem because many people cannot afford the costs of health services (World Health Organization [WHO], 2018). According to World Bank (2022), almost 90 million people are impoverished by health expenses every year and if the trend is not arrested, approximately 5 billion people will not afford medical care in 2030. Equitable health systems are critical for accomplishing health-related sustainable development goals, according to governments and international organizations around the world. This is especially so for SDGs-Goal 3 theme 8 on universal health coverage (UHC) which calls for achieving UHC by 2030, including security against financial risk and access to high-quality healthcare,

medications, and vaccinations. As a result, robust healthcare finance schemes have indeed been deemed necessary for maintaining universal coverage accessibility (Liaropoulos & Goranitis, 2016). This means that every individual ought to have access to essential medical attention that is functional and of an adequate standard and that no one ought to face economic hardship as an outcome of treatment.

In order to attain universal health coverage and access, most governments throughout the world, particularly developing ones, have lately shifted to a health insurance model. Different countries throughout the world have varying degrees of usage of health insurance. According to the available research, consumption levels are high in industrialized countries but remain low in developing countries (Liaropoulos & Goranitis, 2016). In The United State of America, Private Health Insurance (PHI) is a considerable way of meeting medical care expenses, accounting for approximately 35% of total healthcare expenditure, whereas public usage accounts for 44.9 per cent. Utilization of the health insurance plan in the UK is high and is determined by the quality provision of health services in the hospitals included in the public National Health Insurance (Papanicolas et al., 2018).

In Ghana, utilization of the National Health Insurance Scheme (NHIS) is determined by the patient's perceptions of the quality of care and type of facility (Alhassan et al., 2016). Ghana's NHIS was formed by the National Health Insurance Act (NHIA) in the year 2003, and it is among the few universal health insurance plan programs in the Sub-Saharan African nations build nationwide. However, NHIS in Ghana operations are constantly faced with limited financing challenges. Also, the government of Nigeria through the NHIS in Nigeria has launched numerous projects to assist various sections of its citizens. Several studies have recorded low NHIS utilization in Nigeria due to insufficient dissemination in the entire country, the low rate of the use of medical care

services behaviour amongst Nigerians, and various omissions in the NHIS insurance plan (Adeniji, 2017). In Nigeria, the low use of NHIS products varies by region and state.

The National Health Insurance Fund (NHIF) is mandatory in Tanzania and covers all government workers. Nevertheless, during the first two years of existence, the Fund solely insured workers of the Central Government. In 2002, the membership base was expanded to include all government workers in an effort to broaden coverage until all formal sector workers were enrolled (Liaropoulos & Goranitis, 2016). Principal members, their wives, and up to four children or legal dependents are eligible for membership. In terms of delivering services to its members, the National Health Insurance Fund/Scheme is effectively structured. The system has multiple levels of power to make choices on the fund and services. Nonetheless, the Fund collects payments or premiums from member employees and employers every month of the year (Kipaseyia, 2016). The fund's health centres are widely dispersed around the country.

In Kenya, health insurance is availed by the public National Health Insurance Fund (NHIF), commercial insurance firms, as well as a few community-organized health financing plans (Kimani, et al., 2019). In Kenya, the NHIF system was expanded to all other individuals, including the jobless, pensioners, and people working in the informal sector, in 2011. The GOK made a concerted effort to make NHIF an all-inclusive program in order to assist the health-care system (Kipaseyia, 2016). Kenya has progressed in achieving universal health care, as seen by expanded policy recommendations and amendments of health-related legislation like the Kenyan Health Policy Framework (KHPF) (1994–2010), Vision 2030, the Constitution of 2010, and the Health Bill of 2015.

In Makueni County, a Universal health care coverage programme was initiated in 2013. This programme was conceptualized from devolution in the constitution promulgated in 2010 and Kenya's 2030 agenda. The programme (Makueni Care) works in the public health care institutions within the County. Makueni Care's goal is to create the greatest healthcare package feasible considering the County's resource limits. Under the scheme, each household pays Ksh 500 per year to receive free care at any County health centre (Government of Kenya, 2018).

The UHC program is open to all Makueni residents and non-residents who have lived in the area for at least six months. Over thirty-three per cent of the annual budgetary allocation is given to the healthcare program in Makueni County. The County has expanded health care amenities from 109 to 232 significantly decreasing the distance of 9 km that people had to travel in order to reach the closest health facility. The program had a total of 72,000 households in April 2018, up from a total of 25,000 in 2016. The county increased its health workers' staff from 1183 in 2013/14 to 1,462 (2018) since the system was developed to accommodate the inflow of persons seeking medical services from neighbouring counties. Healthcare staff such as specialized doctors, clinical officers, dentists, nurses, and medical officers, has been certified in different healthcare disciplines (Kimani, *et al.*, 2019). Makueni County government provides private insurance medical cover to the County employees. The employees also have the National NHIF scheme which is mandatory for all people in formal employment. Health care workers fall in the category of employees with both private insurance cover and NHIF cover in the County. The study focuses on the utilization of NHIF cover by health care workers for outpatient services in public health amenities in Makueni County.

1.2 Statement of the Problem

NHIF has continued to put efforts into serving as employees' first pillar of social health cover. However, despite this provision of public health insurance, NHIF has 36% coverage of the population (Kenya Institute for Public Policy Research and Analysis [KIPPRA], 2018). Furthermore, despite this small percentage of coverage, the numbers that utilize the NHIF are minimal. In Embu, which is one of the 47 counties in Kenya, only 37.2 % of those enrolled in NHIF predominantly use NHIF cover for their medical service needs (Ombiro, 2016). Utilization of the NHIF can be significantly affected by the quality of services at the accredited facilities such as long waiting hours and an insufficient number of health workers (Kironji 2019).

Before the realization of UHC in Makueni County, most of the residents' medical expenses were catered for from their own pockets. Several medical affiliations are currently available including NHIF, Makueni Care and other privately sponsored medical covers. Health workers are however hesitant to utilize NHIF cover to access outpatient health care services in public health facilities, where they work as front-line workers in those facilities. This continues to risk the health workers who depend on out-of-pocket payments for their health care services and consequently affecting their household income. In a situation where the people's household income is negatively affected by medical out-of-pocket payments, there may be high cases of morbidity and mortality hence County underdevelopment. Few scholarly works have been done to assess the influence of medical insurance affiliation on health care equity and access in Makueni County. However, there exists limited literature on the utilization of NHIF cover by public health workers in the public health facilities in Makueni County.

1.3 Objectives of the Study

1.3.1 General Objectives

The main aim of this research was to investigate the determinants of utilization of NHIF cover in public health hospitals by public health workers in Makueni County.

1.3.2 Specific Objectives

- i). To determine the influence of perceived quality of health services on utilization of NHIF cover in public health facilities by public health workers in Makueni County, Kenya;
- ii). To assess the influence of NHIF Scheme characteristics on utilization of NHIF cover in public health facilities by public health workers in Makueni County, Kenya;
- iii). To establish the influence of NHIF communication strategy on the utilization of NHIF cover in public health facilities by public health workers in Makueni County, Kenya;
- iv). To determine the influence of the existence of alternative insurance covers on the utilization of NHIF cover in public health facilities by public health workers in Makueni County, Kenya.

1.4 Research Questions

- i). To what extent does the perceived quality of health services in public health facilities influence the utilization of NHIF cover in public health facilities by public health workers in Makueni County, Kenya?
- ii). How does an NHIF Scheme characteristic influence utilization of NHIF cover in public health facilities by public health workers in Makueni County, Kenya?

- iii). How does the NHIF communication strategy influence the utilization of NHIF cover in public health facilities by public health workers in Makueni County, Kenya?
- iv). To what extent does the existence of alternative insurance covers influence the utilization of NHIF cover in public health facilities by public health workers in Makueni County, Kenya?

1.5 Justification of the study

Health care workers as the front-line workers in the provision of health care services have the greatest risk of contracting nosocomial infections. Health insurance for this population is critical. Without insurance cover, healthcare workers would result in significant out-of-pocket medical payments whenever individuals sought healthcare services. The position of the NHIF in Kenya's proposed and ongoing health finance changes makes it a significant driver toward achieving UHC and hence a crucial subject for in-depth analysis. This study makes critical recommendations which will promote better financing of health care services for health workers as well as improvement of quality of health services in government health facilities in Makueni County and even the country at large, in a region with significantly high healthcare costs, high inequality, and forecasted poor medical insurance cover. Increasing the health workers' access to health care is critical in ensuring uninterrupted health service delivery.

1.6 Limitations of the study

The research faced difficulties during the data-gathering phase where participants were unwilling to engage and participate. Nevertheless, this was restricted to the researcher gaining authorization from the County administration to gather data and ensuring participants of anonymity. Also, the investigator obtained a letter from the University,

which was given to the respondents in order to assure them that the info gathered was only for educational research reasons and would be kept with the highest secrecy. Before the data-gathering procedure begins, a letter was requested from the National Commission for Science, Technology, and Innovation (NACOSTI).

Due to the nature of work at busy public health facilities in the County, the participants mostly were busy responding to the questionnaire. The researcher overcame this by proposing that the management set aside particular periods when the staff was not occupied at work in order to collect data. The researcher's time allotted for the study was restricted, providing a challenge; in order to complete the research on time; the researcher assured solid time management abilities. The researcher assured that the questions constructed in the tool were clear and simple and hence saving time when filling out the questionnaires.

1.7 Delimitation of the Study

The research examined the factors that influence health workers' use of NHIF coverage to seek health services in public hospitals and clinics. The research was conducted in Makueni County public health agencies. Specifically, the study sought to establish how the existence of alternative insurance covers, NHIF Scheme characteristics, perception of NHIF services quality and strategic communication approach by NHIF affects the utilization of NHIF cover in public health by public health workers. The findings were generalizable to all health staff in the Country.

1.8 Significance of the study

As the government progresses toward universal health care, the findings of this study might be utilized to accommodate diverse groups into the National Health Insurance Fund (NHIF) and other health insurance providers. It is intended that the study findings

would contribute to policy formation, particularly in developing health insurance policies to meet the specific requirements of Kenyans living in rural regions.

It is also envisaged that the study would raise awareness among insurance players about the challenges to health insurance adoption among the rural population, as well as the usage of the coverage in public health facilities. The findings may be used by key health funding policymakers, particularly the Ministry of Health and the NHIF to establish rates, collection processes, and benefits packages for the present fund and the proposed universal health care program. Understanding the degree of health insurance knowledge will aid in the design of simple health insurance communications as well as the selection of communication channels for marketing health insurance to health workers. Other players in the private health insurance market may utilize the study's results to solve the impediments as well.

1.9 Assumptions of the Study

- i). That the sample population that the researcher took was representative of the population targeted.
- ii). That all the information requested in the questionnaire was accurate in fulfilling the study's purpose
- iii). That all of the study's findings are typical of and widely applicable to all of the nation's regions.

1.10 Operational Definition of Terms

Awareness: Refers to whether the respondent has the relevant and correct information on registration procedures, premiums and benefits of insurance

Health Insurance: An agreement made between a company (insurer) and an individual or group of individuals (the insured) so that the insurer meets the costs of health care services born by the insured on regular basis provided the insured regularly meets his insurance premium obligations.

National Hospital Insurance Fund: A Government of Kenya entity established by an Act of Parliament to mobilize funds from the public through subsidized contributions to receive health services in return.

Out-of-pocket expenditure: A means of meeting health care expenses from individuals' pockets or incurred by patients' families at the moment of services received (WHO, 2017).

Sustainable Development Goals: A set of 17 goals approved by UN-members countries to supersede the Millennium Development Goals that were set to expire in 2015. These are scheduled to be finished by 2030 (United Nations [UN], 2015).

Universal Health Coverage: A system designed to safeguard that all persons have access to high-quality, cost-effective health care while preventing financial ruin (WHO, 2017).

Utilization: Acquisition and utilization of a medical cost compensation plan by people and families.

Perceived quality of health services-How health services provided meet the expectations of patients in regard to safety, hygiene, availability of a sufficient number of Health Care Workers, specialist doctors, and other resources such as laboratory services, radiological services and drugs

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

The section took a deeper review of other scholarly work on the issues affecting the utilization of NHIF cover among public health workers. It establishes the study's conceptual and theoretical foundation. It looks at what others have said and done on the subject. The study goals are used to structure the literature review.

2.2 Utilization of NHIF cover

Subscription in medical insurance plans and its use in addressing the enrollee's health requirements are referred to as utilization (Wang et al., 2013). According to research, insurance coverage does not always equate to insurance use. According to Wang et al. (2013), although China has a high level of health insurance subscription, its utilization in all cases where health services are required was limited. Studies have shown even families with medical insurance experienced large out-of-pocket expenses, which often exceeded the expense of coverage in the initial place (Fang et al. 2012; Sussmuth-Dyckerhoff & Jin, 2010). As a result, the availability of health-care services is skewed. Furthermore, utilization is a more reliable determinant of health insurance effectiveness than inclusion alone (Nguyen, 2012). The effective use of medical insurance can lower out-of-pocket costs and hence enhance affordable healthcare while also lessening economic hardship on families (Qingyue et al, 2011).

Mbogori, et al. (2015) undertook studies to analyze the influence of process re-engineering strategy on NHIF performance, as well as the influence of benefits management strategy on NHIF performance. According to the research results, only the households with stable cash flow can enjoy decent health care because it is difficult to

describe the compensation plan in such a way that participants comprehend the services they are obligated to, employees understand what they're offering, and healthcare experts properly understand what care they are to offer to the representatives.

According to NHIF 2018 seems to be all, with no restrictions on health issues apart from cosmetic treatments, no higher age limit for participation, and no limitation on the amount of claimed dependents. Participants can supplement their NHIF benefits by acquiring private insurance or making direct payments. This is because members come in many shapes and sizes, and some with higher earnings may need services that aren't covered by this benefits package (NHIF, 2018).

2.3 Perceived Quality of health Services in public health facilities

Alhassan et al., (2015) investigated the effectiveness of both private and public health facilities recognized by NHIA in Ghana. The study establishes a considerable difference in how the patients and health workers perceived the quality of the service factors on basis of perception and technical analysis of the hospital facilities. Unlike consumers, health professionals perceived several hospitals accredited by NHIS to have quality care measures were good. Other areas where there were perception discrepancies included compassion and supportiveness of health workers.

Mulupi et al. (2013) investigated public opinion on health coverage and desirable design characteristics, with an eye toward implications for Kenya's universal health coverage reforms. The research concluded that people's perceptions of low service quality at NHIF-accredited institutions were a key factor in dropout rates and deterring individuals from enrolling in health insurance plans. In addition, laboratory and x-ray equipment are scarce. Other concerns contributing to dropout rates and preventing individuals from joining health insurance schemes include poor health care delivery,

fraud (and conflict of interest), patient discriminate based on scheme participation, long wait times, and perhaps assumed socioeconomic status.

Mulupi et al., (2013) also suggested that people with insurance experienced higher wait times at health facilities, were discriminated against by doctors, had to purchase medications from private pharmacies, experienced extra expenditures, or were given low-quality pharmaceuticals. At the same time, they claimed to have been subjected to verbal abuse. Negative impressions of the public health system erode faith in the system and stymie progress toward universal health care. Before the NHIS is implemented in Kenya, the research determined that the issues expressed about low-quality health ought to be addressed, especially in the public sector.

According to Fotso and Mukiira (2012), public practitioners of maternal-related health care in Kenya's urban centres antagonize women and also habitually humiliate and mistreat them; not responding to their questions and requesting trivial information. Traditional birth assistants and supplementary informal providers, on the other hand, cultivate deep relationships with women seeking maternity care, fostering trust and confidence, which has a favourable impact on women's use of these facilities for maternal-related services.

Kironji (2019) investigated how private university staff in Nairobi used the national hospital insurance fund's outpatient services. The goal of this research was to help NHIF's top management make decisions about how NHIF members use outpatient services in the NHIF by appreciating the need for quality services, benefits scheme, NHIF information dissemination approach, and managerial procedures that affect outpatient service consumption. The study suggested that public perception of better quality outpatient services would promote the utilization of the services among

academic staff. The key issues influencing utilization comprised of time spent waiting to be served, accessibility of specialists in consulting rooms, an inadequate number of medical practitioners, the unavailability of a well-stocked pharmacy, and operating laboratories.

Okech (2016) found that decrepit health infrastructure and a lack of proper equipment were key challenges in most public hospitals in their study on health finance, infrastructure, and staff. The study discovered that it was challenging for public health organizations to retain critical workforces, particularly specialists, which had a negative influence on treatment. As a result, individuals are driven to look for alternative medical services from less knowledgeable health experts or suppliers, the reliability of which is unknown. Whereas the NHIF investigates and enhances financial risk mitigation, such individuals undermine the achievements by pursuing treatment from private entities that can be quite costly.

2.4 NHIF Scheme characteristics

Mohammed (2016) researched to evaluate client experience with health coverage and the value of the plan, to determine policy implications for policy implementation in Nigeria. Family coverage was found to be inadequate, however, access to benefits packages was found to be acceptable. The absence of family members might jeopardize the scheme's ability to provide adequate coverage. In other words, each user is only allowed to have four biological children and a spouse. The absence of family members hampered the scheme's ability to provide adequate coverage.

Chomi et al. (2014) looked at how people seek health care and how they use it in a multi-insurance system. The study established that the likelihood of procuring health services increased with increased health insurance response. Nevertheless, the

likelihood of seeking treatment, the timing of seeking care, and the provider of choice vary per member. The research also revealed that having insurance is linked to certain forms of spending. Furthermore, it was shown that even when health insurance was used, OOP costs remained significant. High OOP costs have a significant and long-term impact on household well-being.

Munge et al. (2015) examined Kenyan health practitioners' consumer choices in their technical reports. According to the authors, the NHIF often fails to adequately analyse the institutions it outsources, whereas PMI suppliers proactively choose which institutions to outsource on basis of geographic accessibility, reliability, cost, and capability. Whereas the NHIF has rules in place to disband poor hospitals, RESYST found that fines were sometimes impossible to apply since the public hospital was the only choice in underprivileged areas.

Owosu-Sekyere et al. (2014) assessed the role of national insurance covers characteristics in the use of the national health covers in procuring health services in the informal sector in Accra Ghana. The study established that the Ghanaian National insurance cover had features that favoured the uptake and utilization of the cover. For instance, the cover had favourable terms in paying for the treatment for their customers. In addition, the cover had two major protection plans including the Social Health Insurance and health covers form organized community groups. It was concluded that the characteristics of the national insurance cover had a significant influence on the utilization of the national insurance cover in Ghana.

Kironji (2019) went on to say that NHIF governance procedures have a strong, good, and substantial interaction with private university personnel using NHIF outpatient services. The key issues impacting use include employees in NHIF-approved

institutions' lack of understanding of patients' entitlements to care, the procedure of identifying dependents, and the convenience of the outpatient facility choice procedure. The investigator revealed that only NHIF organizational practices had a statistically significant influence on private university workers in Nairobi using NHIF outpatient services.

2.5 NHIF Communication Strategy

Munge et al. (2015) used the NHIF, PHI and community-based medical insurance coverage to perform a critical examination of Kenya's procurement structures. Based on the findings, no policy in Kenya requires individuals to be informed of their NHIF privileges and responsibilities. Members of the NHIF must inform the program within 24 hours after being admitted to a hospital and must produce proper identity documents as well as their NHIF membership card. The inquiry also revealed that the NHIF Act contains no clear provision for a grievances channel or the collection of 21 members'/citizens' opinions and suggestions. The official website, on contrary, has contact info for the financing, as well as toll-free phone numbers.

According to Ongiri and Kubani (2015), the NHIF advertises its values and list of a network of professionals on its website and has sponsored commercials in newspapers, television, and radio to increase awareness of its products. It also hosts stakeholder forums, such as those for suppliers and companies. Additionally, its enforcement officials collaborate with employers to make sure they are informed of the benefits available through NHIF. Because NHIF participants must use the membership cards to obtain obligations, it is no clear how this relates to workers in these enterprises. Outpatient services are only provided at member-selected provider facilities.

Okigbo (2014) assessed the role of health communication approaches in the realization of UHC in New York. The study concentrated on verbal and written communication approaches to wowing and inspiring individuals and the public to make healthier choices. The study established that health communication often integrates and promotes positive changes in attitudes and behaviours about the consumption of health products. The study further established that health communication strategies are directly associated with social marketing strategies that entailed the developing of actions and interventions premeditated to enforce behavioural changes. The study found and concluded that Health communication strategies positively and significantly influenced the consumption of the health products available.

O'Hair et al. (2018) assessed the role of health communication strategies in the uptake and utilization of National health insurance cover in an evolving media environment on the public health system. Questionnaires were used in the realization of raw data for analysis. The study found that successful interaction tactics boost perceived risks, reinforce positive behaviours, promote societal health norms, enhance the availability of basic healthcare support programs, and empower individuals to modify or enhance their health situations. The study found and concluded that health communication strategies had a positive and significant uptake and use of the NHIF cover in an evolving media environment.

Furthermore, Kironji (2019) discovered that the NHIF communication approach has a good and substantial relationship with private university workers using NHIF outpatient services. The NHIF's interaction approach was approved by the participants. They were disappointed with the approaches used in communicating, the number of interactions, the accessibility of NHIF workers to response to problems, NHIF response and grievance addressing procedures, and NHIF's attempts to resolve needs.

2.6 Alternative Insurance Covers

Sohn and Jung (2016) investigated how PHI impacted medical care utilization in the Republic of Korea's national health insurance system. This study focused on moral hazard or usage hazard, which are the phenomena in which individuals abuse medical services covered by NHIF since the treatments are free or the individuals were only obligated to cater for a percentage of the medical costs. Participants using medical aid (private) were identified as being more preferred in paying for inpatient as well as the payments for outpatient medical costs compared to NHI (public insurance). Whenever the interactions factor of the insurance type was added to the analysis, people who were supported by both medical assistance and PHI were inclined to get inpatient and outpatient treatment compared to those who were exclusively insured by NHI. Ethical use hazard arises when individuals misuse medical interventions provided by NHI since the services are complimentary or the consumers are only supposed to make a fraction of the medical expenses.

Pozen and Stimpson (2017) did a study on the role of the availability of alternative insurance covers on the subscription and use of the national health cover in Liverpool, UK. Further, the qualitative data was analyzed thematically guided by the study objectives. The study established that the United Kingdom's health insurance coverage comprises different insurance plans like social insurance, PHI and insurance from the organized community which further included individual insurance, family insurance and maternity insurance. The study found and concluded that the availability of private covers had insignificant influence on the subscription and utilization of the national health cover in Liverpool, UK. This is an implication that the UK national insurance cover had favourable features that discouraged customers from subscribing to privately paid insurance cover.

Fall (2012) conducted a study on issues influencing the extension of health cover in Senegal. The study respondents were employees in the Senegalese ministry of health. The researcher collected quantitative data while the qualitative data was from the managers in the ministerial departments. The study found that the availability of alternative insurance covers was one of the factors that significantly influenced the extension of national health insurance in Senegal. Additionally, the study found the incomes of the majority of the Senegalese were affected by the uptake and utilization of the insurance plans provided by the National insurance cover.

Konde and Okuonzi (2016) studied the potential of private insurance covers in the improvement of health outcomes focusing on Kampala, Uganda. The study adopted the descriptive research design. Using a structured questionnaire, raw data was collected from the health and insurance officials in Kampala. SPSS version 22 was employed in the coding and analysis of the field data. The study established that the involvement of private insurance covers to a great extent influenced the enrollment and use of the National health cover. The findings implied that the private insurance covers had competitive plans and terms that led to the majority of the Ugandans opting for private covers instead of public covers.

2.7 Theoretical Framework

The study will be guided by different theories namely rational choice theory, conventional health insurance theory, and expected utility theory. This section reviews the theories and connects them to the study.

2.7.1 Expected utility theory

From a Gain Perspective, the Expected Utility Theory explained by Nyman (2001) is compatible with any uptake and use of health cover. The benefit of health insurance,

according to him, is the expected payoff when unwell, not the guarantee it provides. Customers who pay a premium for a product or service sacrifice revenue that could have been spent on other products or services. When people buy health insurance, they expect that the benefits they would receive will outweigh the benefits they will lose from other products and services. In this case, insurance is purchased to augment income while the person is ill.

Two situations best describe Nyman's idea. In the first case, a person surrenders some of his disposable income to contribute to the health insurance scheme. In the incidence of illness or disease, the insurance policy will compensate the amount spent on treatment, which could be greater than the payments made, leading to profits. In the second case, an individual who lacks medical insurance and hence doesn't pay premiums, resulting in greater discretionary money, would eventually bear the weight of the expense of treatment when illness comes and there is no cover to fall back on. The expense of therapy may wipe away all of his savings from not paying his insurance. This study is based on Nyman's hypothesis since it clearly shows the projected advantages of healthcare professionals using insurance coverage.

2.7.2 Principal Agent Framework

The Principal Agent Framework developed by Figueras, et al (2015) is used in this study. This paradigm looks at the many aspects of strategic buying and is made up of three associations: those between buyers and users, buyers and suppliers, and buyers and the state. This study seeks to assess whether consumers use services acquired on their accounts by NHIF from providers.

The study investigated the buyer's (NHIF) and consumers' connection: Is indeed the role of clients (communications plan) and the connection between the consumer and

dependents expressed in buying decision and what has been bought (reimbursement scheme and administrative procedures), the function of patient populations (communication approach), and the interaction between the buyers as well as their dependents in purchase intention as well as what was bought (reimbursement scheme and administration), the role of service users (communication approach), and the connection involving the buyer and dependents in buying decision and what has been bought (reimbursement scheme and administrative procedures)? (Perceived service quality). The independent variables are supported by this theory since it looks at the buyer-user connection.

Finally, the literature review outlined characteristics influencing utilization as knowledge of the compensation plan, perceptions of medical services, communication techniques, and guidelines and procedures. In Kenya, the NHIF is responsible for paying for its membership' healthcare by collecting income, consolidation, and purchasing healthcare on their interests. Consequently, the emphasis of this study is on issues that affect NHIF membership usage of outpatient clinics (national formal private university personnel).

2.7.3 Rational choice theory

According to rational choice theory, every decision is made after assessing the costs, risks, and benefits of a particular activity. Depending on the individual's interests, choices that are irrational to one person may appear entirely rational to another. This is defined as strategic engagement by a more knowledgeable contracting party against the advantages of a less informed contracting party (s). It's indeed important in the health insurance sector since each individual decides from a variety of agreements provided by the insurance based on their probability of using hospital services. In other words,

consumers who expect to utilize health-care services frequently will favour more comprehensive coverage over those who expect to use them infrequently. A high-risk person will acquire healthcare coverage, but a low-risk person will forgo it till healthcare attention is necessary (Morris et al, 2012; Wagstaff, 2010).

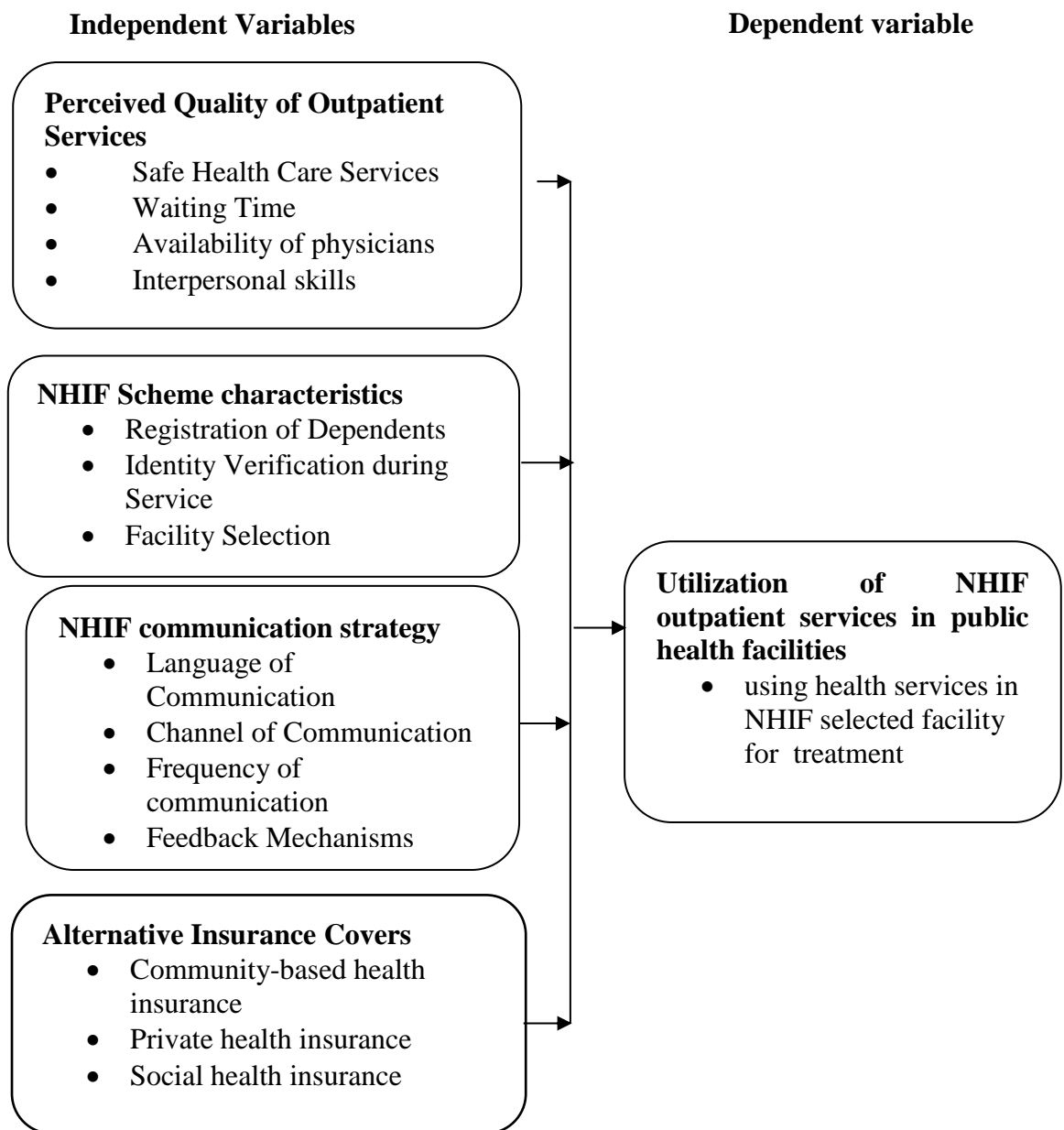
Because it describes how individuals make decisions, the rational choice theory is an essential idea in social work. In the light of rational choice theory, every decision is completed by first considering the costs, risks, and benefits of that action. This is an external link. Depending on the individual's interests, choices that are irrational to one person may appear entirely rational to another. This theory will inform the study in that the low utilization of NHIF amongst healthcare workers and a further look at the availability of alternative insurance covers.

2.8 Conceptual Framework

A conceptual framework is an organization that illustrates the relationship connecting variables being researched. It is a proposed model that clarifies the concepts under consideration and their interactions (Mugenda & Mugenda, 2009). The existence or absence of predictor factors will cause the outcome variable. The model in figure 2.1 illustrates the variables used in the research and their interactions.

Figure 2.1:

Conceptual Framework



2.9 Summary of Literature Review

The chapter conducted a theoretical review which covered the conventional health insurance theory, expected utility theory, rational choice theory and principal-agent framework. The theories offered the base for the development of the conceptual framework. Further, the empirical review is presented focusing on the studies done elsewhere relating to the utilization of NHIF cover, perceived-quality of NHIF cover, NHIF scheme characteristics, NHIF communication approaches and alternative insurance covers. Finally, the chapter outlined the association between variables using a conceptual framework.

2.10 Research Gap

Different studies were conducted on the factors influencing the use of national medical insurance for medical expenses. The uses of national insurance cover' studies have focused on other groups of society such as the community members, informal sector, women, households and adult patients. Michubu (2018) focused on customer perception of service quality and use satisfaction with services provided in NHIF-accredited facilities in Kiambu County. None of the studies has focused on the utilization of national insurance cover in public health facilities by the healthcare workers who work in these public health facilities. This study, therefore, filled this gap by establishing the determinants of the use of the NHIF cover for medical expenses in public health amenities by the public healthcare workers focusing on Makueni County.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

The chapter covers all the techniques and methods that ensured that the researcher fulfilled the purpose of this study. It encompasses design, population, sampling, instrument and methods of analysis.

3.2 Research Design

The study adopted the use of descriptive research design. It is appropriate for the study since the study sought to describe factors that are associated with the utilization of NHIF cover among public health workers in Makueni County. A research design is a set of systematic rules for addressing research issues in a study (Kombo & Tromp, 2011). It may alternatively be characterized as a schematic framework that allows for minimum deviation from the study's objectives and offers procedures for dealing with difficulties that may threaten to achieve the study's objectives (Sekaran & Bougie, 2013). Furthermore, Saunders, et al. (2015) defended its usage in research by citing its ability to acquire data on opinions, social behaviours, and attitudes.

3.3 Target Population

Acharya and Bhattacharya, (2019) defined the population as the total number of individuals or objects that are used to help carry out a study that is comprehensive and well-detailed. It comprises each object with the feature being studied. The study focused on all the health workers in public hospitals in Makueni County. According to the Makueni County Government health report (2020), there was 1,183 health workforce working in all the public hospitals. Appendix VI contains a list of names of all health institutions in the County. The distribution is presented in table 3.1

Table 3. 1***Target Population***

Category	Frequency (N)	Per cent (%)
Medical Laboratory Scientists	139	12
Clinical Officers	181	15
Nurses and Specialist Nurses	731	62
Medical Officers and Specialists	78	7
Pharmacists and pharmaceutical technologists	54	4
Total	1183	100

3.4 Sample Size and Sampling Technique

Sampling is the process of choosing a sample of a larger group to generalize the findings to the complete population (Sekaran & Bougie, 2013). Sampling can be performed in both probabilistic and non-probabilistic fashions (Kothari, 2011). Under probabilistic criteria, all individuals and elements being studied have a fair chance of being considered, but in a non-probabilistic system, inclusion and exclusion methods are explicitly established (Saunders et al., 2014).

This study followed a probabilistic approach and respondents were classified as per categories of the health workers in Makueni County from level 5, 4, 3 and 2 facilities. A stratified random sampling technique was used to sample the facilities across the different levels. The sample size for health facilities and health workers was estimated through the use of the following formula by Krejcie and Morgan (1970). $n = \frac{X^2NP(1-P)}{d^2(N-1) + X^2P(1-P)}$ (note: n denotes sample size; N denotes the target Population size; P denotes the Population Proportion d denotes the Degree of accuracy). Appendix VII presents the Krejcie and Morgan table for the calculation of desired sample size for a study population.

Appendix VI contains a list of names of all health institutions and healthcare workers in Makueni County. For the sake of manageability, the study sampled the healthcare centres by the use of simple random sampling. From the table, the sample size for this study was 291 healthcare workers.

Table 3. 2

Sample

Category	Target population (N)	Sample (n)	Sample (%)
Medical Laboratory Scientists	139	35	25
Clinical Officers	181	45	25
Nurses and Specialist Nurses	731	183	25
Medical Officers and Specialists	78	20	25
Pharmacists and pharmaceutical technologists	54	8	25
Total	1183	291	25%

From health facilities in Makueni County, a sample of 291 health workers was selected to realize data for fulfilling the purpose of this study.

3.5 Data Collection Instruments

The research was based on primary data. Data were gathered using a survey questionnaire. As per Sekaran and Bougie (2013), questionnaires are popular in social studies since they may reach a large group of individuals quickly and maintain confidentiality since no audio or video recording is employed.

The study questionnaire used in this study had six sections; section A of the participants' demographic data was obtained. In B through E, data on the factors of NHIF utilization amongst health personnel in Makueni County was collected, and a 5-point Likert scale

was employed. Part F sought information on NHIF services utilization amongst public health personnel.

3.6 Pre-testing

A pretest is conducted to assess the reliability (internal consistency) of the research tools (Cooper & Schindler, 2010). Pretesting of the research tools was done on 29 health workers who were excluded from participating in the main study from Mbooni Sub County hospital in Mbooni Sub County, Makueni County. According to Connelly (2008), the sample of a pretest study is supposed to be between 1-10% of the estimated sample for the main study. The pretest group was selected through simple random sampling. According to Kombo and Tromp, 2011 random sampling technique in that objects within the target population are assigned the same probability of being picked.

3.6.1 Validity

According to Gillham (2008) validity focuses on determining whether they test what they are supposed to measure. Both content and face validity were used to validate the use of the questionnaire. To guarantee the validity of the study tool, it was given to the administrators, supervisors and experts to ensure the content and face validity. This assisted in promoting the quality of the data realized from the field. The input from the respondents was utilized to make important changes to the instrument for example by eliminating unclear statements, the addition of items where necessary and improving the existing ones.

3.6.2 Reliability

A research instrument is considered reliable if it produces similar results when delivered to different respondent groups (Oso & Onen, 2009). Research instruments are dependable if they exhibit a high degree of consistency when delivered to groups with

considerable variation (Sekaran & Bougie, 2013). According to Babbie (2010), single findings have an impact on reliability assessment, which is why outliers must be checked before being examined in any data collection. Wilson et al. (2010) warn against using a subjective approach to dependability since it may contaminate the data set. For assessing reliability, the Cronbach alpha coefficient will be used in this study. Cronbach Alpha coefficient ranges from 0 to 1 and if it is equal to or greater than 0.7 then the outcomes of the study are deemed fit for generalization (Sekaran & Bougie, 2013).

3.7 Data Collection procedure

The surveys were self-administered targeting healthcare personnel in Makueni County's government health facilities. The administration of the survey was done using the 'drop and pick' technique. Whenever the respondents were not able to complete the questionnaire within a week the researcher gave an additional week to allow the respondents to complete the questionnaire(s). The data collection and cleaning process took three weeks. This was done to allow for sufficient time to realize adequate information for analysis.

3.8 Data analysis Techniques

The act of studying, organization, cleaning, and scrutinizing filled questionnaires before analysis and presentation in tables, charts, graphs, or other representations to identify important info, draw deductions, and assist decision-making is known as data analysis. Data analysis entailed searching for patterns, similarities, disparities, trends, and other correlations, as well as determining what these patterns meant (Cooper & Schindler, 2003). The SPSS version 25 was used to code and analyze the raw data realized from the field. A p-value of <0.05 suggested a statistically significant association in the utilization of NHIF cover among public health workers in Makueni

County. The research also used an ordinal linear regression model to explore the connection between the dependent variable, Utilization of NHIF cover and the independent variables; perceived quality of health services public health facilities, NHIF scheme characteristics, NHIF communication strategy and alternative insurance covers. The use of ordinal regressions is informed by the need for the correlation between the variables. The regression model will be as follows:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5$$

Y = Utilization of NHIF cover

X_1 = Alternative insurance covers

X_2 = NHIF scheme characteristics

X_3 = Perceived quality of NHIF services

X_4 = NHIF communication strategy

While β_1 , β_2 , β_3 and β_4 were coefficients of determination and ε was the error term.

3.9 Ethical Considerations

The researcher was approved by the Science and Ethical Review committee (SERC) at KEMU. Further, the National Commission for Science and Technology innovation (NACOSTI) gave the researcher authority to collect data required for this study. The researcher ensured that the use of information gathered for academic purposes was clarified. In addition, all materials used in the study were properly acknowledged and credited. Upholding of privacy with the response provided and confidentiality was communicated to participants prior to their participation. The study was kept private thanks to the researcher's efforts. All information provided by respondents was secured and treated with the utmost care during the study.

CHAPTER FOUR

RESULTS AND DISCUSSION

4.1 Introduction

The results realized from the purpose of the study were to establish the determinants of utilization of NHIF cover in public health facilities by public health care workers in Makueni County. Frequency tables and figures were used in the presentation of the findings while the interpretations were done in prose.

4.2 Response Rate

The study sample was 291 health care workers at the public health facilities within the boundaries of Makueni County. Out of 291 questionnaires distributed, 225 participants filled them, yielding a response rate of 77.3%. This implies that the study response rate of 77.3% was excellent for the analysis and generalization of the study as shown in table 4.1.

Table 4. 1

Response Rate

	Frequency (N)	Percentage (%)
Completed questionnaires	225	77.3
Uncompleted questionnaires	66	22.7
Total	291	100

4.3 Pretest Results

Out of 291 questionnaires distributed, 225 participants filled them, yielding a response rate of 77.3%. As argued by Mugenda and Mugenda (2009), any return rate greater than 50% is adequate for investigation, a return rate greater than 60% is acceptable, and a

return rate greater than 70% is excellent. Using SPSS, Cronbach's alpha was computed from pretest data to determine the reliability of the study tool. The results are shown in table 4.2.

Table 4. 2

Pretest Results

	Cronbach's Alpha	No. of Items	Conclusion
Perceived Quality of Outpatient Services	0.742	8	scale reliable
NHIF Scheme Characteristics	0.761	8	scale reliable
NHIF Communication Strategy	0.721	9	scale reliable
Alternative Insurance Covers	0.719	8	scale reliable
Utilization of NHIF services HCW	0.71	8	scale reliable
Overall	0.731	41	Instrument reliable

N=29

As depicted in table 4.2 the five items had an alpha coefficient of 0.731 which explains that the items have quite a high internal consistency. High internal consistency indicates that the tool is good since any reliability coefficient above .70 is taken as sufficient for analysis and reporting.

4.4 Demographic Information

The study aimed at establishing the eligibility of the respondents to take part in this study. The study focused on the gender, age, academic achievement and period of time the respondents had served at their current stations and under the ministry of health.

4.4.1 Respondents' Gender

Gender, which is critical in any social research, was assessed and findings are presented in Figure 4.1;

Figure 4. 1

Respondents' Gender



The finding established in figure 4.1 that, females represented the largest majority of the respondent accounting for 64% while males were only 36%. This is an implication that the health staff within Makueni County at the time of the study was females. Further, the outcome implies that the workforce recruitment focuses on securing a female-faced workforce as they are considered caring, gentle and friendly while dealing with the patients.

4.4.2 Respondents' Age

As part of the background information, the researcher saw it as important to determine the age distribution of the respondents. The study established the age distribution of the respondent as stipulated in table 4.3;

Table 4. 3

Respondents' Age

	Frequency (N)	Per cent (%)
25 years and below	71	32
26-35 years	90	40
36-45 years	32	14
Over 45 years	32	14
Total	225	100

Table 4.3 show that most participants 90 (40%) were aged 26-35 years, 71 (32%) were aged 25 years and below, 14% were aged between 31 and 35 years, 10% were aged above 50 years, 7% were aged 25 years or younger. While 36-45 years and over 45 years categories accounted for 14% of the respondents each. This suggests the largest proportion of health workers were aged between 26 and 35 years and it is an age group that is at its optimum age for productivity and much focused on personal and organizational growth.

4.4.3 Level of Education

As part of the basic information, the study also assessed the education level among participants. Figure 4.2 presents the findings,

Figure 4. 2

Level of Education

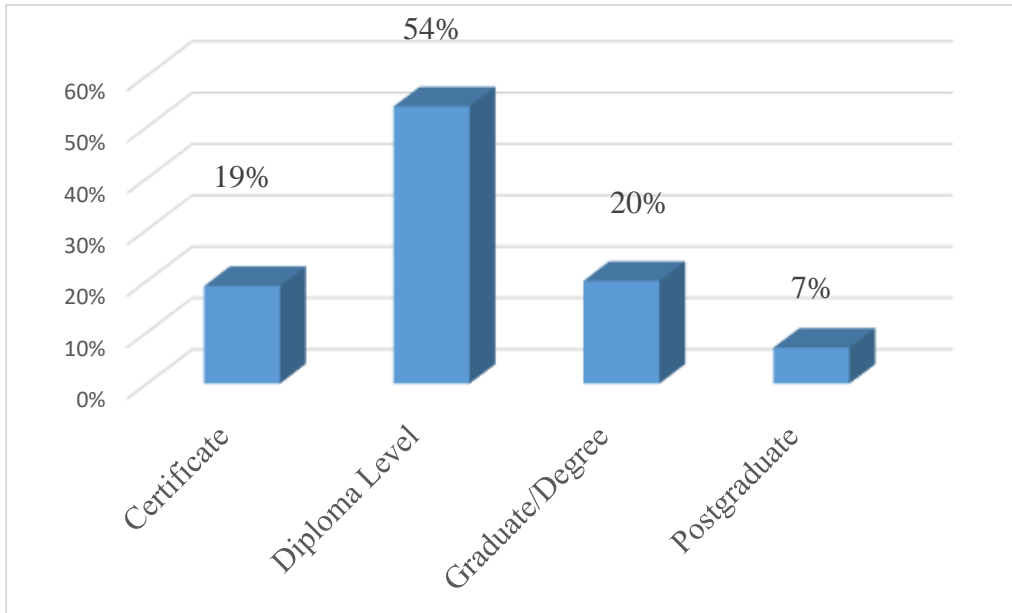


Figure 4.2, shows that the majority (54%) of the participants had a diploma as the highest education level, 20% were first-degree graduates, 19% had a certificate and 7% of the respondents had a post-graduate level of academic qualification. Since the majority had achieved minimum academic and professional training for healthcare workers depending on their cadre. Therefore, the respondents were deemed competent enough to respond to questions contained in the questionnaires. Additionally, the findings stress the role of professionalism factor in the recruitment of health workers within Makeni County.

4.4.4 Duration of Service

The study needed to know how long the respondents had been working in their present position as shown in Table 4.4

Table 4. 4*Duration of Service*

	Frequency (N)	Per cent (%)
Less than 1 year	42	19
1-5 years	130	58
6-10 years	27	12
Over 10 years	26	11
Total	225	100

Results indicate that most participants 130 (58%) had served in the health facilities for 1-5 years and 42 (19%) had served for less than 1 year prior study period. Further, 27 (12%) and 26(11%) of the respondents had served for 6-10 years and above 10 years respectively. This implies that the participants were conversant with the presence of NHIF cover and private insurance covers in the County as the majority had served for over one year.

4.4.5 Duration worked under MOH

The assessed the duration for which health workers had worked under the ministry of health and presented in table 4.5.

Table 4. 5*Duration worked under MOH*

	Frequency (N)	Per cent (%)
Less than 1 year	17	8
1-5 years	69	31
6-10 years	116	51
Over 10 years	23	10
Total	225	100

As per the findings tabulated in table 4.5, 116 (51%) of the participants had worked under the ministry of health for 6-10 years. In addition, 69(31%) had served for 1-5 years; 23(10%) had served under MoH for over 10 years while 17(8%) of health workers in the region had served for less than 1 year with MoH. This implies that the majority of the majority had worked for had worked under the MoH for five and above years and therefore deemed to have the necessary information for determinants of use of NHIF cover in settling medical expenses in public health amenities by public health care workers.

4.4.6 Level of the health facility

Further, the study aimed at assessing the level of the health facilities whir the respondents worked as healthcare employees as shown in table 4.6.

Table 4. 6

Level of the Health Facility

	Frequency (N)	Per cent (%)
Hospital	51	23
Health centre	73	32
Dispensary	101	45
Total	225	100

Table 4.6 show that most participants 101(45%) worked at a dispensary; 73 (32%) worked within a health centre and 51 (23%) of respondents were working in Hospitals. Makueni County is a rural County and therefore the majority of the health facilities are dispensaries which target the specific health needs of the community hosting it.

4.5 Perceived Quality of Outpatient Services

Using a scale of 1-3 the study assessed the perceived Quality of Outpatient Services of health cover and its utilization among health workers and presented findings in table 4.7.

Table 4. 7

Perceived Quality of Outpatient Services

Statements	Disagree		Neutral		Agree		Total	
	n	%	n	%	n	%	n	%
Specialist doctors are available in public health facilities	12	5.3	26	11.6	187	83.1	225	100
Hygiene is maintained in public health facilities	3	1.3	45	20.0	177	78.7	225	100
The waiting time before I receive services is satisfying	61	27.1	33	14.7	131	58.2	225	100
The health services in public health facilities are safe	45	20.0	59	26.2	121	53.8	225	100
Radiology services are in public health facilities	49	21.8	72	32.0	104	46.2	225	100
There is a sufficient number of Health workers in public health facilities	58	25.8	93	41.3	74	32.9	225	100
Laboratories are always functional in NHIF-accredited health facilities	76	33.8	69	30.7	80	35.6	225	100
Drugs are available in all NHIF-accredited public health facilities	91	40.4	34	15.1	100	44.4	225	100

The majority of the respondents agreed that specialist doctors were available in public health facilities (81.3%). The findings were consistent with Mbau, et al. (2020) who found having specialist doctors were found in many most NHIF accredit facilities.

There was also an agreement that hygiene was maintained in public health facilities (78.7%), a finding that was consistent with Maina et al (2019) who observed significant hygiene in hospitals in Kenya.

The respondents agreed that the waiting time before receiving services was satisfying (58.2%). This finding support Wavomba and Sikolia (2015) who assessed service quality and found a significant service quality in Kenyan health facilities which most accredited hospitals, Also, participants agreed that the health services in public health facilities were safe (53.8%) which is consistent with Gitobu et al. (2018) who rated the level of hospital facilities as secure. and that radiology services were available in public health facilities (46.2%). Further the respondents neither agreed nor disagreed on the sufficiency of healthy workers as implied by 41.3% who reported neutral that there was a sufficient number of health workers in public health facilities. There was a varied response on the issue of the functionality of laboratories in NHIF-accredited health facilities which are shown by a third of respondents (35.6%) and further agreed that those drugs were available in all NHIF-accredited public health facilities (44.4%). However, Kironji et al. (2019) argue despite the availability of this equipment, most of them are outdated, and low drug stock is a common challenge. The outcomes imply that cognizant of the role of Perception in the utilization of NHIF services by public healthcare workers.

4.6 NHIF Scheme Characteristics

Table 4.8 provides findings on NHIF scheme features using a scale of 1-5. Participants were asked to indicate their agreement with various aspects of NHIF scheme characteristics.

Table 4. 8*NHIF Scheme Characteristics*

Statements	Disagree		Neutral		Agree		Total	
	n	%	n	%	n	%	n	%
Very little documentation is required before enrolment into NHIF Scheme	14	6.2	49	21.8	162	72.0	225	100
NHIF registration is fast for the healthcare workers	10	4.4	40	17.8	175	77.8	225	100
NHIF allows me to choose public health facilities	3	1.3	55	24.4	167	74.2	225	100
Monthly contribution remittances are done without the workers' permission as it is an automated process	39	17.3	47	20.9	139	61.8	225	100
The rates for a contribution towards the NHIF scheme are standardized for all the healthcare staff	31	13.8	39	17.3	155	68.9	225	100
Dependents are registered alongside the registration of health workers	17	7.6	33	14.7	175	77.8	225	100
Work identity verification during service is the only requirement for NHIF cover	69	30.7	72	32.0	84	37.3	225	100
NHIF Scheme characteristics have special packages for the health staff	86	38.2	41	18.2	98	43.6	225	100

Table 4.8 shows that the majority of health agreed that very little documentation was required before enrolment into NHIF Scheme (72.0%), a finding supported by Agyepong et al (2016). NHIF registration was fast for healthcare workers (77.8%), a

finding supported by Lee, et al (2017) who observed public employees are required in most countries. Also, the study found under the NHIF scheme health could choose public health hospitals to go to for health services (74.2%) as stressed by Amu, et al. (2018) in their discussion of national health schemes in most African countries. In addition, the respondents agreed that monthly contribution remittances were done without the workers' permission as it was an automated process (61.8%) and that the rate for a contribution towards the NHIF scheme was standardized for all the healthcare staff (68.9%) and that workers' dependents were registered alongside the registration of the workers (77.8%) which is a case in other countries such as Tanzania (Kumburu, 2015). Further, the respondents agreed that work identity verification during service was the only requirement during registration into the NHIF scheme (37.3%) and that NHIF scheme characteristics had special packages for the health staff (43.6%). The findings suggest health workers were well informed on the aspects of the NHIF Scheme Characteristics and how they affect the utilization of NHIF services by public healthcare workers.

4.7 NHIF Communication Strategy

The study assessed agreement among health workers on agreement with various aspects of NHIF communication approaches and their influence on the utilization of NHIF using a scale of 1-3 and presented in table 4.9.

Table 4. 9***NHIF Communication Strategy***

Statements	Disagree		Neutral		Agree		Total	
	n	%	n	%	n	%	n	%
The NHIF frequently disseminates customized information to their subscribers	7	3.1	66	29.3	152	67.6	225	100
I can access information about NHIF via social media platforms	13	5.8	50	22.2	162	72.0	225	100
I am conversant with the channels used in communication by the NHIF	22	9.8	44	19.6	159	70.7	225	100
A vertical system of communication is used by NHIF and communication must flow from the top to the end users of the NHIF Products	36	16.0	45	20.0	144	64.0	225	100
NHIF use mobile phones to communicate with clients/customers	46	20.4	32	14.2	147	65.3	225	100
Subscribers of the NHIF must notify the programme within 24 hours of being admitted to a hospital.	45	20.0	77	34.2	103	45.8	225	100
NHIF has an effective client feedback system	32	14.2	69	30.7	124	55.1	225	100
NHIF language of communication is customized for healthcare workers	69	30.7	76	33.8	80	35.6	225	100
NHIF use emails to communicate with clients/customers	81	36.0	49	21.8	95	42.2	225	100

Table 4.10 shows the majority of health workers agreed that the NHIF frequently disseminated customized information to their subscribers (67.6%), a finding which is inconsistent with Kironji (2019) who found that NHIF had poor dissemination of information and had adequate accessibility to information about NHIF via social media

platforms (72.0%) which was also inconsistent with Mbau et al. (2020) who reported limited dissemination of information by the NHIF through social media. In addition, the respondents agreed that they were conversant with the channels used in communication by the NHIF (70.7%); that a vertical system of communication was used by NHIF and that communication had to move from the top to the end users of the NHIF Products (64.0%) and that NHIF used mobile phones to communicate with clients/customers (65.3%) a finding which consistent with Nalwelisie et al. (2021) who observed a low use of phone calls by NHIF to the dissemination of information to its clients. Moreover, the respondents agreed that NHIF subscribers are obligated to inform the NHIF regarding their admission or admission of dependant(s) within 24 hours of admission to a hospital (45.8%) which is consistent with Munge et al. (2015). and that NHIF had an effective client feedback system (51.8%). Further, the respondents disagreed that NHIF language of communication was customized to healthcare workers (35.6%) and that NHIF used emails to communicate with clients/customers (42.2%) a finding which consistent with Nalwelisie et al. (2021) who observed a low use of email by NHIF to the dissemination of information to its clients. This suggests that health workers were aware of the role played by the communication strategies and systems within the NHIF scheme aimed at promoting the subscription and usage of the scheme.

4.8 Alternative Insurance Covers

They sought to describe alternative health insurance coverage among health workers. This was assessed on basis of flexibility, terms, use in outpatient and inpatients medical expenses, and their preferences for NHIF. This was rated using a scale of 1-5 and presented in table 4.10.

Table 4. 10*Alternative Insurance Covers*

Statements	Disagree		Neutral		Agree		Total	
	n	%	n	%	n	%	n	%
The private insurers offer flexible packages tuned to match the specific needs of the customers	82	36.4	16	7.1	127	56.4	225	100
Other covers besides NHIF offer better terms	22	9.8	59	26.2	144	64.0	225	100
Private covers are more likely to receive both inpatient and outpatient compared to NHIF cover	37	16.4	28	12.4	160	71.1	225	100
The packages provided by alternative covers are more attractive than the packages by NHIF	55	24.4	38	16.9	132	58.7	225	100
I prefer private health insurance as it is customized compared to NHIF	10	4.4	54	24.0	161	71.6	225	100
I prefer to use health insurance coverage provided by other insurance covers that I have	82	36.4	56	24.9	87	38.7	225	100
Private insurer always pays health providers promptly	134	59.6	28	12.4	63	28.0	225	100
The private insurer has a paperless claims process	120	53.6	49	21.9	55	24.6	224	100

Most health workers agreed that private insurers offer flexible packages tuned to match the specific needs of the customers (56.4%) which supports the work of Torchia et al. (2015) who observed the flexibility of the private insurance packages as opposed to the government. There was also an agreement from the participants that other covers besides NHIF offer better terms (64.0%) which is consistent with Lyons (2020) who

found that Private health insurance offered better terms as compared to state health schemes.

The respondents agreed that private covers were more likely to receive both in-patient and out-patient than those under NHIF coverage (71.1%). However, inpatient and outpatient services are widely provided under national health insurance schemes in different nations (Kusi et al., 2015), only that they are camped and the coverage in some cases may be insignificant. On the attractiveness of the private cover, the study found agreement among the participants that the packages provided by alternative covers were more attractive than the packaging by NHIF (58.7%). However, this may differ depending on the management of National health schemes; where the National health scheme was well managed, it was more attractive than private health insurance as observed by Yu, (2015) and vice versa. The respondents further agreed that there was a preference for private health insurance as it was customized compared to NHIF (71.6%) a finding which is inconsistent with Cohen, et al. (2016) and Courtemanche et al (2017) who considered the national health scheme more preferred. In cases where a person had other insurance coverage, it was noted that at least one-third preferred to use health insurance coverage provided by another insurance cover that they had (38.7%).

On the promotiveness of payment of health facilities by an insurer and the presence of a paperless claim process, the study observed a disagreement; that is private insurers did not pay the health providers promptly (59.6%), a finding supported by White and Whaley (2019). At least 50% of the respondent agreed that private insurers had a paperless claims process (53.6%), a finding consistent with Ambade (2021) who observed a growing adoption of technology in health insurance. This suggests that the

study health workers were aware of the existence of alternative health insurance providers who offered competitive packages compared to those offered by the NHIF.

4.9 Utilization of NHIF services by public healthcare workers

The study also assessed the utilization of NHIF services among public health workers. The participants rated various aspects of use on a scale of 1-3; the findings are shown in table 4.11.

Table 4. 11

Utilization of NHIF Services by Public Health Care Workers

Statements	Disagree		Neutral		Agree		Total	
	n	%	n	%	n	%	n	%
The cost of health services sometimes exceeds the NHIF coverage limit	34	15.1	22	9.8	169	75.1	225	100
I sometimes use out-of-pocket medical services	47	20.9	25	11.1	153	68.0	225	100
NHIF limits the medical services that I can get	30	13.3	59	26.2	136	60.4	225	100
Some requests for medical funds are left unfunded under NHIF	48	21.3	32	14.2	145	64.4	225	100
NHIF covers all health needs for my dependents	56	24.9	20	8.9	149	66.2	225	100
The NHIF are prompt in the dissemination of the funds after a request from the customers	63	28.0	32	14.2	130	57.8	225	100
I use NHIF for all my outpatient services	68	30.2	54	24.0	103	45.8	225	100
NHIF covers surgeries for all the healthcare workers	83	36.9	33	14.7	109	48.4	225	100

The majority of respondents agreed that the NHIF financial reservoirs are sometimes depleted (75.1%) which is consistent with Betts et al. (2019) noted that sometimes money contributed may be depleted and that sometimes use out-of-pocket for any medical services given (68.0%) which is a common occurrence in most national health insurance schemes in most countries (Elhadi et al., 2022). In addition, the respondents agreed that NHIF limited the medical services that they could get (60.4%); that some requests for medical funds were left unfunded under NHIF (64.4%), a finding which is consistent with Munge et al. (2015) who found the NHIF cover was limited in both services and number of stay in the hospital.

A reasonable proportion of respondents reported that NHIF covered all health needs for their dependents (62.4%) which are inconsistent with Mbau et al. (2020). Moreover, the respondents agreed that the NHIF delayed the dissemination of funds after a request from the customers had been placed (57.8%) a scenario that is common in most developing countries (Sieverding et al., 2018). The study further found that participants used NHIF for all their outpatient services (45.8%) and that NHIF covered surgeries for all healthcare workers (48.4) which is consistent with Dalinjong et al. (2017). The findings show that the respondents understood the position of the NHIF in the funding of specific medical activities.

4.10 Inferential analysis

4.10.1. Correlation between determinants of use and utilization of NHIF cover

The study employed the Pearson correlations to determine the direction and size of the association variables (table 4.12)

Table 4. 12

Association between determinants of use and utilization of NHIF cover

		Perceived Quality of Health Services	NHIF Scheme Characteristics	NHIF Communication Strategy	Alternative Insurance Covers	Utilization of NHIF Cover by HCW
Perceived Quality of Health Services	Pearson Correlation	1	0.003	.418**	-0.115	.306**
	Sig. (2-tailed)		0.969	.000	0.084	.000
	N	225	225	225	225	225
NHIF Scheme Characteristics	Pearson Correlation	0.003	1	.181**	.200**	0.079
	Sig. (2-tailed)	0.969		0.006	0.003	0.237
	N	225	225	225	225	225
NHIF Communication Strategy	Pearson Correlation	.418**	.181**	1	-0.011	.289**
	Sig. (2-tailed)	.000	0.006		0.868	0.00
	N	225	225	225	225	225
Alternative Insurance Covers	Pearson Correlation	-0.115	.200**	-0.011	1	.332**
	Sig. (2-tailed)	0.084	0.003	0.868		0
	N	225	225	225	225	225
Utilization of NHIF Cover by HCW	Pearson Correlation	.306**	0.079	.289**	.332**	1
	Sig. (2-tailed)	.000	0.237	.000	.000	
	N	225	225	225	225	225

** . Correlation is significant at the 0.01 level (2-tailed).

The study observed a positive association between the Alternative Insurance Covers and NHIF scheme features; alternative insurance covers and utilization of NHIF services by HCW in public health facilities with correlation values of .200** and .332** respectively. The findings were consistent with Black et al (2015) who found despite the possession of alternatives, the customer continued to use NHIF. Further analysis shows that there existed a positive association between understanding NHIF Scheme Features and NHIF Communication Strategy with a correlation coefficient of .181**.

This finding is consistent with Mbogori et al. (2015) who found having strategic communication helped the client to understand NHIF characteristics. Moreover, the analysis showed that the perceived quality of health services and NHIF communication approach; perceived quality of health services and utilization of NHIF services in public health facilities by HCW observed a strong positive relationship indicated by $r = .418^{**}$ and $r = .306^{**}$ respectively. Finally, the analysis results showed that the NHIF Communication Strategy and Utilization of NHIF services in public health facilities by HCW had a positive correlation with a value of $.289^{**}$. This was consistent with Barasa et al. (2017) who found that HHIF communication strategy significantly influenced the use of NHIF services.

4.10.2 Regression analysis

In establishing the predictive power of the predictor factors in the use of NHIF cover in public health facilities by public health care workers, the researcher adopted the use of an ordinal linear model. SPSS version 25.0 was employed in the coding and analysis of the data. Table 4.13 presents the model summary;

Table 4. 13

Contribution of Determinants to the Utilization of NHIF Cover among health workers

Model	R	R Square	Adjusted R Square	Std. The error in the Estimate
1	.508 ^a	.258	.244	.51131

a. Predictors: (Constant), NHIF Communication Strategy, Alternative Insurance Covers, NHIF Scheme Characteristics, Perceived Quality.

The four predictor factors were responsible for 25.8% of the variation in the utilization of NHIF cover in public health facilities by public health care workers as represented

by the R^2 . This is an implication that factors outside this study influence 74.2% of the use of NHIF coverage to settle the medical bill in public health facilities by public health care workers. Hence, additional research should be conducted with the aim of determining the other factors that influence 74.2% of utilization of NHIF cover in public health facilities by public health care workers in Makueni County.

Analysis of Variance (ANOVA)

The study tested the ability of regression to predict the utilization of NHIF cover in public health facilities by public health care workers in Makueni County (Table 4.14).

Table 4. 14

Model Ability to Predict utilization of NHIF cover among health work using selected determinants

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	19.985	4	4.996	19.110	.000 ^b
	Residual	57.515	220	.261		
	Total	77.500	224			

a. Dependent Variable: Utilization of NHIF outpatient services in public health facilities

b. Predictors: (Constant), NHIF Communication Strategy, Alternative Insurance Covers, NHIF Scheme Characteristics, Perceived Quality of NHIF Services

The p-value (sig.) was 0.000 ($p > 0.05$) shows using NHIF communication strategy, alternative insurance covers, NHIF scheme characteristics and perceived quality of health services are statistically significant predictors of the utilization of NHIF cover in public health facilities by public health care workers using regression model at $\alpha = 0.05$.

Coefficient of Determination

The study also adopted the use of multiple regression analysis to assess the relative contribution of the utilization of NHIF cover by public health care workers in Makueni County. The findings are shown in table 4.15.

Table 4.15

The relative contribution of Determinants to the utilization of NHIF Cover among health workers

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	0.919	0.345		2.664	0.008
Perceived Quality of NHIF Services	0.273	0.065	0.272	4.211	.000
NHIF Scheme Characteristics	-0.028	0.057	-0.029	-0.485	0.628
NHIF Communication Strategy	0.195	0.069	0.185	2.839	0.005
Alternative Insurance Covers	0.334	0.054	0.371	6.222	.000

Fitting the coefficients obtained in table 4.15

$(Y = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \varepsilon)$ becomes:

$$Y = .919 + .334X_1 + (-.028) X_2 + .273X_3 + .195 X_4 + \varepsilon$$

Setting NHIF communication strategy, alternative insurance covers, NHIF scheme characteristics and Perceived quality of health services at zero, utilization of NHIF cover in public health facilities by public health care workers in Makueni County would be .919. The results indicate that with the four variables, a unit rise in alternative

insurance covers leads to a .334 rise in utilization of NHIF cover by public health care workers. A unit rise in NHIF scheme features leads to a .028 decrease in the utilization of NHIF cover by public health care workers.

A unit increase in perceived quality of services leads to a .273 rise in utilization of NHIF cover by public health care workers; while a unit rise in NHIF communication strategy leads to a .195 rise in utilization of NHIF cover by public health care workers.

At the significance level of 95%, alternative insurance covers and perceived quality of health services were the most significant in influencing utilization of NHIF cover by public health care workers with significance values of .000. Further, NHIF communication strategy was a significant determinant of the utilization of NHIF cover by public health care workers with a significance value of .005. In addition, the outcomes show that NHIF scheme characteristics were an insignificant determinant of the utilization of NHIF cover by public health care workers in Makueni County.

The study found that Alternative Insurance Covers positively and significantly influenced the utilization of NHIF coverage by public healthcare workers. The findings are contrary to the findings by Pozen and Stimpson (2017) that the availability of private covers had an insignificant influence on the subscription and use of the national health insurance cover in Liverpool, UK. In addition, the findings agree with Konde and Okuonzi (2016) that the involvement of private insurance covers to a great extent influenced the enrollment and use of National insurance coverage.

Further, the study found that NHIF Scheme Characteristics negatively and insignificantly influenced the utilization of NHIF coverage by public healthcare workers. The findings are inconsistent with Owosu-Sekyere et al. (2014) that the characteristics of the national insurance cover had a significant influence on the

utilization of the national insurance cover in Ghana. Moreover, the findings disagree with the findings of Kironji (2019) NHIF administrative processes had a statistically significant impact on private university workers in Nairobi using NHIF outpatient services.

The study also found that the perceived quality of health services positively and significantly influenced the utilization of NHIF coverage by public health care workers. The findings are consistent with Mulupi et al. (2013) that people's perceptions of low service quality at NHIF-accredited institutions were a key factor in dropout rates and deterring individuals from enrolling in health insurance plans.

In addition, the study found that NHIF Communication Strategy significantly and positively influenced the utilization of NHIF coverage by public health care workers. The findings are consistent with Okigbo (2014) that health communication often integrates and promotes positive changes in attitudes and behaviours regarding the consumption of health products: those communication strategies positively and significantly influenced the consumption of the health products available. Further, the findings agree with O'Hair, et al. (2018) that health communication strategies had a positive and significant subscription and use of national health insurance coverage in an evolving media environment.

4.9.3. Cox and Snell R-squared and Nagelkerke R-squared

The research took into account measurements equivalent to R² in ordinary least-squares regression analysis that is the portion of variation accounted for by the model. Nevertheless, in logistic regression, this is the pseudo R² measurement. The Cox and Snell, Nagelkerke, and McFadden pseudo R² measurements are computed by SPSS Statistics: The results are presented in Table 4.16.

Table 4. 16***Cox and Snell R-squared and Nagelkerke R-squared***

Pseudo R-Square	
Cox and Snell	.938
Nagelkerke	.942
McFadden	.519

Table 4.16 shows Pseudo R-Squared statistics referred to as *pseudo R²* values (and will have lower values than in multiple regressions). However, they are interpreted in the same manner, but with more caution. Therefore, the explained variation in the dependent variable based on our model ranges from 93.8% to 94.2%, depending on whether you reference the Cox & Snell *R²* or Nagelkerke *R²* methods, respectively.

Of much greater importance are the results presented in the likelihood ratio tests table 4.17.

Table 4. 17***Likelihood Ratio Tests***

Effect	Model Fitting Criteria	Likelihood Ratio Tests		
	-2 Log Likelihood of Reduced Model	Chi-Square	df	Sig.
Intercept	580.735 ^a	0	0	.
Perceived Quality of outpatient services	758.206 ^b	177.471	374	1
NHIF Scheme Characteristics	890.609 ^b	309.874	340	0.878
NHIF Communication Strategy	879.371 ^b	298.636	340	0.948
Alternative Insurance Covers	818.996 ^b	238.261	425	1

The chi-square statistic is the -2 log-likelihood differential between the final model and a simplified model. The simplified model is created by removing one of the final model's effects. The null hypothesis proposes that all of the effect variables are zero.

a. Because removing the impact does not influence the degrees of freedom, this simplified model is comparable to the final model.

b. The Hessian matrix has unanticipated singularities. This suggests that either certain contributing factors are removed or some classifications are consolidated.

Results in table 4.21 show which independent variables are statistically significant. Alternative Insurance Covers, NHIF Scheme Characteristics, Perceived Quality of outpatient services and NHIF Communication Approach we're not statistically significant as the p-values were 1.000, .878, 1.000 and .948 respectively. The outcomes in the table are mostly used for predictor factors as it is the only outcomes that consider the overall effect of a predicted variable.

4.9.4. Hosmer-Lemeshow statistic

The study finally conducted the Hosmer-Lemeshow statistics to determine the Goodness-of-Fit of the study model. The results are presented in Table 4.18

Table 4. 18

Hosmer-Lemeshow statistic

Goodness-of-Fit			
	Chi-Square	df	Sig.
Pearson	1.872E+19	2278	.000
Deviance	580.735	2278	1.000

Large Pearson chi-square values show a poor fit for the model. The $p < .05$ implied the model does not fit the data well. Table 4.21 shows that the p -value is .000 (i.e., $p = .000$). Based on this measure, the model does not fit the data well. The Hosmer-Lemeshow statistic in this case indicates a poor fit as the significance value was less than 0.05.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

The section comprises of summary of findings in chapter four, conclusions and recommendations on the determinants of usage of NHIF cover in public health amenities by public health care workers in Makueni County. It also presents recommendations based on the objectives of the study and areas for further studies.

5.2 Summary of Findings

The study's main objective was to establish the determinants of the use of NHIF cover in public health facilities by public health care workers in Makueni County. This section is presented the NHIF communication strategy, alternative insurance covers, NHIF scheme characteristics and Perceived quality of NHIF services on the utilization of NHIF cover in public health facilities by public health care workers.

5.2.1 Perceived Quality of health services

The study found that specialist doctors were available in public health facilities and that hygiene was maintained in public health facilities. In addition, the study found that the waiting time before receiving services was satisfying. Moreover, the study found that the health services in public health facilities were moderately safe and that radiology services were moderately available in public health facilities. Further, the study found that there was an insufficient number of Health workers in public health facilities and that laboratories were not always functional in NHIF-accredited health facilities. Also, the study found that drugs were moderately available in NHIF-accredited public health facilities. The results imply that cognizant of the role of

human perception of what entails quality in the utilization of NHIF services by public healthcare workers.

5.2.2 NHIF Scheme Characteristics

The study found that very little documentation was required before enrolment into NHIF Scheme; NHIF registration was fast for the healthcare workers and the scheme allowed them to choose public health hospitals to go to for health services. In addition, the study found that monthly contribution remittances were done without the workers' permission as it was an automated process and that the rate for a contribution towards the NHIF scheme was standardized for all the healthcare staff. Also, the study found that workers' dependents were registered alongside the registration of the workers. Further, the study found that work identity verification during service was the only requirement while seeking service and those NHIF scheme characteristics had special packages for the health staff. The findings show that the health workers were well informed on the aspects of the NHIF Scheme Characteristics and how they affect the utilization of NHIF services by the public healthcare workers.

5.2.3 NHIF Communication Strategy

The study found that the NHIF frequently disseminated customized information to their subscribers and accessed information about NHIF via social media platforms. In addition, the study found that health workers were conversant with the channels used in communication by the NHIF and that a vertical system of communication was used by NHIF and communication had to move from the top to the end users of the NHIF Products. Moreover, the study found that NHIF used mobile phones to communicate with clients/customers. Further, the study found that NHIF members were moderately required to inform the NHIF of their admission and that of dependants within 24 hours

and NHIF had an effective client feedback system. Further, the study found that the NHIF language of communication was moderately customized to healthcare workers and that NHIF rarely used emails to communicate with clients/customers. This suggests that health workers were informed on the role played by the communication strategies and systems within the NHIF scheme aimed at promoting the subscription and usage of the scheme.

5.2.4 Alternative Insurance Covers

The study found that private insurers offer flexible packages tuned to match the specific needs of the customers and that other covers besides NHIF offer better terms. In addition, the study found that private covers were more likely to receive both in-patient and out-patient than those under NHIF coverage and that the packages provided by alternative covers were more attractive than the packaging by NHIF. Further, the study found that there was a moderate preference for private health insurance as it was customized compared to NHIF and that they preferred to use health insurance coverage provided by another insurance cover that they had. Moreover, the study found that private insurers did not always pay the health providers promptly and that private insurers had paper processes while placing the claims. The results imply that the study respondents were aware of the existence of alternative health insurance providers who offered competitive packages compared to those offered by the NHIF.

5.2.5 Utilization of NHIF Cover by Public Health Care Workers

The study found that the NHIF financial reservoirs are sometimes depleted and that sometimes use out-of-pocket for any medical services given. In addition, the study found that NHIF limited the medical services that they could get and that some requests for medical funds were left unfunded under NHIF. Additionally, the study

found that NHIF covered all the health needs of their dependents. Moreover, the study found that the NHIF moderately delayed in the dissemination of funds after a request from the customers had been placed and that healthcare workers moderately used NHIF for their outpatient services. Also, the study found that NHIF moderately covered surgeries for healthcare workers. The findings show that the respondents understood the position of the NHIF in the funding of specific medical activities.

The study found that at the significance level of 95%, alternative insurance covers and perceived quality of NHIF services were the most significant in influencing utilization of NHIF cover by public health care workers with significance values of .000. Further, NHIF communication strategy was a significant determinant of the utilization of NHIF cover by public health care workers with a significance value of .005. Finally, the study found that NHIF scheme characteristics were an insignificant determinant of the utilization of NHIF cover by public health care workers in Makueni County.

5.3 Conclusions

The study concludes that private insurers offer flexible packages tuned to match the specific needs of the customers and that other covers besides NHIF offer better terms. In addition, the study concludes that private covers were more likely to receive both in-patient and out-patient than those under NHIF cover and that the packages provided by alternative covers were more attractive than the packaging by NHIF. Further, the study concludes that the respondents there was a moderate preference for private health insurance as it was customized compared to NHIF and that they preferred to use health insurance cover provided by another insurance cover that they had. Moreover, the study concludes that private insurers did not always pay the health providers promptly and that private insurers had paper processes while placing the claims. The results imply

that the study respondents were aware of the existence of alternative health insurance providers who offered competitive packages compared to those offered by the NHIF.

The study concludes that very little documentation was required before enrolment into NHIF Scheme; NHIF registration was fast for the healthcare workers and the scheme allowed them to choose public health hospitals to go to for health services. In addition, the study concludes that monthly contribution remittances were done without the workers' permission as it was an automated process and that the rate for a contribution towards the NHIF scheme was standardized for all the healthcare staff. Also, the study concludes that workers' dependents were registered alongside the registration of the workers. Further, the study concludes that work identity verification during service was the only requirement while seeking service and those NHIF scheme characteristics had special packages for the health staff. The findings show that the respondents were well informed on the aspects of the NHIF Scheme Characteristics and how they affect the utilization of NHIF services by public healthcare workers.

The study concludes that specialist doctors were available in public health facilities and that hygiene was maintained in public health facilities. In addition, the study concludes that the waiting time before receiving services was satisfying. Moreover, the study concludes that the health services in public health facilities were moderately safe and that radiology services were moderately available in public health facilities. Further, the study concludes that there was an insufficient number of Health workers in public health facilities and those laboratories were not always functional in NHIF-accredited health facilities. Also, the study concludes that drugs were moderately available in NHIF-accredited public health facilities. The results imply that cognizant of the role of human perception of what entails quality in the utilization of NHIF services by public healthcare workers.

The study concludes that the NHIF frequently disseminated customized information to their subscribers and that they were able to access information about NHIF via social media platforms. In addition, the study concludes that health workers were conversant with the channels used in communication by the NHIF and that a vertical system of communication was used by NHIF and communication had to move from the top to the end users of the NHIF Products. Moreover, the study concludes that NHIF used mobile phones to communicate with clients/customers. Further, the study concludes that NHIF members were moderately required to notify the scheme within 24 hours of admission to a hospital and that NHIF had a moderately effective client feedback system. Further, the study concludes that the NHIF language of communication was moderately customized to healthcare workers and that NHIF moderately used emails to communicate with clients/customers. The findings imply that the respondents were aware of the role played by the communication strategies and systems within the NHIF scheme aimed at promoting the subscription and usage of the scheme.

The study concludes that the NHIF financial reservoirs are sometimes depleted and that sometimes use out-of-pocket for any medical services given. In addition, the study concludes that NHIF limited the medical services that they could get and that some requests for medical funds were left unfunded under NHIF. Additionally, the study concludes that NHIF covered all the health needs of their dependents. Moreover, the study concludes that the NHIF moderately delayed the dissemination of funds after a request from the customers had been placed and that healthcare workers moderately used NHIF for their outpatient services. Also, the study concludes that NHIF moderately covered surgeries for healthcare workers. The findings show that the

respondents understood the position of the NHIF in the funding of specific medical activities.

The study concludes that at the significance level of 95%, alternative insurance covers and perceived quality of health services were the most significant in influencing utilization of NHIF Cover by public health care workers with significance values of .000. Further, the study concludes that NHIF communication strategy was a significant determinant of the utilization of NHIF cover by public health care workers with a significance value of 0.005. Finally, the study concludes that NHIF scheme characteristics were an insignificant determinant of the utilization of NHIF cover by public health care workers in Makueni County.

5.4 Recommendations

The study recommends that to promote the NHIF in the face of the private insurance covers, the NHIF management should invest in innovations that would help in promoting the competitive edge of NHIF compared to other covers and that way the NHIF subscribers/seekers would not prefer other insurers.

The study further recommends that to the characteristics of the NHIF scheme, a mobile-based app should be developed and made available for the users as one of the major concerns is the delay experienced during the placing of claims. With a mobile-based application, the paperwork is greatly reduced as well as the time consumed in processing requests.

The study further recommends continuous improvement of the quality of services and the NHIF-accredited hospital. Specifically, health facilities should improve the number of Health workers in public health facilities and laboratories to ensure they are always

functional. Also, they should ensure there are available drugs in the NHIF-accredited facilities.

The NHIF management should install a modern system of communication that reduces the movements between the NHIF and the healthcare providers. The system should incorporate the mainstream media and modern communication platforms which interchangeably ensure that target customers are reached.

5.5 Areas for Further Research

The study findings indicate that factors not covered in this study influenced 74.2% of utilization of NHIF cover in public health facilities by public health care workers. Hence, additional research should be conducted with the aim of determining the other factors that influence 74.2% of utilization of NHIF cover in public health facilities by public health care workers. Further, the researcher suggests that further research be done on the utilization of NHIF cover in public health facilities by public health care workers in other counties with similar health systems in Kenya as the health sector is devolved and compare the results. In addition, the study recommends that a study be conducted on the relationship between ambulance referral network intervention and maternal health outcomes in Laikipia County.

REFERENCES

- Acharyya, R., & Bhattacharya, N. (Eds.). (2019). *Research methodology for social sciences*. Taylor & Francis.
- Adeniji, F. O. (2017). National Health Insurance Scheme in Nigeria progress towards universal coverage. *Asian Journal of Medical Health*, 3(4), 1-2. <https://asianarchive.co.in/index.php/AJMAH/article/view/6098>
- Adrian, M. L., Fung, S. F., Gallagher, D. L., & Green, J. L. (2015). Whistlers observed outside the plasmasphere: Correlation to plasmaspheric/plasmapause features. *Journal of Geophysical Research: Space Physics*, 120(9), 7585-7614. <https://ui.adsabs.harvard.edu/abs/2007AGUFMSM21A0321A/abstract>
- Agyepong, I. A., Abankwah, D. N. Y., Abroso, A., Chun, C., Dodoo, J. N. O., Lee, S., ... & Asenso-Boadi, F. (2016). The “Universal” in UHC and Ghana’s National Health Insurance Scheme: policy and implementation challenges and dilemmas of a lower middle-income country. *BMC Health Services Research*, 16(1), 1-14. <https://bmchealthservres.biomedcentral.com/articles/10.1186/s12913-016-1758-y>
- Alhassan, R. K., Nketiah-Amponsah, E., Spieker, N., Arhinful, D. K., & Rinke de Wit, T. F. (2016). Perspectives of frontline health workers on Ghana’s National Health Insurance Scheme before and after community engagement interventions. *BMC health services research*, 16(1), 1-11. <https://link.springer.com/article/10.1186/s12913-016-1438-y>
- Ambade, N. M. (2021). Technology in health insurance in India. *International Journal of Engineering Research in Computer Science and Engineering*, 8(3), 25-31. https://www.technoarete.org/common_abstract/pdf/IJERCSE/v8/i3/Ext_24356.pdf
- Amu, H., Dickson, K. S., Kumi-Kyereme, A., & Darteh, E. K. M. (2018). Understanding variations in health insurance coverage in Ghana, Kenya, Nigeria, and Tanzania: evidence from demographic and health surveys. *PloS one*, 13(8), e0201833. <https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0201833>
- Babbie, E. R. (2010). *The Practice of Social Research*. Wadsworth.
- Bakar, A. A., & Samsudin, S. (2016). Determinants of health care seeking behaviour: does insurance ownership matters? *International Journal of Economics and Financial Issues*, 6(7), 6-11. <https://dergipark.org.tr/en/pub/ijefi/issue/32000/353016>.
- Barasa, E. W., Maina, T., & Ravishankar, N. (2017). Assessing the impoverishing effects, and factors associated with the incidence of catastrophic health care payments in Kenya. *International Journal for Equity in Health*, 16 (31), 1-14. <https://equityhealthj.biomedcentral.com/articles/10.1186/s12939-017-0526-x>
- Barasa, E. W., Mwaura, N., Rogo, K., & Andrawes, L. (2017). Extending voluntary health insurance to the informal sector: experiences and expectations of the informal sector in Kenya. *Wellcome open research*, 2(94),1-13. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5698913.1/>

- Betts, A., Omata, N., Rodgers, C., Sterck, O., & Stierna, M. (2019). The Kalobeyei model: towards self-reliance for refugees? <https://ora.ox.ac.uk/objects/uuid:d0c73756-6c38-4207-aa10-b108c69ded76>
- Black, L. I., Clarke, T. C., Barnes, P. M., Stussman, B. J., & Nahin, R. L. (2015). Use of complementary health approaches among children aged 4–17 years in the United States: National Health Interview Survey, 2007–2012. *National health statistics reports*, 10(78), 1-19. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4562218/>
- Brace, I. (2018). *Questionnaire design: How to plan, structure and write survey material for effective market research*. Kogan Page Publishers. https://books.google.co.ke/books/about/Questionnaire_Design.html?id=0r8xOI5rBZoC&redir_esc=y
- Chaganti, S., Higgins, A., & Mattingly, M. J. (2020). *Health Insurance and Essential Service Workers in New England: Who Lacks Access to Care for COVID-19*. Federal Reserve Bank of Boston. <https://www.bostonfed.org/-/media/Documents/Community%20Development%20Issue%20Briefs/cdbrief32020.pdf>
- Chomi, E. N., Mujinja, P. G., Enemark, U., Hansen, K., & Kiwara, A. D. (2014). Health care seeking behaviour and utilization in multiple health insurance systems: does insurance affiliation matter? *International journal for equity in health*, 13(1), 1-11. <https://equityhealthj.biomedcentral.com/articles/10.1186/1475-9276-13-25>
- Cohen, R. A., Martinez, M. E., & Zammiti, E. P. (2016). Health insurance coverage: early release of estimates from the National Health Interview Survey, 2015. <https://stacks.cdc.gov/view/cdc/39468>
- Connelly, L. M. (2008). Pilot studies. *Medsurg nursing*, 17(6), 411. <https://search.proquest.com/openview/553d762f3224a627486acbf1a7320e0/1?pq-origsite=gscholar&cbl=30764>
- Cooper, D. R., & Schindler, P. S. (2003). *Business research methods (8th ed.)*. McGraw Hill. http://sutlib2.sut.ac.th/sut_contents/H139963.pdf
- Cooper, D. R., & Schindler, P. S. (2007). *Business Research Methods (10th ed.)*. McGraw- Hill.
- Courtemanche, C., Marton, J., Ukert, B., Yelowitz, A., & Zapata, D. (2017). Early impacts of the Affordable Care Act on health insurance coverage in Medicaid expansion and non-expansion states. *Journal of Policy Analysis and Management*, 36(1), 178-210. <https://onlinelibrary.wiley.com/doi/abs/10.1002/pam.21961>
- Dalinjong, P. A., Welaga, P., Akazili, J., Kwarteng, A., Bangha, M., Oduro, A., ... & Goudge, J. (2017). The association between health insurance status and utilization of health services in rural Northern Ghana: evidence from the introduction of the National Health Insurance Scheme. *Journal of Health, Population and Nutrition*, 36(1), 1-10. <https://link.springer.com/article/10.1186/s41043-017-0128-7>
- Elhadi, Y. A. M., Ahmed, A., Ghazy, R. M., Salih, E. B., Abdelhamed, O. S., Shaaban, R., ... & Zaghloul, A. A. Z. (2022, March). Healthcare utilization with drug

- acquisition and expenses at the National Health Insurance Fund in Sudan. In *Healthcare*. 10(4) 630. <https://www.mdpi.com/2227-9032/10/4/630>
- Fall, C., (2012). Factors affecting the extension of health insurance in Senegal: *Options for statutory and mutual schemes*. Geneva: ILO.
- Fang, K., Shia, B., & Ma, S. (2012). Health insurance coverage and impact: a survey in three cities in China. *PloS one*, 7(6), e39157. <https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0039157>
- Figueres-Munoz, A., & Merschbrock, C. (2015). Overcoming challenges in BIM and gaming integration: The case of a hospital project. *WIT Transactions on the Built Environment*, 149(149), 329-340. [https://books.google.com/books?hl=en&lr=&id=uBJmCgAAQBAJ&oi=fnd&pg=PA329&dq=Figueras,+et+al+\(2015\)+agent+theory&ots=4rW97KpJm&sig=ISZD9y27xKH4YIMz14xVQFQZido](https://books.google.com/books?hl=en&lr=&id=uBJmCgAAQBAJ&oi=fnd&pg=PA329&dq=Figueras,+et+al+(2015)+agent+theory&ots=4rW97KpJm&sig=ISZD9y27xKH4YIMz14xVQFQZido)
- Fotso, J. C., & Mukiira, C. (2012). Perceived quality of and access to care among poor urban women in Kenya and their utilization of delivery care: harnessing the potential of private clinics? *Health policy and planning*, 27(6), 505-515. <https://academic.oup.com/heapol/article-abstract/27/6/505/567310>
- Gillham, B. (2008). *Developing a questionnaire*. A&C Black. https://books.google.com/books?hl=en&lr=&id=EpKvAwAAQBAJ&oi=fnd&pg=PP1&dq=gillham+2011+developing+a+questionnaire&ots=A7FzKG-4W7&sig=pabcTW_fog7e1FwuuOtHGpY5Rno
- Gitobu, C. M., Gichangi, P. B., & Mwanda, W. O. (2018). The effect of Kenya's free maternal health care policy on the utilization of health facility delivery services and maternal and neonatal mortality in public health facilities. *BMC pregnancy and childbirth*, 18(1), 1-11. <https://bmcpregnancychildbirth.biomedcentral.com/articles/10.1186/s12884-018-1708-2>
- Greenberg, N., Docherty, M., Gnanapragasam, S., & Wessely, S. (2020). Managing mental health challenges faced by healthcare workers during a covid-19 pandemic. *British medical journal*; 368(211), 1-4. DOI: 10.1136/BMJ.m1211
- Kimani, J., Ettarh, R., Kyobutungi, C., Mberu, B., & Muindi, K. (2019). Determinants for participation in a public health insurance program among residents of urban slums in Nairobi, Kenya: results from a cross-sectional survey. *BMC Health Services Research*, 12 (66), 112-123. <https://link.springer.com/article/10.1186/1472-6963-12-66>
- Kipaseyia, J. S. (2016). *Factors influencing membership uptake of National Hospital Insurance Fund among the poor: A pastoralist perspective*. [Master's Thesis, Strathmore University, Strathmore Business School]. Nairobi, Kenya: <https://su-plus.strathmore.edu/handle/11071/4584>
- Kironji, K. M. (2019). *Determinants of utilization of national hospital insurance fund outpatient services by private university employees in Nairobi* [Masters, dissertation, Kenya Methodist University]. <http://41.89.31.5:8080/handle/123456789/760>
- Kironji, K. M., Tenambergen, W. M., & Mwangi, E. M. (2019). Effects of Perceived Image of NHIF Outpatient Facilities on Utilization of Primary Care Services by

- Private University Employees in Nairobi County. *International Journal of Professional Practice (IJPP)*. 7(1),1-13.
<http://41.89.31.5:8080/handle/123456789/1142>
- Kombo, D., & Tromp, A. (2011). *Proposal and Thesis Writing: an introduction*. Paulines publications Africa.
<https://www.coursehero.com/file/p2u6rsl/Kombo-D-K-Tromp-D-L-2006-Proposal-and-thesis-writing-An-introduction-Nairobi/>
- Konde-Lule, J., & Okuonzi, S. (2016). The potential of the Private Sector to Improve Health Outcomes in Uganda. *Kampala, Makerere University Institute of Public Health*. <https://shorturl.at/pxNU3>
- Kothari, C. (2014). *Research Methodology, Methods and Techniques (2nd Rev Ed)*,. New Age International Publishers.
https://books.google.com/books/about/Research_Methodology.html?id=8c6gkbKi-F4C
- Kumburu, P. N. (2015). *National health insurance fund (NHIF) in Tanzania as a tool for improving universal coverage and accessibility to health care services* [Doctoral dissertation, Mzumbe University].
<http://scholar.mzumbe.ac.tz/handle/11192/1028>
- Kusi, A., Hansen, K. S., Asante, F. A., & Enemark, U. (2015). Does the National Health Insurance Scheme provide financial protection to households in Ghana? *BMC health services research*, 15(1), 1-12.
<https://bmchealthservres.biomedcentral.com/articles/10.1186/s12913-015-0996-8>
- Lee, J., Lee, J. S., Park, S. H., Shin, S. A., & Kim, K. (2017). Cohort profile: the national health insurance service–national sample cohort (NHIS-NSC), South Korea. *International journal of epidemiology*, 46(2), 15.
<https://academic.oup.com/ije/article-abstract/46/2/e15/2617147>
- Liaropoulos, L., & Goranitis, I. (2016). Health care financing and the sustainability of health systems. *International Journal for Equity in Health*, 14 (80), 1-4.
<https://equityhealthj.biomedcentral.com/articles/10.1186/s12939-015-0208-5>
- Lyons, M. (2020). *Third sector: The contribution of nonprofit and cooperative enterprises in Australia*. Routledge.
<https://www.taylorfrancis.com/books/mono/10.4324/9781003118268/third-sector-mark-lyons>
- Maina, J. M., Kithuka, P., & Tororei, S. (2019). Perceptions and uptake of health insurance for maternal care in rural Kenya: a cross-sectional study. *The Pan African Medical Journal*, 33(129), 114-123.
<https://www.ajol.info/index.php/pamj/article/view/139008>
- Maina, M., Tosas-Auguet, O., McKnight, J., Zosi, M., Kimemia, G., Mwaniki, P., ... & English, M. (2019). Evaluating the foundations that help avert antimicrobial resistance: performance of essential water sanitation and hygiene functions in hospitals and requirements for action in Kenya. *PLoS One*, 14(10), e0222922.
<https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0222922>
- Mbau, R., Kabia, E., Honda, A., Hanson, K., & Barasa, E. (2020). Examining purchasing reforms towards universal health coverage by the National Hospital

- Insurance Fund in Kenya. *International journal for equity in health*, 19(1), 1-18. <https://link.springer.com/article/10.1186/s12939-019-1116-x>
- Mbogori, F. K., Ombui, K., & Iravo, M. A. (2015). Innovative strategies influencing the performance of national hospital insurance fund in Nairobi County Kenya. *International Journal of Scientific and Research Publications*, 5(10), 250-315.
<http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.736.72&rep=rep1&type=pdf#page=862>
- Michubu, E. (2018). *Perceived Customer Service Quality Practices and Satisfaction in NHIF-Accredited Health Facilities in Kiambu County* [Doctoral dissertation, University of Nairobi]. <https://shorturl.at/fKR08>
- Mohammed, F. (2016). Assessing fiscal space for national health insurance funds in Sudan. *Maliye Araştırmaları Dergisi*, 2(3), 19-27.
<https://dergipark.org.tr/en/pub/finance/issue/61462/917882>
- Morris, S., Devlin, N., Parkin, D., & Spencer, A. (2012). *Economic analysis in healthcare*. John Wiley & Sons.
<https://books.google.com/books?hl=en&lr=&id=329zfHe6atgC&oi=fnd&pg=PR13&dq=Morris+et+al,+2007+healthcare+&ots=67FOGwiWdb&sig=0JRFv9kLgp8EHn7kALGDRaEfdVs>
- Mugenda, Q.M. and Mugenda, A.G. (2009) *Research Methods: Quantitative and Qualitative Approaches*. ACTS.
- Munge, K., Mulupi, S., & Chuma, J. (2015). *A critical analysis of the purchasing arrangements in Kenya: the case of the National Hospital Insurance Fund, Private and Community-based health insurance*. London: RESYST.
<https://resyst.lshtm.ac.uk/sites/resyst/files/content/attachments/2018-08-22/A%20critical%20analysis%20of%20the%20purchasing%20arrangements%20in%20Kenya.pdf>
- Nagesh, S., & Chakraborty, S. (2020). Saving the frontline health workforce amidst the COVID-19 crisis: challenges and recommendations. *Journal of global health*, 10(1). 010345.
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7183244/>
- Nalwelisie, M., Mwangi, E., & Tenambergen, W. (2021). Factors Influencing Use of Linda Mama Boresha Jamii Health Insurance by Expectant Mothers In Trans Nzoia County, Kenya. *International Journal of Professional Practice*, 9(3), 15-28. <https://library.kemu.ac.ke/ijpp/index.php/ijpp/article/view/108>
- Nguyen, C. V. (2012). The impact of voluntary health insurance on health care utilization and out-of-pocket payments: New evidence for Vietnam. *Health economics*, 21(8), 946-966.
<https://onlinelibrary.wiley.com/doi/abs/10.1002/hec.1768>
- National Hospital Insurance Fund (2018). *NHIF Strategic Plan 2018-2022*. <https://www.coursehero.com/file/121857625/NHIF-Strategic-Plan-2018-2022pdf/>
- Nyman, J. A. (2001). *The demand for insurance: Expected utility theory from a gain perspective* (No. 313). [Discussion Paper, No. 313, University of Minnesota]. <https://www.econstor.eu/handle/10419/23492>

- Nyorera, E. N., & Okibo, W. (2015). Factors Affecting Uptake of National Hospital Insurance Fund among Informal Sector Workers a Case of Nyatike Sub-County, Kenya. *International Journal of Economics, Commerce and Management*, 3(3), 1-18.
http://41.89.10.16/schools/business/images/stories/research/dr_ngugi/factors_affecting_uptake.pdf
- O'Hair, D., Chapman, H., & Sizemore, M. (2018). *Health communication strategies in an evolving media environment*. Springer.
<https://journals.sagepub.com/doi/full/10.1177/0267323118789502>
- Okech, T. C. (2016). Devolution and universal health coverage in Kenya: a situational analysis of health financing, infrastructure and personnel. 4(5), 1-17.
<http://41.204.183.105/handle/11732/3016>
- Okigbo, C. C. (2014). *Strategic Urban Health Communication*. Springer.
<https://link.springer.com/content/pdf/10.1007/978-1-4614-9335-8.pdf>
- Olsen, G., & George, D. M. (2004). Cross-sectional design and data analysis. Young Epidemiology Scholars Program. http://www.yes-competition.org/media.collegeboard.com/digitalServices/pdf/yes/4297_MOD_ULE_05.pdf
- Ombiro, O. N. (2019). *Utilization of the National Hospital Insurance Fund among community members in Embu County, Kenya*. [Master's Thesis, Kenyatta University]. <https://ir-library.ku.ac.ke/handle/123456789/20052>
- Pauly, M. (1968). The conventional health insurance theory: *American Economic Review* 58, 531-537.
https://www.researchgate.net/publication/45131639_The_Theory_of_Demand_for_Health_Insurance
- Pozen, A., & Stimpson, J. P. (2017). *Navigating Health Insurance*. Sudbury: Jones & Bartlett Learning, LLC.
- Qingyue, M., Liying, J., & Beibei, Y. (2011). Cost-sharing mechanisms in health insurance schemes: A systematic review. *The Alliance for Health Policy and Systems Research, WHO*, 1-76. https://www.who.int/alliance-hpsr/projects/alliancehpsr_chinasystematicreviewcostsharing.pdf
- Saunders, B., Kitzinger, J., & Kitzinger, C. (2015). Anonymizing interview data: Challenges and compromise in practice. *Qualitative research*, 15(5), 616-632.
<https://journals.sagepub.com/doi/abs/10.1177/1468794114550439>
- Sekaran, U., & Bougie, R. (2016). *Research methods for business: A skill building approach*. John Wiley & sons.
https://books.google.com/books?hl=en&lr=&id=Ko6bCgAAQBAJ&oi=fnd&pg=PA19&dq=Sekaran+%26+Bougie,+2013&ots=2C3Q_2MVoO&sig=Cjs8uPULpNaYXwzW4OKzTXLeVtU
- Sieverding, M., Onyango, C., & Suchman, L. (2018). Private healthcare provider experiences with social health insurance schemes: findings from a qualitative study in Ghana and Kenya. *PLoS One*, 13(2), e0192973.
<https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0192973>
- Sohn, M., & Jung, M. (2016). Effects of public and private health insurance on medical service utilization in the National Health Insurance System: National panel

- study in the Republic of Korea. *BMC health services research*, 16(1), 1-11. <https://link.springer.com/article/10.1186/s12913-016-1746-2>
- Sussmuth-Dyckerhoff, C., & Jin, W. (2010). *China's health care reforms*. Health International.
- Torchia, M., Calabrò, A., & Morner, M. (2015). Public-private partnerships in the health care sector: a systematic review of the literature. *Public Management Review*, 17(2), 236-261. <https://www.tandfonline.com/doi/abs/10.1080/14719037.2013.792380>
- United Nation (2015). The Sustainable Development Agenda. <https://www.un.org/sustainabledevelopment/development-agenda-retired/>
- Wagstaff, A. (2010). Estimating health insurance impacts under unobserved heterogeneity: the case of Vietnam's health care fund for the poor. *Health economics*, 19(2), 189-208. <https://onlinelibrary.wiley.com/doi/abs/10.1002/hec.1466>
- Wavomba, P., & Sikolia, S. F. (2015). Research in the quality-of-service delivery in public hospitals, Kenya. *IOSR Journal of Pharmacy and Biological Sciences (IOSR-JPBS)*. 10(6), 90-96. <https://www.iosrjournals.org/iosr-jpbs/papers/Vol10-issue6/Version-4/P010649096.pdf>
- White, C., & Whaley, C. (2019). *Prices paid to hospitals by private health plans are high relative to Medicare and vary widely*. Rand Corporation. <https://employerptp.org/wp-content/uploads/2019/05/National%20Hospital%20Price%20Transparency%20Report%20-%2020190509.pdf>
- World Health Organization. (2018). Health Financing Policies for Universal Health Coverage: Revenue Raising. New York. https://www.who.int/health-topics/health-financing#tab=tab_1
- Wilson, P. M., Petticrew, M., Calnan, M. W., & Nazareth, I. (2010). Disseminating research findings: what should researchers do? A systematic scoping review of conceptual frameworks. *Implementation Science*, 5(1), 1-16. <https://implementationscience.biomedcentral.com/articles/10.1186/1748-5908-5-91>
- World Bank (2022). *Universal Health Coverage Overview*. World Bank. <https://www.worldbank.org/en/topic/universalhealthcoverage>
- World Bank. (2017). *Improving Health Care for Kenya's Poor*. The World Bank: Geneva. <https://shorturl.at/dhrD3>

APPENDICES

Appendix I: Letter of Introduction

Dear Sir/ Madam,

RE: REQUEST TO CARRY OUT RESEARCH IN YOUR ORGANIZATION

I do request to be allowed to carry out the above research within your organization. I am a postgraduate student at Kenya Methodist University (Admission Number HSM-3-2592-2/2015). I am undertaking a Master of Science degree in Health System management. I am researching “Determinants of utilization of NHIF cover among public health workers in Makueni County”. This study will be carried out only for academic purposes. However, when the study is completed, the research findings may be made public to assist future researchers and other relevant stakeholders in their work. The data-gathering technique will be meticulously scrutinized to verify that it adheres to ethical guidelines.

Thank you in advance for your cooperation.

Yours Faithfully,

Angeline Malinda Muia (MSc. HSM)

Nairobi.

Kenya Methodist University

Appendix II: Informed Consent

Dear Respondent,

My name is Angeline Malinda Muia- Msc.HSM student from Kenya Methodist University. I am conducting a study titled: **Determinants of utilization of NHIF cover among public health workers in Makueni County**. The conclusions will be utilized to improve Kenya's and other low-income African countries' health systems. As a result, governments, communities, and individuals will benefit from improved healthcare. This proposal for a study is critical for strengthening health systems because it will provide fresh information in this area, allowing stakeholders to make research-based policy decisions.

Procedure to be followed

I'll need to ask you some questions and acquire access to all of the hospital's departments if you want to participate in this study. I'll retain a questionnaire and a checklist using the information you submit. You can opt-out of this study if you don't want to take part. You will not be punished or harassed if you refuse to participate in the study, and your decision will not be used against you or have an influence on your job. Keep in mind that taking part in the study is completely voluntary. You are free to ask any questions you have about the study at any time. You have the right to refuse to answer any questions or to terminate an interview at any time. You are also free to exit the study at any moment without compromising the services you are already delivering.

Discomforts and risks

Some of the queries you'll be asked will be about personal topics, which may be uncomfortable for you. You have the option of refusing to answer if this happens. You can also terminate the interview at any moment. The interview may take up to 40 minutes to finish.

Benefits

You will be supporting us in developing the health systems in Kenya and other low-income African countries if you participate in this study. As a result, governments, communities, and individuals will benefit from improved healthcare. This field attachment is critical to the development of health systems since it will supply fresh information in this area, allowing decision-makers to make informed judgments based on research.

Rewards

Anyone who wishes to engage in the study will not be compensated.

Confidentiality

The interviews will be held in a secure area of the hospital. The questionnaire will not include your name and will be kept in a secure area at the University.

Contact Information

If you have any questions, please contact the supervisors listed below:

Dr Kezia Njoroge and Mr Musa Oluoch

Department of Health Systems Management, Kenya Methodist University

Participant's Statement

The remark concerning my participation in the study that was made before is obvious to me. I was allowed to ask questions, and all of my concerns were satisfactorily addressed. I am oblivious to the fact that I am taking part in this study. I understand that my information will be kept private and that I can withdraw from the study at any time. I understand that regardless of whether I stop the research or not, I will not be treated unfairly at work and that my decision will have no bearing on how I am treated.

Participant Signature..... Date.....

Investigator's Statement

I, the undersigned, have explained the procedures to be followed in the study, as well as the risks and rewards associated, to the participant in a language he or she understands.

Name of Interviewer..... Date.....

Interviewer Signature.....

Appendix III: Questionnaire

Dear Participant,

This questionnaire is in aid of research being conducted by Angeline Muia (Msc. HSM) who is a student at Kenya Methodist University. The topic of the study is to investigate the determinants of utilization of NHIF cover among public health workers in Makueni County in the partial fulfilment of the requirement for the award of the degree (Master of Science in Health Systems Management). You are asked to spend some of your valuable time answering these questions. The information gathered will be used solely for academic purposes and will be kept private.

Section A: Demographic Information

1. What is your gender?

Female [] Male []

2. What is your age bracket?

Less than 25 years [] 26-35 years []

36-45 years [] Above 45 years []

3. What is your highest education level?

Certificate level [] Diploma level [] Graduate/Degree []

Postgraduate [] Others-specify..... []

4. For how long have you worked in your current station?

Less than 1 year [] 1-5 years [] 6-10 years []

Over 10 years []

5. For how long have you worked in MOH?

Less than 1 year [] 1-5 years []

6-10 years [] Over 10 years []

6. Which facility level are you currently deployed in?

Hospital [] Health center [] Dispensary []

Section B: Alternative Insurance Covers

7. Using a scale of 1-5 where 1-strongly disagrees, 2- disagrees, 3-Moderately agree, 4-Agree and 5-Strongly agree, kindly indicate your agreement level to the statements below that relate to **alternative insurance covers**.

Statements	1	2	3	4	5
I prefer private health insurance as it is customized compared to NHIF					
Other covers besides NHIF offer better terms					
The packages provided by alternative covers are more attractive than the packaging by NHIF					
The private insurer has a paperless claims process					
Private insurer always pays health providers promptly					
I prefer to use health insurance coverage provided by another insurance cover that I have					
Private covers are more likely to receive both in-patient and out-patient than those under NHIF cover					
The private insurers offer flexible packages tuned to match the specific needs of their customers					

SECTION C: NHIF Scheme Characteristics

8. Using a scale of 1-5 where 1-strongly disagrees, 2- disagrees, 3-Moderately agree, 4-Agree and 5-Strongly agree, kindly indicate your agreement level to the statements below that relate to medical commodities in the NHIF scheme characteristics

Statements	1	2	3	4	5
Registration is free, fast and convenient for the healthcare workers					
The remitting of monthly contributions is done without the workers' permission as it is an automated process					
Work identity verification during service is the only requirement					
The dependents of the healthcare workers are registered alongside the registration of health workers					
NHIF allows healthcare workers to choose public health hospitals					
Registration into NHIF is straightforward as it is automatic for all the registered health workers					
The rates for a contribution towards the NHIF scheme are standardized for all the healthcare staff					
Very little documentation is required before enrollment into NHIF Scheme					
NHIF Scheme characteristics have special packages for the health staff					

Section D: Perceived Quality of Outpatient Services

9. Using a scale of 1-5 where 1-strongly disagrees, 2- disagrees, 3-Moderately agree, 4-Agree and 5-Strongly agree, kindly indicate your agreement level to the statements below that relate to the perceived quality of outpatient services.

Statements	1	2	3	4	5
There is a sufficient number of health workers in public health facilities					
The waiting time before I receive services in public health facilities is satisfying					
The health service in public health facilities are safe					
Specialist doctors are available in public health facilities					
Hygiene is maintained in public health facilities					
Radiological services are available in public health facilities					
Laboratories are always functional in NHIF-accredited public facilities					

SECTION E: NHIF Communication Strategy

10. Using a scale of 1-5 where 1-strongly disagrees, 2- disagrees, 3-Moderately agree, 4-Agree and 5-Strongly agree, kindly indicate your agreement level to the statements below that relate to NHIF communication strategy.

Statements	1	2	3	4	5
Language of communication is customized to healthcare workers					
Healthcare workers are conversant with the channels used in communication					
NHIF has an effective client feedback system which helps in improving their products					
Workers can access information about NHIF via social media platforms					
The NHIF frequently disseminates customized information to their subscribers					
NHIF has embraced the use of technology which include the use of mobile phones and emails to communicate with clients/customers					
NHIF members are required to notify the scheme within 24 hours of admission to a hospital					
A vertical system of communication is used by NHIF and communication must flow from the top to the end users of the NHIF Products					

Section F: Utilization of NHIF outpatient services in public health facilities

11. Using a scale of 1-5 where 1-strongly disagrees, 2- disagrees, 3-Moderately agree, 4-Agree and 5-Strongly agree, kindly indicate your agreement level to the statements below that relate to the Utilization of NHIF outpatient services.

Statements	1	2	3	4	5
I use NHIF for all my outpatient services					
NHIF covers all health needs for my dependents					
I sometimes use out-of-pocket medical services					
NHIF limits the medical services that I can get					
The NHIF delays in disseminate the funds after a request from the customers thereby low utilization compared to private covers					
The NHIF financial reservoirs sometimes deplete and some requests for medical funds are left unfunded					
NHIF covers surgeries for all the healthcare workers					

THANK YOU FOR PARTICIPATING

Appendix IV: List of Health Institutions and healthcare workers

Row Labels	Clinical Officers	Medical Laboratory Scientists	Medical Officers & Specialists	Nurses and specialist nurses	Facility level
Athi Kamunyuni Health Centre	1	1		1	2
Bosnia Dispensary				1	2
Ebenezer Dispensary				2	2
Emali Model Health Centre	3	2		9	2
Enzai Afya Medical Clinic				1	2
Iani Dispensary (Kibwezi)		2		3	2
ikalaasa dispensary				1	2
Ikalyoni Dispensary				3	2
Ilatu Health Centre (Makindu)	1	1		5	2
Itetani Dispensary				1	2
Itithini Dispensary				1	2
Itumbule Dispensary (Makueni)				1	2
Itumbule Health centre		1		2	3
Iuani Health Centre	2	1		2	3
Ivingoni Dispensary (Kibwezi)				1	2
Kai Dispensary				2	2
Kaia Dispensary				1	2
Kako Health Centre	1	1		2	2
KAKUTHA DISPENSARY				1	2
Kalanzoni Dispensary				1	2
Kalawa Health Centre	2	1		5	3
Kali Health Centre	1	2		1	3
Kaliani Health Centre	1			4	3
Kalii Dispensary				1	2
Kaliiini (Kwamutula) Dispensary				1	2
Kalima Dispensary		1		1	2
Kalimani Dispensary				1	2
Kalulini Health Centre (Kibwezi)	1			3	3
Kambimawe Dispensary		1		2	2
Kambo Dispensary	1	1		2	2
Kambu Sub County Hospital	6	2	2	11	3
Kamuthini Dispensary				1	2

Kanyungu Dispensary				1	2
Kanzokea Health Centre	3	1		2	3
Kasemeini Dispensary				1	2
Kasikeu Dispensary	2	1		4	2
Kasunguni Dispensary(KAITI)				1	2
Katagini Dispensary				1	2
Kathekani dispensary				1	2
Kathonzweni Catholic Dispensary				1	2
Kathonzweni Health Centre	2	2		5	3
Kathulumbi Health Centre		1		2	3
Kathyaka Dispensary				3	2
Katilini Dispensary				1	2
Katulani Dispensary - Kbz west				1	2
Katulye Dispensary (Kibwezi)				1	2
Kaunguni Dispensary		1		2	2
Kavete Dispensary (Makindu)				1	2
Kavuko Dispensary				1	2
Kavumbu Dispensary		1		1	3
Kavuthu Health Centre	1	1		2	2
Kawala Dispensary-Makueni				1	2
Kee Health Centre		1			3
Kiangini Dispensary		1		1	3
Kiaoni Dispensary		1		2	2
Kiboko Dispensary (Makindu)				2	2
Kibwezi Sub County Hospital	8	8	6	32	4
Kiima Kiu Dispensary				2	2
Kikumini Dispensary (Makueni)		1		1	2
Kikumini Health Centre	2	1		7	3
Kilala Health Centre	1	1		4	3
Kilili Health Centre		1		4	3
Kilungu Sub County Hospital	9	4	3	26	4
Kinyambu Dispensary		1		1	2
Kinyau Dispensary				1	2
Kisau Sub County Hospital	8	1		11	4
Kisayani Dispensary				2	2

Kisoi Munyao Memorial Health Centre		1		2	3
Kiteng'ei Dispensary				2	2
Kithoni Dispensary				1	3
kithuki health centre		1		2	3
Kithuni Dispensary				1	2
Kithyululu Health Centre		1		1	3
Kiti Kyumu Dispensary				1	2
kitise health centre	1	1		2	3
Kitivo Dispensary				1	2
Kitonyoni Dispensary		1		1	2
Kituluku Dispensary				1	2
Kitundu (GOK) Dispensary		1		2	2
Kivani Health Centre				3	3
kwa Kakulu Dispensary (Emali)				2	2
Kwakalui dispensary				1	2
kwakavisi dispensary		1		2	2
Kwale Dispensary		1		2	2
Kyaani Health Centre	1	1		2	3
Kyaluma Dispensary				1	2
Kyambeke Health Centre	1	1		2	3
Kyanganda Dispensary				2	2
Kyase Dispensary				1	2
Kyau Dispensary				1	2
Kyeeko Dispensary				1	2
Kyenzenzi Dispensary				1	2
Kyuasini Health Centre	1	1		2	3
Kyumani Dispensary				1	2
Kyumbe (AIC) Dispensary				1	2
Kyumbe Dispensary				1	2
Lumu Dispensary				1	2
Maauli Dispensary				1	2
Maiani Dispensary				1	2
Makasa Dispensary (Nguu)				1	2
Makindu Sub County Hospital	16	2	18	72	4
Makueni County Referral Hospital	27	18	21	119	5
Makueni GK Prison Dispensary		1		1	2
Malili Medical Centre				2	2
Mandoi Dispensary				1	2
Mangala Dispensary		1		1	2
Mang'elele Dispensary				1	3
Masongaleni Health Centre	2	1		3	2

Masumba Dispensary				1	2
Mathanguni Dispensary				1	2
Matiku Dispensary				1	2
Matiliku Sub County Hospital	6	2	2	14	4
Matutu Dispensary (Nzaui)				1	2
Maviaume Dispensary				1	2
Mavindini Health Centre	1	1		2	3
Mavindu Dispensary		1		2	2
Mavivye Model Health Centre	1	1		2	3
Mbavani Dispensary				1	2
Mbenuu Health Centre	1	1		2	3
Mbiini Dispensary				1	1
Mbooni Sub County Hospital	11	9	6	29	4
Mbuini Dispensary				1	2
Mbui-Nzau Dispensary				1	2
Mbukuni Dispensary				1	2
Mbuvo Health Centre	1	1		3	4
Miangeni Dispensary (Makueni)		1		1	2
Miangeni Dispensary (Mbooni)				1	2
Mikuyuni Dispensary (Kibwezi West)				1	2
Mithumoni Dispensary				2	2
Mituvu Dispensary				1	2
Miumoni Dispensary				1	2
Mtito andei Sub County Hospital	6	2	1	7	4
Mukuyuni Sub County Hospital	2	2	1	7	4
Mulata Dispensary				1	2
Mulenyu dispensary				1	3
Mumbuni Health Centre (Makueni)		1		2	2
Musalala Dispensary		1		1	2
Mutembuku Dispensary				1	2
Muthingiini Dispensary				2	2
Mutiluni Dispensary		1		1	2
Mutini Dispensary				1	2
Mutulani Dispensary(Makueni)				3	2
Mutyambua hospital	1	1		2	2
Muaa Dispensary				1	2

Muusini Dispensary (Makueni)				1	2
Mwaani Dispensary	1			2	2
Mwana Dispensary				1	2
Mwania (Chandaria) Dispensary				1	2
Mwanyani Health Centre	1	1		5	3
Mwasangombe Dispensary				2	2
Ndalani Dispensary (Makindu)				1	2
Ndauni Dispensary				1	2
Ndovoini nguumo				1	2
Nduluku Dispensary				1	2
Nduluni Dispensary				1	2
Nduumoni Dispensary				1	2
Nduuni Dispensary				1	2
Ngai Dispensary		1		2	2
Ngiini Dispensary		1		1	2
Ngiluni Dispensary (Kaiti)				2	2
Ngiluni Dispensary (Kibwezi)				1	2
Ngwata Health Centre	2	1		4	3
Nthangu Dispensary				3	2
Nthimbani Dispensary				1	2
Nthongoni Dispensary	1				3
Nthongoni Health Centre		1		3	3
Nthunguni Dispensary (Kibwezi East)				1	2
Nyaani Dispensary(KAITI)				1	2
Nzeeni Dispensary				1	2
Nzeveni Health Centre	2	1		2	3
Nziu Health Centre	2	1		3	3
Nzoila Dispensary				1	2
Nzouni Dispensary(Kaiti)				1	2
Nzukini Dispensary(KAITI)				1	3
Sultan Hamud Sub County Hospital	11	8	5	43	4
Syotuvali Dispensary				1	2
Syumile Dispensary		1		1	2
Tawa Sub County Hospital	6	3	3	19	4
Tulimani Health Centre	1			2	3
Tutini Dispensary				2	2
Usungu Dispensary				1	2
Utangwa Dispensary		1		1	2
Utuneni Dispensary				1	2

Utwiini Dispensary				1	2
Uvaani Dispensary				1	2
Uvete Health centre	1	1		2	3
Uviluni Dispensary				1	2
Vololo Health Centre		1		2	3
Waia Dispensary				1	2
West Ngosini Dispensary				1	2
Yandue Dispensary				1	2
Yekanga Dispensary				1	2
Yikivumbu Dispensary				1	2
Yimwaa Dispensary		1		1	2
Yinthungu Dispensary				1	2
Sub-Total	181	139	78	731	
Row Labels	Pharmaceutical Technologist	Pharmacist	Grand Total	Level	
Emali Model Health Centre	2		2	3	
Ilatu Health Centre (Makindu)	1		1	3	
Kalawa Health Centre	1		1	3	
Kambu Sub County Hospital	2		2	3	
Kasikeu Dispensary	1		1	2	
Kathonzweni Health Centre	1		1	3	
Kibwezi Sub County Hospital	4		4	4	
Kikumini Health Centre	1		1	3	
Kilala Health Centre	1		1	3	
Kilungu Sub County Hospital	2	1	3	4	
Kisau Sub County Hospital	2	1	3	4	
Kyambeke Health Centre	1		1	3	
Kyuasini Health Centre	1		1	3	
Makindu Sub County Hospital	2	2	4	4	
Makueni County Referral Hospital	6	3	9	5	
Matiliku Sub County Hospital	2	1	3	4	
Mavindini Health Centre	1		1	3	
Mbooni Sub County Hospital	2		2	4	
Mtito andei Sub County Hospital	1		1	4	

Mukuyuni Sub County Hospital	1		1	4	
Sultan Hamud Sub County Hospital	4	2	6	4	
Tawa Sub County Hospital	2	1	3	4	
Uvete Health centre	1		1	3	
Yinthungu Dispensary	1		1	3	
Sub-Total	43	11	54		

Appendix V: Sample Side Table

<i>N</i>	<i>S</i>	<i>N</i>	<i>S</i>	<i>N</i>	<i>S</i>
10	10	220	140	1200	291
15	14	230	144	1300	297
20	19	240	148	1400	302
25	24	250	152	1500	306
30	28	260	155	1600	310
35	32	270	159	1700	313
40	36	280	162	1800	317
45	40	290	165	1900	320
50	44	300	169	2000	322
55	48	320	175	2200	327
60	52	340	181	2400	331
65	56	360	186	2600	335
70	59	380	191	2800	338
75	63	400	196	3000	341
80	66	420	201	3500	346
85	70	440	205	4000	351
90	73	460	210	4500	354
95	76	480	214	5000	357
100	80	500	217	6000	361
110	86	550	226	7000	364
120	92	600	234	8000	367
130	97	650	242	9000	368
140	103	700	248	10000	370
150	108	750	254	15000	375
160	113	800	260	20000	377
170	118	850	265	30000	379
180	123	900	269	40000	380
190	127	950	274	50000	381
200	132	1000	278	75000	382
210	136	1100	285	100000	384

Note.—*N* is population size. *S* is sample size.

Source: Krejcie & Morgan, 1970

Appendix VI: KEMU Ethical Clearance



KENYA METHODIST UNIVERSITY

P. O. BOX 267 MERU - 60200, KENYA
TEL: 254-064-30301/31229/30367/31171

FAX: 254-64-30162
EMAIL: INFO@KEMU.AC.KE

25 April 2022
ANGELINA MUIA
HSM-3-2592-2/2015
Kenya Methodist University

KeMU/SERC/HSM /11/2022

Dear MUIA,

SUBJECT: DETERMINANTS OF UTILIZATION OF NHIF COVER IN PUBLIC HEALTH FACILITIES BY PUBLIC HEALTH CARE WORKERS IN MAKUENI COUNTY

This is to inform you that Kenya Methodist University Scientific Ethics and Review Committee has reviewed and approved your research proposal. Your application approval number is KeMU/SERC/ HSM/11 /2022. The approval period is 25th April 2022 – 25th 2023.

This approval is subject to compliance with the following requirements

- i. Only approved documents including (informed consents, study instruments, MTA) will be used.
- ii. All changes including (amendments, deviations, and violations) are submitted for review and approval by Kenya Methodist University Scientific Ethics and Review committee.
- iii. Death and life-threatening problems and serious adverse events or unexpected adverse events whether related or unrelated to the study must be reported to KeMU SERC within 72 hours of notification.
- IV. Any changes, anticipated or otherwise that may increase the risks or affected safety or welfare of study participants and others or affect the integrity of the research must be reported to KeMU SERC within 72 hours.
- V. Clearance for export of biological specimens must be obtained from relevant Institutions.

- VI. Submission of a request for renewal of approval at least 60 days prior to expiry of the approval period. Attach a comprehensive progress report to support the renewal
- VII. Submission of an executive summary report within 90 days upon completion of the study to KeMU SERC.

Prior to commencing your study, you will be expected to obtain a research license from National Commission for Science, Technology and Innovation (NACOSTI) <https://oris.nacosti.go.ke> and also obtain other clearances needed.

Yours sincerely,



Appendix VII: Makueni County Clearance

REPUBLIC OF KENYA



GOVERNMENT OF MAKUENI COUNTY



OFFICE OF DIRECTOR HEALTH SERVICES

P.O. BOX 89-90300 MAKUENI

Email: countyhealthmkn@gmail.com contact@makueni.go.ke

Website: www.makueni.go.ke

REF: GMC/DOH/CDH/GEN.III (63)

17th June, 2022

Angelina Muia
Kenya Methodist University
P.O. Box 5365-00200
Nairobi -Kenya

RE: AUTHORIZATION TO CARRY OUT RESEARCH

Reference is made to your letter dated 15th June, 2022 and NACOSTI/P/22/17845 dated 13th June, 2022 regarding the above matter.

You are hereby authorized to do research on *"Determinants of utilization of NHIF cover in public health facilities by public health care workers in Makueni County, Kenya."*

You are directed to:-

1. Report to the SCMOHs/ Medical Superintendents prior to the initiation of the fieldwork component for further facilitation.
2. Collaborate and liaise with County Health Administrative Officer for dissemination of study finding.
3. Submit the final study report to the undersigned office.

Yours

Dr. Kio S. Ndolo
Director Medical Services
Makueni County



Copy to:

- Ag. ECM – Health Services
- Ag. CO – Health Services
- Director(s) – Health Services
- All SCMOHs & Med Supts
- County Health Administrative Officer
- Research Focal Person – Health Services

Appendix VIII: Nacosti License


REPUBLIC OF KENYA


NATIONAL COMMISSION FOR
SCIENCE, TECHNOLOGY & INNOVATION

Ref No: 344481 Date of Issue: 13/June/2022

RESEARCH LICENSE



This is to Certify that Ms. Angeline Malinda Muiia of Kenya Methodist University, has been licensed to conduct research in Makueni on the topic: DETERMINANTS OF UTILIZATION OF NHIF COVER IN PUBLIC HEALTH FACILITIES BY PUBLIC HEALTH CARE WORKERS IN MAKUENI COUNTY for the period ending : 13/June/2023.

License No: NACOSTI/P/22/17845

344481
Applicant Identification Number


Director General
NATIONAL COMMISSION FOR
SCIENCE, TECHNOLOGY &
INNOVATION

Verification QR Code



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