FACTORS INFLUENCING ACCESS TO HEALTH SERVICES FOR NHIF INSURED PERSONS WITHIN MAKADARA CONSTITUENCY, NAIROBI COUNTY, KENYA

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DECLARATION

Declaration by the Candidate:

This research thesis was my original work and has not been presented for a degree in any University.

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Recommendations by the Supervisors:

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DEDICATION

This work has been dedicated to my family for their uttermost support and encouragement, my siblings for their contribution and critiques that were a pillar to the success of the write up. Also, to my friends for their continued support and motivation during the entire period of my study. Thank you and May the almighty Lord bless you abundantly.

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ABSTRACT

The National Health Insurance fund (NHIF) users constantly face challenges with access to health care with a 30% consumption rate. This gap prevents adequate access to health care hence low levels of treatment options available. The specific objective of this study was to determine factors influencing access to health services within Makadara constituency in Nairobi County. These included sociodemographic characteristics, knowledge on NHIF benefits, processes and frequency of drug supply. The respondents were randomly selected using the NHIF database. A Descriptive survey was used and the target population were patients accessing health services within the constituency. Simple random sampling method was used with a sample size of 400 respondents studied over a 5-month period. The inclusion criteria were adult registered members (1 year) conversing in English/Kiswahili and mentally competent. Minors less than 18 years, mentally unstable and vernacular speakers were excluded. Questionnaires were used with the primary outcome being the number of patients accessing NHIF services. Data analysis was done using SPSS v.24. Data was presented in tables, charts and graphs with explanations following. Response rates were 100% with Cronbach's reliability alpha test of 0.7. The results showed that majority were male, 26-33 years and married. The highest education level was the diploma level followed by degree holders. Majority had at least 4 children, under 4 household occupants and resided in Buruburu. They had National covers (86.5%), primary members (81.25%) and their dependents were registered. 78.25% had accessed a health facility in the recent past while 44.8% were not sure. Despite this, 23% agreed the NHIF card allowed better access to health services (p value <0.05). NHIF knowledge of benefits, processes and frequency of drug supplies positively influenced health accessibility (p=0.037, p=0.027, p=0.001) respectfully. The respondents who were not aware of the NHIF benefits were 0.543 times less likely to access health services. This was similar to those not aware of NHIF processes (OR 0.466) and who experienced infrequent drug supply (OR 0.437). All the variables except sociodemographic characteristics positively influenced access (p<0.05). The main recommendation is that to ensure universal health coverage for all, NHIF processes need to be streamlined, users made aware of benefits and institutions ensure a constant drug supply chain.

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LIST OF ABBREVIATIONS

CG	County Government
COK	Constitution of Kenya
HSM	Health Systems management
ICT	Information Communication Technology
KeMU	Kenya Methodist University
MOH	Ministry of Health
NG	National Government
NHIS	National Health Insurance Scheme (West Africa)
NHIF	National Hospital Insurance Fund
PHS	Primary Healthcare Services
SDGs	Sustainable Development Goals
SPA	Service Provision Assessment
SPSS	Statistical Package for Social Sciences
UN	United Nations
UHC	Universal Health Coverage
WHO	World Health Organization

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Globally, all health facilities are not accessible and cannot provide the healthcare services that correspond to the challenges of the changing health landscape and the huge health care expectations of the global informed community (Nassor, 2021). One third of the global population lacks adequate admittance to healthcare service delivery. Attaining accessible healthcare services for all people in the globe requires that health facilities and health facilities management needs to respond to the encounters of the changing world, the ever-growing population and peoples' expectations for accessible, and affordable health care service delivery (Leitemu & Gitonga, 2019). The cycles of poverty, illiteracy levels, ignorance levels, unemployment rates, lack of health insurance covers, few health facilities, under-staffed health facilities, untrained health workers, and increased population are greatly cited worldwide as the key elements behind the lack of access to accessible healthcare services in many developing nations (Mohamed, 2020).

Access is a principle key in Health service delivery which is one of the 7 pillars of Health Systems. It is a fundamental right enjoyed through partnerships between the county government and locals, important stakeholders in the community e.g. health NGOs and others. (World Health Organization [WHO], 2018). To be more accessible to citizens, Health facilities should be within a short walking distance (Munge et al., 2018). Trained healthcare workers ease to access by all citizens around the world was pivotal for the attainment of the Sustainable Development Goals (SDGs) on enhanced health through the delivery of accessible healthcare services. However, this hasn't been fully realized and as a result, people are vulnerable to harmful treatment from laymen,

traditional healers and delays in obtaining effective treatments hence increased morbidity and mortality rates (Amu et al., 2018). Accessible healthcare was based on a well performing health workforce that has been improved through adequate training and capacity building (Kirika, 2018).

In many developing nations of Africa there is a limitation in accessibility and affordability of health services among citizens (WHO, 2018). For service deliverables, the focus is on lowering the cost of treatment, increasing health service delivery by availing more institutions as well as lowering healthcare costs. Availability of adequately trained healthcare service providers to the community members and decentralization of health services is also key in many management plans (Ombiro & Otieno, 2019).

Primary health care services (PHCs) accessibility comprises of work done in promoting primary healthcare, secondary healthcare, tertiary healthcare and health. It was grounded on a logically sound and tolerable methods and technology which makes healthcare collectively accessible to all (WHO, 2018). This is in line with the Universal Health care policy(UHC) which forms part of the big 4 agenda in Kenya and was signed into action in 2018. The management of these facilities must be decentralized to reduce external influence in informed decision-making processes, proper planning and coordinated procedures, budgeting techniques and effective running (Wolfram, 2018). A centralized health system results in to a weaker, insensitive, incompetent and unbalanced distribution of healthcare services in an economy therefore, transfer of health sector service delivery from the National Government (NG) to the County Government (CG) (CGOK, 2010). The functions of health service provisions in Kenya were officially transferred to the counties on August 9, 2013 as a means and not an end to increasing access to healthcare services by citizens. Devolved healthcare

management boosts access to healthcare service delivery by promoting health accessibility, social accountability, participatory planning, coordination and transparency of services (Kirika, 2018). Healthcare access requires the attainment of safety, appropriateness, effectiveness, accessibility, efficiency, affordability, and patient-centeredness service delivery. To ensure that healthcare was available to all, challenges that hinder accessibility to healthcare service delivery must be swiftly addressed by the charged departments (Devaney, 2018).

There was a difference between the NHIF insured patients access to healthcare that Nairobi County was delivering to her people after devolution and the access to healthcare that was delivered before devolution. In addition, the insurance has been used in the public service but has since been extended to the community especially with the Agenda on the universal Health care program. This study seeks to identify the factors creating the gap in access to healthcare services (Lom & Pribyl, 2021). Devolved system of governance gives to citizens the power of self-governance and enhances their participation in making decisions affecting them to further their development agenda. In Nairobi County, healthcare access challenges were presumed to exist mainly because of inadequate health facilities, lack of knowledge of social health insurance, its processes and benefits and frequency of drug supply among others (Ali & Ebaidalla, 2019).

1.2 Statement of the Problem

The National Health Insurance Fund in Kenya (NHIF) was founded primary with an aim of improving health access among the masses. It was hoped that the insurance would relieve the financial burden of the common Mwanachi hence improve health seeking behavior (Njogu, 2019). Notably, NHIF was the cornerstone of achieving Universal health coverage rolled out by the retired president of the republic in 2018.

Within the first 4 counties in the project, only 17.7% of the population had access to the social insurance hence greatly hampering the success of the project.

In Nairobi County, which the study focused on, NHIF is accessible to 2,067,515 users which makes up 30% of the 7,657,463 countrywide principal members as reported in their report as of June 2020. In Makadara constituency, the number of NHIF users is around 70,296 which comprises of 3.4% of Nairobi's population. Despite this, access was only at 30 percent meaning that majority of NHIF holders (70%) do not access healthcare using their insurance (Mutai et al., 2021). Given that NHIF access was key to attaining Universal Health Coverage in the country, it was important to review factors influencing access to the insurance and seek ways to mitigate these factors. It is hoped that addressing these factors will increase Universal health coverage within the area of study and hence benefit the population at large.

1.3 Purpose of the study

To contribute to the body of knowledge in health financing towards strengthening health systems through the Universal Health Coverage (UHC). The Makadara constituency of Nairobi County was chosen since it is one of the largest constituencies in Nairobi County comprising of 3.4 % of the population (Rok, 2016). It was also convenient for the principal investigator since she resides and works in the area.

1.4 Objectives of the Study

1.4.1 General Objective

The main objective of the study was to assess factors that influence access to health services for NHIF insured patients within Makadara Constituency, Nairobi County.

1.4.2 Specific Objectives

These were mainly:

i.   To determine the influence of socio-demographic characteristics on access to health services for NHIF insured patients in health facilities within Makadara Constituency.

ii.   To determine the effect of the level of knowledge of NHIF benefit on access to health services for NHIF insured patients in health facilities within Makadara Constituency.

iii. To establish the role of NHIF processes as concerns access to health services for NHIF insured patients in health facilities within Makadara Constituency.

iv.   To assess how drug supplies influence access to health services for NHIF insured patients in health facilities within Makadara Constituency.

1.5 Research Hypothesis

i.   **Ho:** There is no significant relationship between knowledge of NHIF benefits and access to health care services among NHIF insured within Makadara Constituency.

ii.   **Ho:** Knowledge of NHIF processes does not influence access to health services among NHIF insured in Makadara Constituency.

iii. **Ho:** Frequency of drugs supply does not influence access to health services among NHIF insured in Makadara Constituency.

iv.   **Ho:** Socio- demographic characteristics do not significantly influence access to health services for NHIF insured in Makadara Constituency.

1.6 Justification of the study

As discussed earlier, over 25 million members are enrolled within the NNHIF scheme as of 2020 statistics. Of these, 27% are in Nairobi County totaling up to 2,067,515 NHIF

users and70,296 within Makadara Constituency, one of the largest in the county. Despite This, access was only at 30 percent (Barasa et al., 2019).Why is this so? Does a patient insured by NHIF have easier access to quality service that was delivered in an efficient and effective manner? By improving access to NHIF services can utilization be improved more so in the facilities under study? These are important questions that were studied here.

Conducting this study was crucial in order to provide a platform for gauging service delivery toward NHIF insured patients. With the huge resources invested in NHIF and its key role in achieving Universal health coverage for all, it would be important to know the factors influencing users within Makadara Constituency more so in health facilities and evaluate the factors leading to low access despite benefits.

If this study and its findings/ recommendations prove beneficial to Nairobi County, we can duplicate the findings to a wider scope e.g. private health insurance as well as disseminate the Knowledge to Other Counties. With this and similar studies carried on access of the insurance, it was spear us as Kenyans to reach towards attaining Universal Health Coverage for all.

1.7 Limitations and Delimitations

1.7.1 Limitations

These included the possibility of respondent bias since patients were more likely to respond positively. One limitation of bias was skewed results which would not represent the true picture either by undermining or overinflating the effect. One way to limit bias was to blind the respondents but given the nature of the study this was not possible. Bias in this study was minimized by having a large numbers of randomized study participants. Another limitation was in the use of telephone numbers to contact

the respondents and interview those who were not available physically. Majority of the interviews though were conducted physically. The disadvantage here was lack of adequate time for interviews, lack of personalized service since there was no face to face interaction as well as non-response. This is because in Kenya, people are very cautious providing personal information via the telephone network due to security purposes.

1.7.2 Delimitations

Given that the study was a cross-sectional study utilizing social insurance, it was not replicable to private insurances in Kenya. In addition, the study variables only looked at four factors. Other factors e.g. health, financial status, social wellbeing were not incorporated

1.8 Significance of the Study

This study is important in informing the Nairobi County health facilities on the factors affecting NHIF insured patients accessing services. It is hoped that the study will assist in adequate policy formulation and implementation. It is also important to incorporate the findings of the study within the NHIF scheme so as to allow easy access to members. This study is especially beneficial in informing government policies which spearhead the efforts to achieve Universal health coverage for the common Mwananchi. The findings of this study may be used as secondary data in any future research e.g. in institutions like KEMU.

1.9 Assumptions of the Study

It was assumed that all respondents were truthful and accurate information was provided. We also assumed that the sample size chosen to represent the target population was enough to enable the researcher draw valid conclusions about the

population under the study and properly recommend the findings. Assumptions, moreover, are drawn to the fact that a proper, thorough and relevant literature review was done and that the methods of data collection, analysis and interpretation were carefully selected. As well, it was assumed that the questionnaire return rate was sufficient to obtain relevant information for data analysis. Finally, the analysis of the collected data was assumed to lack misconception and subjectivity.

1.10 Operational Definition of Terms

Access: A collective term encompassing availability, affordability, physical accessibility and adequacy of health services delivered (Akute, 2021).

Decentralization: The process of shifting health managerial powers from the National government to the local county government with an aim of improving access to health among the citizens (Kiyoya, 2019). In this study decentralization means a county focused mode of operation for managing services e.g., finance, primary healthcare, governance of health services etc.

Health facilities: These are physical structures focused on providing health services. They may be hospitals, dispensaries or healthcare (Mlenge, 2020)).

Health: A complete state of physical, psychological and social well-being and not just merely the absence of disease (WHO, 2018). Health status was measured by how well the person functions mentally, physically, emotionally and socially (Kironji, 2020). In This study health means physical wellbeing without the presence of disease.

Healthcare: This is a collection of processes offering diagnosis of diseases, health education, guiding and counseling, screening, cure, disease-management, rehabilitation and palliative care services (WHO, 2018). In This study, this was the holistic approach given by medical care givers to ensure good physical health.

Poverty: Poverty is the inability of people to access to and pay for health care service delivery (Wagura, 2019). In this study, poverty was a state of economic want.

Primary health care services: These are the basic care services provided at the health units such as the mobile clinics, maternal health care, vaccination, and diagnosis of common Diseases: Malaria, typhoid, and brucellosis (Katerengabo, 2020). In This study, this was the first basic stage of healthcare given to a patient.

NHIF insured patients: In this study, these are patients who are covered under the NHIF scheme for health benefits (Republic of Kenya [RoK], 2016).

Frequency of drug supply: This was the number of times essential drugs are available in a health facility and how often these are restocked or replaced (Mlenge, 2020).

Wananchi: Local citizens.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

The literature review is a step wise process that the Researcher initiates so as to get a comprehensive background of his study. This includes obtaining past research, journals, articles and publications around his area of interest and see how this information impacts his future study. It also provides a base for research methods to be used and how this may be relevant to his study. This information is reviewed from past papers in the internet, local books and periodicals, university student papers and worldwide publications. Once the researcher completes his study, the literature review done is compared and contrasted to his research findings. The past studies, theoretical review, critical analysis and research gaps were discussed below.

2.2 Access to healthcare and Universal Health Policy (UHC)

Access is defined as the timely and adequate use of health services to achieve the best outcome in health (WHO, 2018). Globally, access to healthcare has been spearheaded by the World Health Organization more so in developing countries. The Alma Atta declaration was coined in 1978 by the organization and its mantra was to enable access to healthcare, as a fundamental human right, for all individuals. This declaration was received by most nations enthusiastically but time has proved that its objectives are still to be met. This however set the background for the Universal Health Care policy and access was used as one of the measures of health service delivery.

Universal Health coverage is a term coined by WHO to mean accessible healthcare for all persons when they need it, where they need it and at an affordable cost (WHO, 2018). Access as a principle of health service delivery encompasses the following terms: affordability, availability, timeliness, adequacy and accessibility. In line with

this comes in social insurances like the National Health Insurance Fund (NHIF) in Kenya which enables health care to be more affordable hence accessible. Social Insurance plays a fundamental role in Health care financing, one of the pillars of Health Systems. Universal Health Coverage is part of the big 4 strategic pillar declared by the retired president of the republic of Kenya, Hon. Uhuru Kenyatta in 2018 (Rok, 2019). It was piloted in 4 counties within the country's 47 counties. The UHC model was adopted in two phases where the first phase focused on the primary health care level and county health facilities. The aim was to eliminate all user fees in the facilities then move on to the second phase which was implementation of the social insurance, NHIF to all users. In this latter phase, all persons above the age of 18 were required to pay a certain percentage of their income toward the scheme. For those unable to pay, the government subsidized the fee. To achieve this overwhelming tasks, a large workforce was hired including but not limited to 200 community health units, 700 community health workers and 7,700 community health volunteers. The objectives were achieved by the year 2020 and by then about 3.2million Kenyans had been supported by the project in order to access health services including critical care (RoK, 2019).

With such a huge project, financing was key to ensure its success yet this became the biggest huddle since its inception. Given that Kenya is classified under the developing countries, the citizens need Government financing to access healthcare (WHO, 2018). Government funds allocated for the UHC project were erratic and relied heavily on income tax. In addition, Kenya's debt has skyrocketed causing diversion of funds to cater for this leaving the health sector wanting. It is with this in Mind that Kenya's budget to the UHC project dropped from 50billion in the 2019/2020 financial year to 47.7 billion in 2020/2021. This greatly affected the program. The second challenge was the low coverage by NHIF, about 17.7% of the total population in the 4 counties. This

meant that majority of the masses had low options available for financing in the institutions targeted hence limiting access to health care.

2.3 Socio-demographic characteristics and its influence on access to health service

In any society, people have unique characteristics that are natural to them as well as acquired. Socio-demographic characteristics according to the oxford dictionary, are a group of characteristics both physical and social that influence a person's being. Such are noted as age, sex, religion, education level, marital and employment status among others. Favorable socio-demographic characteristics of individuals may influence access to health services (Ellis et al., 2018).

In a study by Tartof et al. (2020) socio-demographic factors continuously played a strong role in influencing client access to the National Health Insurance Service (NHIS). NHIS is the social insurance used in West Africa. Majority of the persons who had high utilization were young (25-34 years), female, single with tertiary education and were unemployed at the time of the study. More urban dwellers who had a less than 2-year enrollment at the service were more likely to access the service. Those with poor access included the elderly, minority ethnic and religious groups. These were also less likely to renew their NHIS policies.

Closer home in Kenya, most studies have looked at uptake of social insurance with none addressing utilization except one done by Leitemu and Gitonga (2019) who looks at NHIF utilization among private university staff. In a study by Kibambila (2017) female to male ratio was equivocal with higher utilization noted among 26-34year old's, married, unemployed persons who had a household income of less than 5,000kshs and had at least attained a secondary school education. Household size and

occupation of individuals was not assessed. Other individuals i.e. Mohamed (2020) have assessed the impact of poverty on uptake of NHIF among Kibera slum dwellers and pastoralists respectively.

2.4 Knowledge of NHIF benefits and its impact on access to health service

On its inception, NHIF came up with a Benefits package which included member benefits according to the premium paid to the fund. This was termed as the NHIF benefit package and was modelled along the Kenya Essential Healthcare Package. An Essential Package of Health Services (EPHS) is defined as a comprehensive array of services offered equitably by the Government to its citizens.

One challenge that has been identified by NHIF in its website was knowledge by population of existing benefits. A study done in KEMU by Mulungye (2020) found that this was true since the population under study were confused on the benefits entitled when accessing NHIF services. These were private university staff who were insured. This was in contrast to a study done by Kironji et al. (2019) who found that NHIF customers were knowledgeable of the benefits of NHIF and had good utilization. In a study by Munge et al. (2018) it was found that uptake of NHIF among the Muslim population was low due to lack of awareness of benefits as well as socio-cultural and religious barriers. It was important to note that for a population to be aware of benefits of a social health insurance, aggressive marketing needs to be done. From inception, NHIF was tasked with developing clear policies on the various benefits and/or risks to the scheme. This was to increase knowledge and enable greater access among the general population owning the insurance as well as new entrants to the scheme. It was also important to evaluate the perceptions around the scheme and use this information to develop packages that were accessible, affordable and acceptable to all sections of the society (Carrin et al., 2005).This was mirrored by a study done by Mutai et al.

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(2021) which reported that awareness campaigns should be undertaken to in-crease utilization of government health insurance schemes among its beneficiaries, thereby, reducing the out of pocket expenditures as well financial catastrophes during illnesses.

2.5 NHIF processes and its influence on access to health services

Social health insurance relies on processes for smooth delivery of service to the clients. These processes may be straightforward or long and tedious which may hamper patient access to the service. Health processes begin from awareness of existing services, enrollment and the actual administrative processes involved in access. The Huduma center's in the country have been instituted to facilitate process improvement and accessibility but the problem persists. My study was to inform the gaps and inform the incorporation and Huduma center's on quality improvement.

In the study by Njogu (2019) 100 persons were asked who they thought qualified for the national health scheme, majority i.e. 87.6% (85) agreed that anybody could qualify if contributions were regular. A small number i.e. 17.5% (17) were not aware that NHIF covered family members. This was surprising however the majority 82.5% (80) respondents were aware of family member inclusion. Majority i.e. 97.9% (95) were also aware of the fact that NHIF assists financially for those admitted in hospital. As for whether NHIF covers for disease conditions in health facilities, 64.5% (64), reported the affirmative, 33% (33) did not know what conditions were covered under NHIF. Only 39.2% (38) knew accurately the monthly premiums required for one to be adequately covered. About 43.3% (42) were not sure of the amount of contributions and 17.5% (17) respondents quoted the wrong premiums. In terms of administrative processes, a study by Mwamisi (2019) found that faster NHIF administrative processes increased utilization of services. These processes included but were not limited to registration and verification, approvals after filling insurance forms and final billing

processes. Challenges noted by Akute (2021) included crowded NHIF offices, slow processes, long ques at their offices and fewer branches.

Recently the management of NHIF has been digitalized hence improving efficiency and effectiveness. This has also enabled decentralization to the counties. But challenges still exist at the facility level where members may not be aware of the improved processes and may not see the benefits. This was noted by Wagura (2019) who noted that since NHIF legislative systems were wanting, creation of a National commission, creating electronic modes of filing and keeping records, credentialing and certification applications would assist in reforming the healthcare systems.

2.6 Frequency of drug supply and its influence on access to health services

Drug supplies are part of essential medical supplies in a health facility. In previous studies (Young & Scheinberg, 2017) a constant drug supply influences a patient health positively. This is not possible without essential medical equipment and supplies. Since drugs and other medical supplies are costly, careful decisions need to be made on what to buy and how best to use the resources. Moreover, a health system needs to have a list of essential medical supplies and have these well stocked so as to avoid negatively impacting a patients' health. Drugs outside essential medical supplies can be ordered on an as needed basis. Even with the essential medical supplies list being in existence, some institutions more so public ones have been known to have shortages. This has become frequent over the years with the public now resorting to private institutions which have a steady stream of drugs. It is therefore vital to have a good supply of essential drugs in the NHIF accredited facilities so as to improve access to healthcare.

Even with the above knowledge, change has been an arduous process with little attention being given to these important areas and selection of supplies and equipment

has been given little attention. Traczynski and Udalova (2018) noted that due to the wide array of items needed and a wide variety to choose from, there was unsupervised and inappropriate acquisition of outdated drugs and equipment in local facilities. To add salt to the injury, the staff were inexperienced or unqualified to deal with this equipment. Procurement was only one area that needed focus, other areas included storage capacity, stock control, care and maintenance services etc. In order to manage this, the Government of Kenya, in collaboration with other stakeholders, has provided a manual which is used as a resource in public institutions. This manual includes procedures on how to acquire quality drugs and essential equipment, maintenance, use and repair. This manual serves as a reference for all institutions (Ombiro & Otieno, 2019). They realized the benefit of such a manual when he noted that low and middle-income countries faced a real shortage of essential medical equipment and drugs due to the above challenges hence needed such tools for success (Ombiro & Otieno, 2019). The impact of infrequent drug and equipment supply can result in adverse clinical outcomes including death. This is mostly felt in low resource set-ups as well as in emergency areas. E.g. in sub-Saharan Africa (Ombiro & Otieno, 2019). They noted that a significant percentage of deaths reported were due to inadequate medical equipment and lack of essential drugs.

Closer home in Kenya, Devolution of healthcare to the counties worsened the problem since now management of drug supplies was decentralized. This meant that there was no overall supervision and the counties were left to their own mercies. This affected county health facilities with perennial drug shortages and lack of essential medical equipment. (Awino & Omolo, 2020). The government then went to have programs aimed at strengthening health facilities. This made provision of basic drugs and medical supplies regular hence improving access (Kirumbi, 2020). Currently, despite

devolution, the Ministry of health consistently provides regular funding to the counties which aids with provision of essential equipment and drugs. This is facilitated via its Medical Stores Department (Wagura, 2019).

2.7 Theoretical Framework

This study seeks to examine the factors affecting NHIF insured patients accessing health services within Makadara Constituency and is informed by the systems approach to service delivery and the service gap model as discussed below.

2.7.1 Systems Theory

A system, according to Porter-O'Grady is an interconnection of many parts into one (Porter-O'Grady, Hawkins, & Parker, 1997cited in Hespanha (2020). These parts relate in congruence with each other and exists in an environment where its inputs and outputs are readily available. This is important in service organizations like the National Health

Insurance Fund (NHIF) which rely heavily on systems in order to work efficiently and effectively. The output is experienced by customers who may rate the service as favorable or unfavorable. Patients utilizing NHIF tend to get experiences based on processes and elements in a defined system. These systems include registration, triage, medical consultation and treatment, lab tests, radiological services, admissions, nursing, discharges among others. In order for the patient to experience quality service, these processes have to be congruent and work as one for success.

Hespanha (2020) highlighted basic principles governing the systems theory including; a system includes sub-parts that work together. Every sub-part supports the entire system and any malfunction in the sub-part affects the whole system. A suitable environment is crucial for a system to properly operate. This environment needs essential inputs and outputs which enhance its function. The consumer benefits by the

proper working of the system. The consumer in healthcare is the patient. In designing the system, the service element is at the epicenter with the essential components surrounding it. The elements related to the system are stakeholders and the system must enhance each stakeholders' performance. The person responsible for proper working of the system is the management. The primary role is coordinating, organizing and streamlining activities in line with the systems goals. The output obtained gauges the efficiency of the system.

The systems theory was relevant in my study since healthcare as we know it is an intercalated system of activities rather than distinct elements whose sole purpose is provision of essential services to the consumer (Lai & Huili, 2017). For healthcare to be successful as a process, the consumer flow should be seamless. The services offered to the consumer must flow so as to provide good outputs. A service delivery model backed by the systems theory provides an end to end inscription of service delivery to the consumer more so to NHIF users as per my study. Each process is defined at all stages and the outcomes documented as expected. The management is clearly defined with roles and functions to influence the process. The process begins when the consumer first makes contact with the system. The outcomes or results should be easily replicated at each stage.

Figure 2. 1

Systems Theory
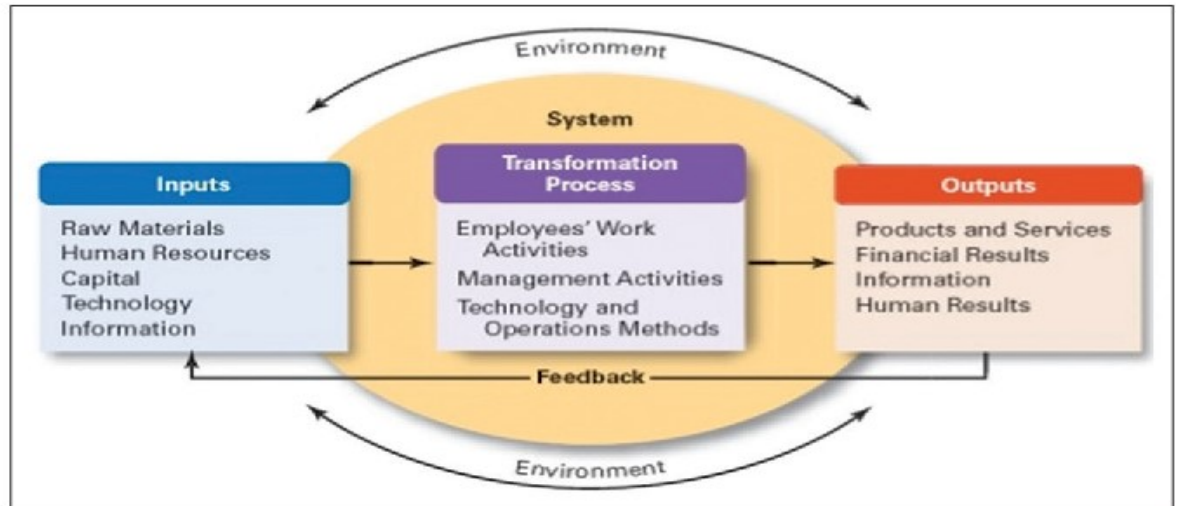
2.7.2 The Service Gap Model

The service Gap model was developed Zeithaml and Bitner (2010) as cited in Esmalian et al., (2021). In their model there were five gaps in customer expectations. These gaps needed to be filled in order to fully take care of customer expectations. The first gap is a deviation between the consumer expectation and organizational expectations. The second gap occurs when there is a difference between what the organization perceives as the consumers want and the quality of service delivered. The third gap is a deviation in service delivered verses the quality of service specification. The fourth gap is the deviation in consumer information given by the management versus the delivery of service intention. Lastly, the fifth gap is a difference of customer perception versus real service performance.

By closing the gaps, organizations like NHIF are better able to cater to consumer needs. The use of this model improves customer service delivery by focusing on gaps in customer needs and expectations. Success is tagged on closing the gaps as far as

possible. This in reality may not be an easy process but is rewarding in the long run. This requires that service providers are smart enough and incorporate client views, perceptions, ideas and wishes into their service deliverables. This also means managing consumer expectations.

Figure 2. 2

Service Gap Model
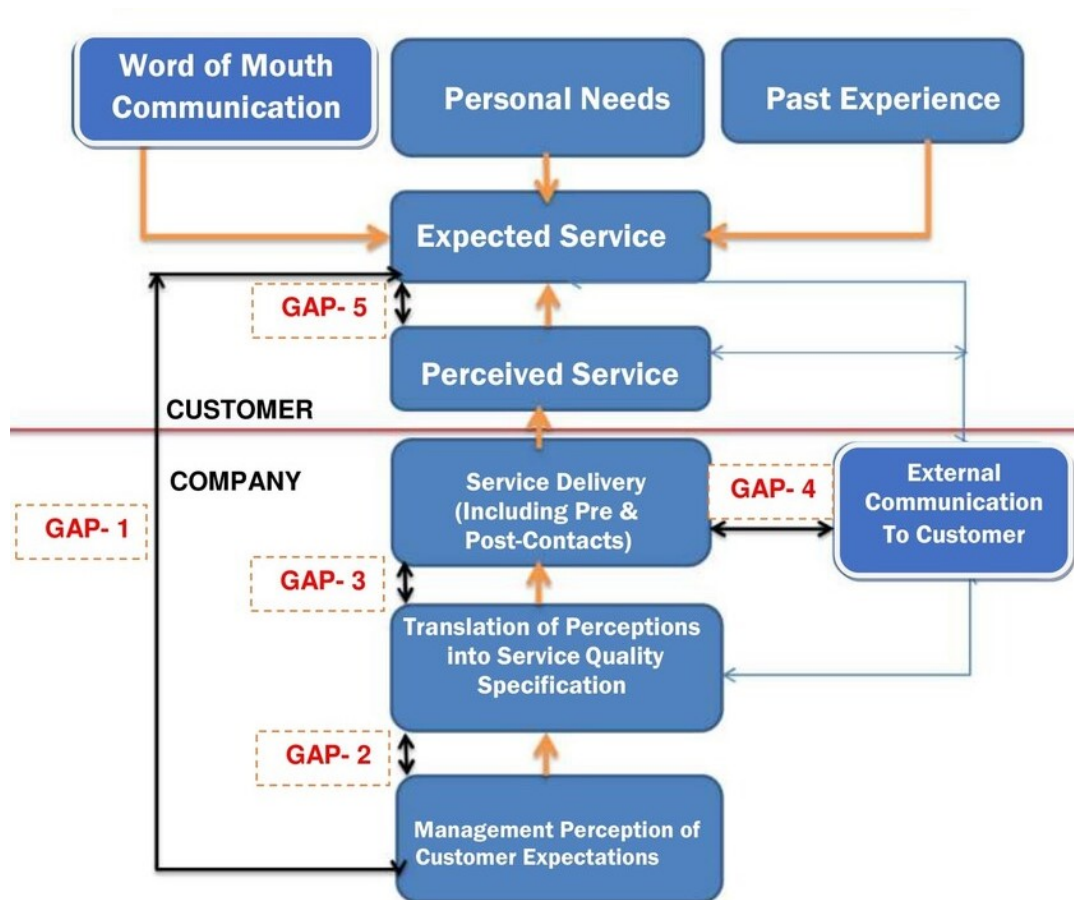
The service gap model was relevant for my study since NHIF processes are service oriented and the end product is usually the customer satisfaction as pertains to the service delivery and eventually improved health outcomes. The main gaps the study focused on were 3,4 and 5. Access being the main principle of study here means that

closing these gaps, through studying the factors influencing it would promote utilization of NHIF healthcare services and in the long run improved health outcomes.

2.8 Conceptual Framework

Figure 2. 3

Conceptual framework

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┌─────────────────────────────────────┐
│ Socio-demographic characteristics    │
│  •  Sex                              │
│  •  Education                        │
│  •  Marital status                   │
│  •  Household size                   │
│  •  Occupation                       │───┐
│  •  Household income                 │   │
└─────────────────────────────────────┘   │
                                           │
┌─────────────────────────────────────┐   │     ┌──────────────────────────┐
│ Knowledge of NHF Benefits            │   │     │ Access to                │
│  •  Services entitled to             │───┼───▶ │ healthcare services      │
│  •  Inclusion of dependents          │   │     │   •  Accessibility       │
└─────────────────────────────────────┘   │     │   •  Affordability       │
                                           │     │   •  Adequacy            │
┌─────────────────────────────────────┐   │     │   •  Availability        │
│ NHIF Processes                       │   │     └──────────────────────────┘
│  •  Process to select a facility     │   │
│  •  Choices of facilities            │───┤
│  •  Length  of  clearance  before    │   │
│     accessing services               │   │
└─────────────────────────────────────┘   │
                                           │
┌─────────────────────────────────────┐   │
│  Frequency of drug supply            │   │
│  •  Availability of adequate stock   │   │
│     in health facilities             │───┘
│  •  Categories of Drugs available    │
└─────────────────────────────────────┘
```

Independent Variables   **Dependent Variable**

The Figure above shows how two components i.e. the Independent and dependent variables are associate with each other. The independent variables have 4 factors with a minimum of 2 indicators each exploring the factors influencing access to the NHIF insurance with a focus on utilization. The dependent variable on the other hand demonstrates how each factor was linked to different forms of access i.e. accessibility, affordability, adequacy and availability. The conceptual framework was informed by

the system's theory service delivery models discussed in the theoretical framework above.

2.9 Summary

The system's theory focuses on parts of a system that work together to ensure smooth flow and good outcomes. With that in mind, the study focused on NHIF process and benefits as part of the system. A study of the indicators in these independent variables means that gaps would be identified and recommendations made to close these gaps. The gaps identified to be relevant in my study are 3,4 and 5. The two theories would hence interact in this way and were crucial in my study.

2.10 Research Gap

The research gap identified is that only 30% of NHIF members access essential health services yet NHIF is the cornerstone to achieving the objectives of the Universal Health Policy. It was hoped that by studying the factors that influence access and focusing on integrating the systems theory as well as closing gaps 3-5 in the service gap theory, access would be improved.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

Research methodology is a science describing the scientific techniques used in the study. This includes the design of the study, the participants, the inclusion and exclusion criteria, sampling methods, tools used and ethical considerations of the study. The study focused on NHIF insured parties who had poor access and utilization of the service. The methodology explored is discussed below.

3.2 Research Design

In this study we used a descriptive survey which was deemed suitable according to the objectives (Dannels, 2018). A descriptive survey is part of quantitative research that objectively seeks to answer in-depth questions. The tool used was a well-designed questionnaire and chosen due to its suitability in data collection. It was used to investigate the effect of socio-demographic characteristics, knowledge of NHIF processes and benefits and the effect of frequency of drug supply on NHIF users' access to health services.

3.3 Scope of the Study

The scope of the study includes the boundaries within which the study would be performed. This study was focused on the factors affecting NHIF insured persons who had or were not accessing services in health facilities in Nairobi County, Kenya. The study was limited to 400 respondents within Makadara constituency, Nairobi County. The respondent's unit was NHIF users. The Makadara NHIF database was adequate in order to obtain adequate information. The study took a period of five months from February 2021 to June 2021. Only adult respondents above 18 years, who could understand simple language in English or Kiswahili as gauged by the researcher, were

included in the study. The respondents above needed to have been registered within Nairobi County in the last 10 years and contributed to the scheme for at least 6 months.

3.4 Target Population

The target population were NHIF registered users accessing health services within Nairobi County particularly those in the National Scheme (RoK, 2016); NHIF had 7,657,463 principal members registered in Kenya as of the report ending of June 2019. The total number of the insured included the dependents were noted to be over 25 million Kenyans since uptake of the insurance is inclusive of the primary member as well as the dependents (Kironji, 2020). Of these 27% are in Nairobi County which was 2,067,515 principal members which was the target population. About 1/3 of the above are civil servants, the rest being in the National Cover. Makadara constituency comprises of about 3.4% of NHIF members within Nairobi's County as per local statistics comprising of 70,296 members (RoK, 2022).

3.5 Sample Size Determination and Sampling Procedure

A simple random sampling method was selected as appropriate. The unit under study was the NHIF insured principal member as listed in the NHIF database (Makadara Constituency). The Makadara Constituency was chosen due to its large population within the Nairobi County as well as convenience for the principal investigator in terms of data collection since she resides in the area.

3.5.1 Sample Size Determination

The formula used was as shown below;

$n = N$

Sample size $= N / (1 + Ne^2)$ (Slovin's formula)

Where,

n represents the sample size

N represents the study population (70,296 NHIF members within Makadara Constituency, Nairobi County)

e is the level of precision

Using the above formula, the sample size was calculated as follows;

N= 70,296

e= 0.05

Sample size=397

The researcher used a sample size of 400 to cater for the respondents who left the study prematurely or dropped out within the course of the study. The missing respondents were replaced until the desired number was reached. The calculated sample size was distributed according to the population of NHIF insured patients who were existing in the database in the Makadara constituency, Nairobi. County. This was by using a computer generated simple random sampling procedure.

3.6 Inclusion and Exclusion criteria

Inclusion criteria included adult NHIF registered users who were within the Makadara NHIF database and their dependents who were within the legal age required to give consent (18 years). The above needed to have been registered within Nairobi County within the last 10 years and were active contributors to the insurance within the last 6 months. They also needed to converse in either English or Kiswahili since the tool had not been validated in Vernacular language. The investigator gauged the language by openly asking the respondents questions in the questionnaire in either English or Kiswahili. Those who could converse in English were given questionnaires in the written word and vice versa for those who could converse in Kiswahili. We excluded all mentally incompetent individuals and those

deregistered or who were non-contributors. For the mentally incompetent, the investigator used her own judgment to gauge this.

3.7 Data Collection Instrument

A structured questionnaire was used in the study. The questions in the tool were close ended. Validation and Reliability tests of the structured questionnaire were performed. The questionnaire began with an introduction of the study noting that it sought to establish the factors affecting NHIF insured patients accessing health services in Makadara Constituency, Nairobi County. It was emphasized that the study was strictly confidential and for academic purposes only. Respondents were asked to fill the area of residence and type of NHIF cover whether civil servants or in the national cover. The questionnaire also included an area inquiring the last time the respondent visited hospital. Further along, two sections were included. The first was exploring socio-economic information. This included questions inquiring whether the respondent was a principal member or dependents and if the dependents was registered in the scheme. Marital status, age, sex, level of education, income, occupation and number of persons in the home including children were also included.

Sections B, C, D and E covered questions surrounding the independent variables and the dependent variable which was access. A 5 point Likert scale was used to answer questions. The questions were closed ended and in simple language e.g. NHIF services are always available. Section B covered Knowledge of NHIF benefits as an independent variable. Questions regarding general consultation, lab tests, treatment modalities for common conditions and cancers were asked using a 5 point Likert scale. The scale included the options of strongly agree, neutral, strongly disagree and disagree. Section C looked at the independent variable; Knowledge of NHIF processes and its influence on access. Questions regarding the role of NHIF in covering common services

including private ones were asked. Respondents' knowledge was tested on how to use the NHIF card, registration process, change of venue, default payments and monthly contributions update. Section D looked into frequency of drug supplies and its influence on access. Respondents were asked whether the institutions covered by NIF had a wide variety of drugs, whether drugs could be easily obtained and if the medicines were of good quality. Section E, the final section, took a holistic approach on assessing access as the dependent variable. Respondents were to answer whether NHIF services were always available, the closeness of facilities to area of residence, cost of travel as well as service co-pay. All questions in the questionnaire were simple to answer and explored the 5-point Likert scale as mentioned earlier

3.8 Data Collection Method

Data was collected physically from all respondents using the structured and pre-validated questionnaires. This was after contacting the respondents identified in the Makadara NHIF database and appointing a meeting time. An oral interview was conducted after signing the consent. Those who were unreachable were replaced with other respondents. The ones who were unavailable for physical interviews were interviewed over the phone. The unit of analysis was principal members and/or their dependents.

The open ended questions which were pretested were used in this study and the necessary adjustments made. The questionnaires were used to obtain quantitative data (Blumenberg & Barros, 2018). Collection of data was by the primary investigator using the questionnaire. The respondents answered the questions in the questionnaire after signing consents and submitted the filled forms to the principal investigator. Each question was designed in line with the studies' objectives. Our Target for collecting questionnaires was 10-15 per day (Loomis & Paterson, 2018). The study period was

distributed evenly over five months i.e. approximately 150 days. The researcher anticipated to collect at least 10-15 questionnaires per day. The questionnaires took approximately 30-40 minutes to fill. Once questionnaires were filled, they were collected and placed in envelopes which were dated. These were then kept under lock and key in a drawer and accessed for analysis at the end of data collection.

3.9 Reliability and Validity of the Instrument

3.9.1 Pre-test Study

This was conducted in order to test whether the questionnaire was valid from the existing NHIF database after appropriately using the inclusion and exclusion criteria. The pre-test study was done at the Metropolitan hospital in Buruburu with 86 respondents. The reason why this hospital was chosen is because it sits centrally within the Makadara constituency and captures respondents from the surrounding areas of Umoja, Jericho, Kayole, Donholm etc. hence making it an ideal catchment area for respondents. The aim was to achieve a response of at least 10-30% respondents from the database and identify obvious errors which could be corrected before data collection (Dahabreh & Hernán, 2019). The response rate was 12% and errors identified included long questions which were poorly understood, a short Likert scale of 3 responses i.e. Agreed, Neutral and disagreed. This was expounded to a 5 Likert scale to incorporate strongly agree and strongly disagree. We also noted that Access as a dependent variable was missing in the questionnaire and this was included with questions focused on the NHIF card and its accessibility. All the above were discussed with my supervisor and corrections made accordingly.

3.9.2 Validity

Validity represents how accurate a tool is when tested. The tool in this study was the questionnaire. The questionnaire needed to be tested in order to ensure that the results

obtained were accurate and true prior to conducting the research. The questionnaire once tested was only valid during the duration of the research and within the given timeline. To ensure that the content was valid, the questionnaire was discussed with my supervisor and content experts.

3.9.3 Reliability of Research Instrument

Reliability in scientific terms is measured by reproducibility of results. A test is reproducible if it consistently delivers similar results over time. This remains true even if repeated in different instances. If used on the same subjects, the results produced should be the same. This can also be deemed as repeatability of the instrument in question. Reliable results provide trust in the study as well as purport that given the same conditions, the results produced would be the same if the study was repeated. In this study, the split half method was used and was obtained by administering the tool twice to the same group of persons. The two scores obtained from the two groups were correlated for stability. A correlation coefficient (Cronbach alpha) of 0.7 (Solymosi and Bowers, 2018) was considered acceptable for this study.

3.10 Data Analysis Procedure

This section gives a description of how the collected data was analyzed. The collected data was first keyed in to a statistical software to aid in the analysis. In particular, the Statistical package for social sciences commonly known as IBM SPSS version 24 was used in the analysis. The procedure involved creating unique codes for all the variables, then keying in the requisite data as collected from the survey. The data was then cleaned and recoded to facilitate statistical analysis. Analysis of the coded data was done using descriptive and inferential statistics. Frequencies, percentages and tabulations comprised of the descriptive statistics while the inferential statistics

consisted of using the Chi-square test as well as logistic regression to show relationships between the variables. The Chi- square test was used as a preliminary test of hypothesis' to show whether each independent variable is significantly associated with the dependent variable. The tests used to determine whether Chi-square was appropriate were the Kolmogorov-Smirnov and Shapiro-Wik normality tests. In Multivariate analysis, the Logistic regression was chosen after converting the variables to a binary nature. Put in a simpler manner, the dependent variable must possess two mutually exclusive outcomes such as bad or good, success or failure and so on. In this study the dependent variable which is access to healthcare services was coded into two mutually exclusive outcomes which are; 'accessible' and 'not accessible'.

The logistic regression is mathematically expressed as;

Equation 1 can be simplified as

$$ logit\ (p)\ =\ \beta_o +\ \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \ldots\ldots + \beta n X n \ldots\ldots\ldots\ldots\ldots\ 2 $$

Where:

p = probability of presence of the characteristic of interest

β_o = representation of the reference group

$\beta_1, \ldots\ldots\ldots\ldots \beta n$ = the regression coefficients associated with the reference group

$X_1 \ldots X_n$ = The repressors

The omnibus test of model coefficients was used as a key indicator of the models predictive ability. Once data was analyzed, the results were presented using tables, graphs and illustrated charts. Adequate explanations followed and were compared and contrasted to the available literature on the subject matter.

3.11 Ethical Considerations

This research was submitted purely for the academic examination of a degree in Master of Science in health systems management program and can be shared with health facilities in Kenya. All rules and regulations regarding conducting a research were strictly followed. The main objective of this study was to evaluate the factors affecting NHIF insured patients accessing services in health county health facilities in Makadara Constituency, Nairobi County. The study population comprised of NHIF registered users in the National scheme who had or had not been registered nor accessed any health facility. The study was conducted by the use of questionnaires which were delivered physically or via a telephone interview with respondents. Verbal and physical consent was obtained prior. All participants were enrolled on a voluntary basis and treated with utmost respect.

Informed Consent. In order to excise freedom of expression as well as free will, a document is needed that shows that explanations were made and that the patient agreed to participate in the research willingly. This is known as an informed consent and is a legally binding document. In this study, the informed consent consisted of the full procedure of the study as well as the freedom to participate or withdraw from the study at any time. It was strictly confidential and private.

Ethical approval

Ethical approval was sought from the Scientific and Ethical Research Committee of Kenya Methodist University permit number KEMU/SERC/HSM/20/2020. Research permits was sought from the NHIF and National Commission for Science, Technology and Innovation (NACOSTI) reference number 452534. Thereafter the study was conducted using the set rules and guidelines from the above.

CHAPTER FOUR

RESEARCH FINDINGS AND DISCUSSION

4.1 Introduction

This chapter looks at the socio-demographic characteristics of the respondents in terms of age, level of education, gender, number of children, the number living in the Household, Income, and marital status. The other independent variables e.g. NHIF benefits, process and drug frequency have been discussed. It also explains the relationship between health Access and all the variables through bivariate and multivariate analysis.

4.2 Response rate & reliability test results

The response rate for the study was 100 percent with all the 400 questionnaires being returned. Some missing responses were found within the survey. The reliability test is shown in the Table 4.1.

Table 4. 1

Reliability Test

Variable	No. of items	Cronbach's Alpha
Sociodemographic characteristics	31	0.756
Knowledge of NHIF benefits	10	0.745
Knowledge of NHIF processes	9	0.777
Frequency of drug supply	6	0.786
Access to health services	8	0.751

Cronbach's alpha is a measure of internal consistency, that is, how closely related a set of items are as a group. The variable representing the varied groups in this study were as shown in table 2. Solymosi and Bowers (2018) postulated the acceptability range of reliable groupings based on Cronbach's alpha is 0.7. The presentation showed that an alpha greater than 0.7 is termed to be acceptable and the groupings reliable.

4.3 Socio-economic Demographic Characteristics

Table 4.2 shows the socio-demographic characteristics of the respondents who were interviewed in this study.

Table 4. 2

Socio-demographic Characteristics

Description of variable	Frequency	Percentage
Gender		
Female	148	37.00
Male	252	63.00
Age		
18-25 Years	78	19.50
26-33 Years	186	46.50
34-41 Years	110	27.50
Above 42 Years	26	6.50
Marital status		
Single	129	32.30
Married	231	57.80
Divorced	37	9.30
Widowed	3	0.80
Education		
Primary	4	1.00
Secondary	62	15.50
Certificate	78	19.50
Diploma	125	31.25
Degree	114	28.50
Postgraduate	17	4.25
Number of children		
None	122	30.50
One to Four	263	65.75
Five to Ten	15	3.75
Number Living in Household		
One to Four	333	83.25
Five to Ten	67	16.75
Income		
Less than 20,000	107	26.75
20000 – 50000	183	45.75
50001 – 100000	78	19.50
Above 100000	32	8.00
Occupation		
Business	89	22.3
Farmer	4	1.00
Professional	159	39.8
Student	12	3.00
Technical	46	11.5
Others	90	22.5

Most of the respondents were male, 252 (63%), whereas only 148(37%) were female.

Nearly half 186(46.5%) of the respondents were aged between 26 and 33 years; the

highest education level attained by most of the respondents was a diploma level of education 125(31.25%). A more significant proportion of the respondents were married 231(57.80%); most of the respondents had one to four children 263(65.75%), with most respondents 183(45.75%) having an income that ranged between Kshs. 20,000 and Kshs 50,000. In terms of Occupation, professionals were leading at 159 respondents (39.8 %), followed closely by business people at 90 persons (22.5%) and others at 89 persons (22.3%) respectively. The least represented profession were farmers at 4 persons (1%).

The results above mirror a cosmopolitan society as it is in Kenya with a young urban educated population dominating the scene even when it comes to social insurance like NHIF. The Cosmopolitan society in Kenya consists of the middle class individuals who tend to be middle to low income. They are a high consumption population whose focus is finer things in life at the whim. They tend to want the best in life and medical covers are not withstanding. The population in my study fit in this category.

The fact that males were at a higher percentage 252 (63%) than females 148 (37%) shows the economic status of the male species which is primarily to be the breadwinners of the family. Traditionally, males have been gaining employment while females are the home makers. In the 21st century, females are coming up and becoming economically empowered but by far and large, males predominate. With gainful employment comes more access to social insurance including NHIF.

For age, majority of the individuals were between 26-33years i.e. 186 (46.5%), followed closely by the 34-41-year-old i.e.110 (27.5%). The least involved were the very young i.e. 18-25 year olds 78, (19.5%) and the middle-aged above 42 years 26, (6.5%). The working group here shows that young individuals fresh from college have

a high utility of the NHIF insurance. As they age, utility may be less perhaps because of life stresses e.g. raising children, increased work demands, taking care of aged parents, securing a retirement etc. Money as a resource becomes scarce. On the other hand, it seems that social insurances favor the young and fit individuals who have an access to disposable income and these tend to be between the ages of 26-41 years as shown in this study.

Insurance companies even NHIF may also favor the young fit individuals since they have lower incidences of disease hence lower utilization of the insurance. In Actuary terms, the cost benefit is great.

Closely following this was marital status. The individuals who were married (231, 57.8%) predominated over the single (129, 37.3%), Divorced (37, 9.3%) or widowed individuals (3, 0.8%). Kenyan society is predominantly a patriarchal society whose main social unit is the family. This is highly valued in both the traditional and cosmopolitan societies. This means that most people who attain the marriageable age, tend to formalize their unions and have families. The unmarried, divorced or widowed tend to be few. Those who can get married either formally or traditionally tend to have a steady income and higher access to social insurance like NHIF.

Such individuals are usually educated since this enables them to gain meaningful employment and have access to NHIF. This was shown in this study with Diploma i.e. 125 (31.25%) and degree holders i.e. 114 (25%) being the highest consumers. Surprisingly the postgraduate holders tended to have a lower percentage i.e. 17(4.25%) and this could be explained by the fact that these individuals are generally few in any given society. Given the fact that they are few, the scale is tipped to a lower percentage although it is well known that persons with higher education have a higher income hence can access social insurances like NHIF easily.

Majority of the persons interviewed had less than 4 persons living in a household i.e. 333 (83.25%) as compared to 67 individuals (16.75%) who were between 5-10 persons in a household. This shows that those who consume NHIF tend to have fewer individuals living at home. This could mean that few individuals would mean more access since the cover could cater financially to their health needs. NHIF as a resource is limited therefore a precious commodity. The more individuals living at a home, the more constrained are the needs hence the focus moves from social insurance to more basic needs e.g. food, shelter and clothing. In addition, the high consumers of NHIF had 1-4 children i.e. 263 (65.75%) followed by those who had none i.e. 122 (30.5%) followed by those with large families i.e. 15 (3.75%). The larger the family, the more resources become scarce. The main caregiver tends to focus on basic needs after which medical insurance can be considered. Survival is key hence the low utilization in large families.

Income and NHIF utilization was also demonstrated in individuals living in the Makadara Constituency. The ones with the highest utilization were those earning between 20,000-50,000 per month i.e. 183 (45.75%). Since majority of the utilizers are young i.e. between 26-41 years according to this study, it shows the average starting salaries of the employed in Kenya. The higher you go in the workforce, the higher the income. In this study those earning between Kshs. 50,000-100,000 i.e. 78 (19.5%) were few with even fewer individuals i.e. 32 (8%) earning above 100,000 Kshs. per month. The latter represent individuals with a higher income than most. These individuals tend to have high consumer needs and NHIF may not sustain their needs. The focus shifts to private insurances which offer more benefits and enable greater access to private facilities. The lowest earners i.e. those with less than 20,000kshs per month followed closely by the ones earning up to 50,000Kshs/month. This just emphasizes my point

earlier that the lowest earners rely on public social insurance to cater for their health needs. This makes healthcare affordable since they can access public facilities and get quality care. They cannot afford private insurance since these tend to have very high premiums and are not accessible to most.

In the study by Appiah (2015) Majority of the persons who had high utilization were young (25-34 years) which was similar to my study. Female participants were the majority and most people were single, with tertiary education and were unemployed at the time of the study. Male participants were the majority in my study but most participants were married, with a tertiary education and employed. In the study by Loomis and Paterson (2018) female to male ratio was equivocal unlike in our study where Males were the majority. Higher utilization of NHIF services was noted among 26-34year olds, married, unemployed persons who had a household income of less than 5,000kshs and had at least attained a secondary school education. The similarity here was in the prime age of utilization. The stark difference was seen in the income bracket in which majority of the people studied fell below 20,000 per month. In addition, most have degrees perhaps because majority were employed hence the NHIF was a resultant benefit. Furthermore, the study by Ajiambo et al. (2014) demonstrated an equivocal female to male ratio and majority of the respondents were between the ages of 26-34year old, married, unemployed, had a household income of less than 5,000kshs, and had attained a secondary school education.

4.4 Residence Distribution

The respondent distribution was as per figure 4.1, with the majority being from Buru Buru; 16.50 percent followed closely by Umoja at 14.50, the rest of the Residence was represented with small percentages. It was noted that despite the study covering the

Makadara region, many respondents reported their original residence in terms of birth regions e.g. Thika.

Figure 4. 1

Study participants' residence
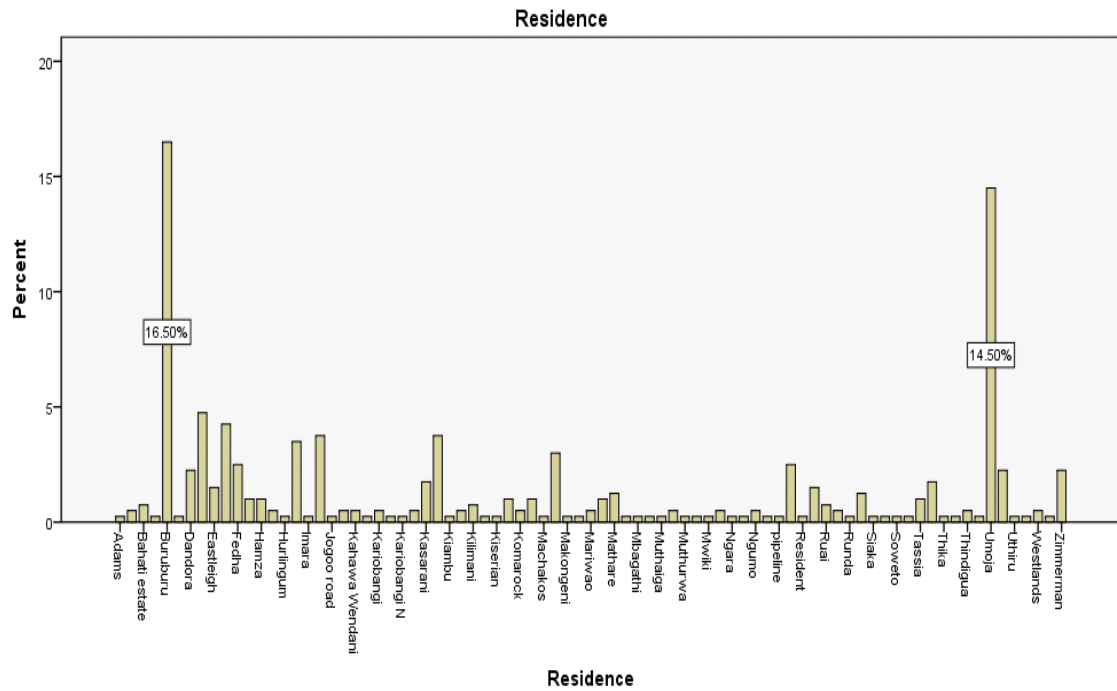
4.5 Type of NHIF Membership, Member Type and Dependents.

In this survey majority 334(83.5%) of the respondents were under the civil service with only 54 (13.5%) covered under the National cover. About 12 respondents (3%) either weren't sure of the type of membership or declined to answer it. The majority 303 (75.75%) of the members were principal and 97 (24.25%) were dependent members. A majority of the respondents, 325 (81.25%), had their dependents registered under their NHIF card. In comparison, 75 (18.55%) have no or few dependents registered under their NHIF card. Table 4.3 illustrates the above.

Table 4. 3

Type of NHIF membership

Variable	Description	Frequency	Percentage
NHIF Membership	Civil servant	334	83.5
	National Cover	54	13.5
	Not sure	12	3.00
Member Type	Principal	303	75.75
	Dependents	97	24.25
Dependent	Registered	325	81.25
	Not Registered	75	18.55

The results above show that majority of the respondents were civil servants, principal members and registered under the insurance. According to the updated NHIF database 2020, there are approximately 7 million NHIF users in the country. Given that Civil servants are an estimated 700,000, the proportion covered in NHIF would be 10%. The rest being dependents and those under the National cover. The Makadara Constituency of Nairobi is well known for housing government staff with neighborhoods e.g., Jericho dedicated to the same. This explains why the ratio is skewed toward the civil servants i.e. (83.5%). The Colonial zones of Eastlands were earmarked for Africans. Even within the Eastlands area, more affluent areas e.g., Jericho, Makadara, BuruBuru and Donholm were reserved for the Africans who had significant positions e.g., government civil servants, doctors, the police etc.

These civil servants tend to have good benefits e.g., a secure retirement, job security, low cost housing and unlimited access to NHIF. Those in the National cover may not have unlimited cover but still have significant benefits under the NHIF. Since my study was primarily in the areas with a high population of civil servants it is clear that these would have been the majority in this study.

The principal members were the majority at 303 respondents (75.75%) compared to the dependents who were 97 respondents (24.25%). Principal members are the individuals who have the NHIF cover while the dependents are listed as beneficiaries. This means that without the principal member having the cover, the dependents would not access healthcare. In addition, the principal members have to list their dependents and give out paperwork so that they can be listed. If dependents are not listed, they cannot access NHIF services. In this study, principal members being encountered more is not surprising since they are the primary owners of the insurance. However, more comprehensive data, outside of this study needs to be collected in-order to make an accurate conclusion.

The dependents who were registered were the majority at 325 respondents (81.25%). These were entitled to medical care hence would visit health facilities and get access to NHIF services. Those who were unregistered would likely be required to pay cash hence fewer would be encountered at these facilities i.e., 17 (18.25%). This shows that in-order for many Kenyans to afford healthcare, insurance is important. NHIF is of particular importance since it is widespread and found in most public and private facilities. Healthcare is an expensive affair to most Kenyans who live below the poverty line. Without NHIF, most individuals would not be able to access affordable healthcare. NHIF has made healthcare more affordable by making it accessible as shown in this study. In addition, facilities without NHIF would struggle to get an adequate number of patients since most rely on the insurance. They would have to lower costs to meet patients' needs. This sometimes presents an economic problem since overhead costs may be high and the need to compensate these costs by highly priced services. A solution would be Government subsidization of healthcare costs to private institution in-order to benefit both parties.

4.6 Access to Outpatient Healthcare Services by NHIF Members

The dependent variable in this study was to determine access to outpatient healthcare services by NHIF members. Data was collected using a 5-point Likert scale which ranged from 5=strongly agree to 1=strongly disagreed. After deliberations with my supervisors, we combined the responses to form a 3-point Likert scale i.e., agreed, neutral and disagreed. This would allow for easy interpretation and analysis. The results are presented in Table 4.4.

Table 4. 4

Access to NHIF services

NHIF has enabled me to	Agreed		Neutral		Disagreed	
	N	%	N	%	N	%
a. NHIF services are always available	187	46.8	95	23.8	118	29.5
b. NHIF prescribed services are always available	170	42.5	106	26.5	124	31.0
c. My NHIF facility was close to home	164	41.0	98	24.5	138	34.5
d. The cost/fare to the facility was always affordable	143	35.8	111	27.8	146	36.5
e. Sometimes I am asked to co-pay for consultation, labs and medicine	118	29.5	145	36.3	137	34.3
f. The waiting time in my registered facility was too long	109	27.3	102	25.5	189	47.3
g. I am always treated well at my facility	90	22.5	112	28.0	198	49.5
h. I have access to ALL NHIF services	75	18.8	86	21.5	239	59.8

Nearly half of the respondents 187 (46.8%) agreed that NHIF services were always available. NHIF facilities were noted to be closer to the homes 164 (41.0%) with affordable fares to the facilities (35.8%). When the respondents were asked whether they were asked to co-pay for services, majority were neutral i.e. 146 (36.3%). This

means that some were asked to co-pay for services but this depended on the cost. It was noted that 189 responded that they disagreed with long waiting times (47.3%) and 198 respondents noted that they were not always treated well at the healthcare facilities (49.5%). In addition, 239 respondents disagreed on having access to all NHIF services (59.8%).

Important finding here was that the focus was on good service provision. They noted that the NHIF services at the facilities they visited were available. This showed that NHIF is focused on their customers and accredit those facilities whose services are available and relevant to the common Mwananchi. In addition, the common mwanachi is able to be served better. Despite this, majority of the respondents did note that the services were not always available and they sometimes they were asked to co-pay. The two are probably linked. Considering that the common mwanachi sometimes earns less than a dollar a day, a system of co-pay may be unaffordable to most. This is important feedback to NHIF so as to advise them on their customer needs. Most times, it is common knowledge that quality services come at a cost so the insurance should look at ways either to increase coverage hence very low co-pay or full cover for the common mwanachi.

The respondents happily agreed that the NHIF services were close to their homes. This is commendable since NHIF has widened its coverage in-order to make healthcare more accessible to their clients. They did however note that they were not always treated well at their facilities. This has been a problem even in the past. Majority of NHIF accredited facilities tend to be public facilities which have perennial problems like low staffing, demotivation, lack of resources and infrastructure. This leads to frustrations amongst health workers who in turn frustrate the patients by mistreating them etc. This is a problem requiring multi -displinary inputs from the Government, NHIF service

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providers and health workers to help solve it. Training on customer care especially to patients should be undertaken in-order to improve service delivery.

On a positive note, the respondents disagreed that they were subjected to long waiting times. They also noted that not all services in a facility were accessible. Although this study did not go into specifics of which services were not available, it is common knowledge that specialized treatments e.g., complex surgery may not be covered by NHIF. Again, each service is unique and it is hopeful that this study can highlight some of these issues and feedback to NHIF so as to improve access to key services.

The data was further analyzed to find out the overall respondent access to healthcare services. Results revealed that most of the respondents, 313 (78.25%) had accessed a health facility in recent time, while 84 respondents (21%) stated to have never attended a health facility. A negligible percentage of 0.75% i.e., 3 respondents could not remember the last time they attended a health facility.

Further analysis was done by combining all responses from the questionnaire and comparing with the dependent variable to get a composite analysis. The program used was SPSS version 24. Overall, NHIF services were found to be inaccessible in this study by (51.5%) of the respondents. See Table 4.5.

Table 4. 5

Overall Analysis on Access

Overall Access	Frequency	Percentage
NHIF services are accessible	194	48.5
NHIF services are not accessible	206	51.5
Total	**400**	**100**

These findings are similar to the study done by Abdi et al 2017 who assessed whether Religion influenced uptake of NHIF among Muslims in Nairobi (Kironji, 2020).

Despite Religion having a significant Impact on NHIF utilization (p=0.015), 74.6% of the respondents believed that NHIF based health insurance was inaccessible. Though utilization was the main outcome here not access, the inference made was towards inaccessibility.

A similar study that shared similar results was done by Appiah et al. 2015. Here, he looked at the influence of socio-demographic characteristics on healthcare access of persons using social insurance. Only two variables influenced access i.e. Occupation (p=<0.001) and residing in a rural residence (p<0.05). Age, gender, education and marital status of the respondents had no significant effect on access. The overall effect of socio-demographic characteristics on Access was negligible.

The study findings are in contrast to the study done by Kironji et al. (2019) who looked at perceived image of health facilities and its influence on utilization of public health services using NHIF among private university staff. She concluded that perceived image of health facilities influenced utilization of NHIF services among private University staff p<0.001) and 7.3% of utilization can be explained by the perceived image of NHIF outpatient facilities (R2=0.073).

4.7 Respondents Knowledge of NHIF Benefits Package

The study sought to find out the knowledge among NHIF members on the benefit package. Using a 5 point Likert scale which ranged from 5=strongly agree to 1=strongly disagreed. During the analysis the findings were transformed to form a three scale which was 5=agreed, 3=Neutral and 1=disagreed. See Table 4.6.

Table 4. 6

Respondents Knowledge on NHIF Benefits

I am always entitled to the following benefits	Agreed		Neutral		Disagreed	
	N	%	N	%	N	%
a. General consultation	318	79.50	47	11.75	35	8.75
b. Treatment of local diseases	312	78.00	62	15.50	26	6.00
c. Basic Lab investigations	285	71.25	80	20.00	35	8.75
d. Prescription and administration of drugs	277	69.25	83	20.75	40	10.10
e. Health education and counselling	253	63.25	95	23.75	52	13.10
f. Minor surgical procedures under local anaesthesia	232	58.15	116	29.07	52	12.78
g. Inclusion of up to 4 dependants	209	52.25	130	32.50	61	15.25
h. Inclusion of my spouse	203	50.70	125	31.30	72	18.00
i. NHIF covers Cancer treatments and tests	131	32.91	134	33.67	135	33.42
j. NHIF covers tests like x-rays, CT scans and MRI	120	30.38	125	31.65	155	37.97

Results revealed that 277 respondents (69.3%) agreed that they were aware of the overall benefits they are entitled to by NHIF, while 79 respondents (19.8%) were not sure and 44 respondents (1.3%) strongly disagreed to being aware of NHIF benefits.

Further analysis revealed that majority of the study respondents 344 (86%) were agreeable that NHIF benefits improved access as evidenced by the higher percentages in the group as compared to the neutral group and the ones who disagreed. However, the results were found to be unequal in entitlements such as covering ccancer treatments and tests as well as other tests like x-rays, CT scans, and MRI, with a significant number being neutral or disagreeing to these facts. See Table 4.7.

Table 4. 7

Overall analysis on Benefits

Overall Effect of Knowledge of benefits on access	N	%
Knowledge of Benefits improves access	344	86
Knowledge of Benefits does not improve access	56	14

When a patient visits hospital, they request to see a doctor or a nurse depending on their health needs. Once they see the health practitioner, a general consultation is done where the patient's history is taken, a triage system for vital signs is done followed by a thorough examination. The patient then goes for investigations which may be lab oriented or radiological. After this, a re-consultation is done to explain the results as well as prescribe any treatment needed. The above results indicated that the respondents were familiar with the basic routine as is followed in a health facility. For specialized tests e.g. CT scans, MRI and treatment of Cancers, they were not aware. It is possible that NHIF tended to ask for co-pay for these services hence they are inaccessible to the patients. Another explanation could be that the facilities with NHIF services in the Hamza area did not have such specialized services. There was a clear relationship between having knowledge of NHIF benefits and attaining health access using NHIF. A more significant percentage of those who agree to have knowledge of NHIF benefits concurrently agreed to NHIF enabling them to access health (86%).

The respondents who were not sure of NHIF benefits concurrently weren't sure if NHIF has enabled them to access NHIF services. These results follow the famous adage that 'Knowledge is power'. Knowledge allows one to explore all the areas of a utility and maximize use. The same applies to NHIF where, knowing its benefits enables one to utilize the insurance better hence allowing greater access. This also allows the user

greater trust in the product since it allows family coverage and wider treatment options as compared to some local private insurance policies.

4.8 Respondents Awareness of NHIF Processes

Majority of the survey respondents 236 agreed to being aware of NHIF health services (59%), with only 18 respondents (4.5%) and 4 respondents (1%) disagreeing and strongly disagreeing respectively. See Table 4.8.

Table 4. 8

Awareness of NHIF processes

I am aware of the following	Agreed		Neutral		Disagreed	
	N	%	N	%	N	%
a. NHIF covers health services	290	72.5	60	15.0	50	12.5
b. NHIF covers private health services	276	69.0	93	23.3	31	7.8
c. How to register	268	67.2	90	22.6	41	10.3
d. Waiting period before registration and accessing services	238	59.6	106	26.6	56	13.8
e. How to use my card	234	58.6	116	29.1	50	12.3
f. How to change health facility of choice	207	51.9	131	32.8	62	15.3
g. How to access NHIF information in the media	221	55.3	112	28	67	16.8
h. Amount of monthly contributions needed	211	53.4	122	30.9	67	15.7
i. Penalties in case of defaulting payment for 3 months	185	46.5	128	32.2	87	21.4

The participants in this section responded in the positive for most of the questions asked. If you can recall from the previous sections, the cohort of patients studied were well educated with diplomas, degrees and postgraduate degrees making the majority.

In addition, majority were civil servants. These individuals are quite knowledgeable about NHIF either through training or research on the same. It also goes to say that NHIF has invested in providing literature and public resources on how to access its services which is commendable. In addition, the Government as well as other private companies have invested in training staffs who utilize NHIF on its uses and processes.

Majority of the respondents were aware that NHIF covers health services 290 (72.5%) as well as private services 276 (68%). About 268 respondents (67.2%) knew how to register and were knowledgeable about the waiting period between registration and accessing services i.e., 238 (59.8). They had probably been trained on the above. In training, 234 probably were shown how to use their cards (58.6%) and 207 respondents knew how to change facilities (51.9%).

The period between registration and access to health services for NHIF tends to be long. This did not deter the respondents in this study. Most likely they have used the insurance for long periods of time hence the information here becomes second nature.

In case of lack of knowledge, 221 respondents noted that they could access NHIF information in the media. Majority, 185 respondents (46.5%) knew of the penalties if payment was defaulted for more than 3 months. They also knew the monthly contributions needed.

This goes to show how NHIF is important to the Kenyan society. A social insurance like it, if available makes healthcare so much more affordable and accessible that individuals will probably learn all the can to ensure they get the best experience. In addition, NHIF has invested heavily in trainings, resource availability through its websites and media and this is quite evident in this study going by the responses above. Another explanation is that NHIF processes are mostly automated, hence access is

much improved with knowledge of these processes. Further analysis was done and the overall effect of having this knowledge meant that the services were more accessible as shown in Table 4.9.

Table 4. 9

Overall influence of NHIF process awareness

Overall Influence of NHIF process awareness	N	%
Awareness improves access	347	86.8
Awareness does not improve access	53	13.2

All responses were combined and matched against access as the dependent variable to find the overall effect. The effect of NHIF process awareness was generally positive with 347 responses (86.8%) toward the affirmative while 53 responses (132.2%) disagreeing. This was not surprising since majority of the responses were positive.

This study (Kironji, 2019) found that faster NHIF administrative processes increased utilization of services. These processes included but were not limited to registration and verification, approvals after filling insurance forms and final billing processes. However, the findings in this study are in contrast to the study by Mbaabu et al. (2021) who found no clear relationship between knowledge of NHIF processes and access. In the study, 100 persons were asked who they thought qualified for the national health scheme, majority i.e. 87.6% (85) agreed that anybody could qualify if contributions were regular. A small number i.e. 17.5% (17) were not aware that NHIF covered family members. This was surprising however, the majority 82.5% (80) respondents were aware of family member inclusion. Majority i.e. 97.9% (95) were also aware of the fact that NHIF assists financially for those admitted in hospital. As for whether NHIF covers for disease conditions in health facilities, 64.5% (64), reported the affirmative, 33%

(33) did not know what conditions were covered under NHIF. Only 39.2% (38) knew accurately the monthly premiums required for one to be adequately covered. About 43.3% (42) were not sure of the amount of contributions and 17.5% (17) respondents quoted the wrong premiums.

These two studies had different populations and covered different regions. For Kironji, it primarily focused on university staff while Ajiambo focused on NHIF users in Nairobi County. Perhaps a larger study involving multiple respondents that has a nationwide coverage would provide conclusive answers.

4.9 Respondents views on Drug Supply at NHIF accredited facilities

This section looks at how frequency of drug supplies at NHIF accredited facilities affect access to health services. The first step is to check whether respondents used their cards to obtain drugs. The next step was to see how they utilized their cards to access the drugs and the overall effect of frequent drug supplies on access to healthcare among NHIF users. Over a third, 153 respondents were neutral (38.3 percent) on whether they used their cards to acquire drugs. A significant number disagreed i.e. 115 respondents (28.75%) that they are always likely to use their NHIF card for drug acquisition.

Figure 4.2 shows the results.

The study findings show that an NHIF card may not always be needed to obtain drugs. In most facilities, an adequately filled form with the health provider's signature and stamp would be adequate to obtain drugs. All in all, the card is still important but may not be needed as much. The fact that most respondents were not sure about their cards may negate the need to have cards in the first place. Important questions to ask is whether the cards are useful in the first place. If a member's details are incorporated into the NHIF system database and can be viewed by most healthcare providers, is the

card necessary? Can the resources used in making and printing the cards be put to better use? Can biometrics be used instead of cards? This would make healthcare more digital but an important question is whether the public facilities can benefit or afford this. These are important questions and provide room for further discussion with NHIF providers and stakeholders. It was interesting to note that those who used their cards to obtain Medicine (35%) were almost equal in number to those who never used their cards to obtain medicine (37%). This implied a knowledge gap in the latter group.

Figure 4. 2

Frequency of drug supply in NHIF Accredited Facilities
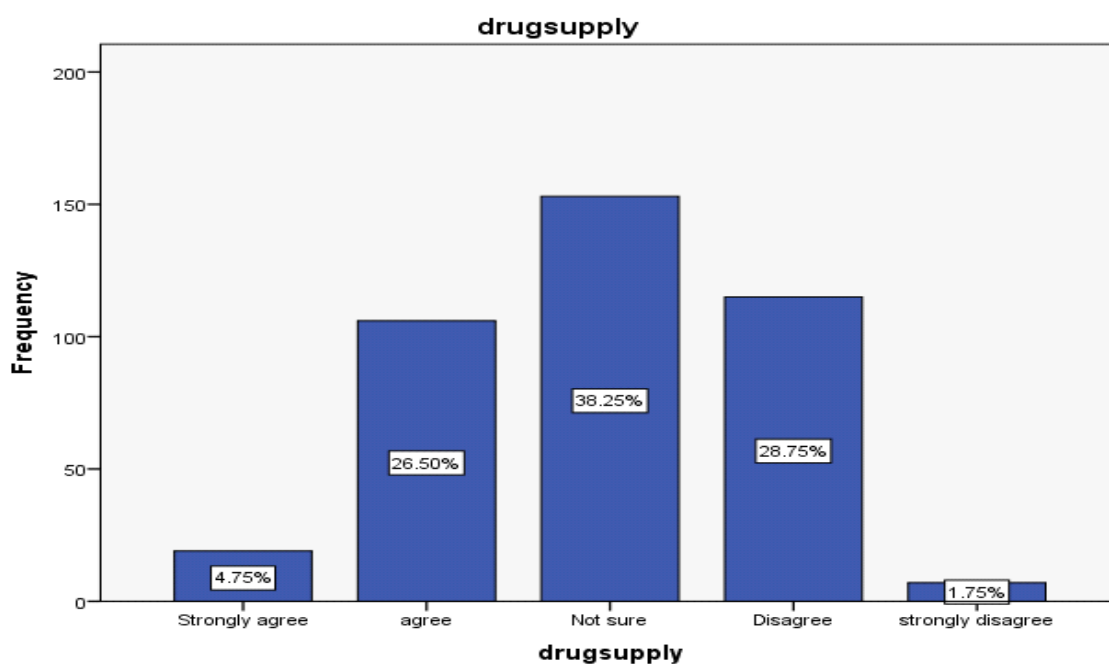
For those who used the NHIF cards to access drugs the results are shown in Table 4.10. Over half of the respondents, 218 (54.9%) visited facilities where medicines were always available and where drugs could be obtained immediately. The kind of respondents in this study were cosmopolitan and employed mostly. They are busy

people who needed to obtain fast and efficient healthcare hence visiting healthcare

facilities with adequate and widely available drugs 191, (48.4%).

Table 4. 10

Use of NHIF card on drug supply

	Agreed		Neutral		Disagreed	
I use my NHIF card	N	%	N	%	N	%
To visit a health facility where medicines are always available	218	54.9	97	24.4	82	20.7
In a health facility where I can obtain drugs immediately	226	57.1	92	23.2	82	19.7
Where there was always a wide variety of drugs	191	48.4	119	30.1	90	21.5
Within hospitals, since they have quality medicines.	191	48.7	115	29.3	94	21.9
Within private hospitals, since they have quality medicines.	138	34.5	134	33.5	128	32.1
I never use my card to obtain medicine.	140	35.0	112	28.0	148	37.0

The modern employed person including a Government employee wishes to visit

hospitals instead of lower cadre facilities like health centers or dispensary. Hospitals

tend to be larger, offer more comprehensive services, have well trained staff and well

stocked supplies including drugs. The respondents i.e. 191(48.4%) also noted that the

main reason for visiting hospitals was that they offered quality drugs. This does not

hold true though it is a perception by many.

The Kenyan Government has invested heavily in healthcare especially in building

capacity in the lower levels of healthcare facilities i.e. from Level 1 to Level 4. Part of

building capacity is ensuring good infrastructure, staffing, procurement of essential

drugs and stock, trainings, health awareness etc. An example relevant to this study is

that doctors are being hired to run health centers and nurses to run dispensaries. This

has had its own challenges. In addition, there is provision of basic essential drugs to the lower health facilities while more specialized drugs are preserved for the larger facilities. These medicines are approved by KEMSA hence of good quality. This Knowledge may not be available to all NHIF users hence the perception that they need to visit a hospital to get quality drugs. A lot needs to be done to increase awareness of what lower cadre facilities can manage. This would help decongest the hospitals.

Also important is that the lower cadre public facilities may have drugs available but those drugs are not adequate to treat certain conditions especially the non-communicable diseases e.g. Diabetes Mellitus, Cancer etc. In addition, sometimes necessary drugs e.g. Antibiotics may not be readily available due to cost or high demand by the public more so in institutions that cater for primary healthcare and the common *mwananchi*. This forces patient to seek healthcare in facilities with adequate infrastructure e.g. hospitals with wider choices of quality drugs. NHIF enables them to do so.

As for whether the respondents used their cards in private facilities since they had quality medicines, the responses were mixed. The respondents who agreed were 138 (34.5%) while those who were neutral were 134 (33.5%) and those who disagreed were 128 respondents (32.1%).

On further analysis to show the overall effect that drug frequency has on NHIF, there was a clear relationship. A significant percentage of the respondents i.e. 281 agreed that drugs were frequently supplied and that NHIF allowed for access to these drugs hence attaining health access (70.3%). The results are shown in Table 4.11.

Table 4. 11

Overall Effect of Drug supply

Overall Effect of Drug supply	N	%
Drug supply improves access	281	70.3
Drug supply does not improve access	119	29.8
Total	**400**	**100**

The study revealed that the respondents felt that frequent drug supplies improves access to health services. Access to healthcare encompasses affordability, accessibility, availability and adequacy. If drugs are frequently available in health facilities, patients have easier physical access. With easier physical access, there is no delay in their treatment. Patients therefore have better outcomes and an improved patient experience. This further improves utilization of NHIF since services are available, fast and attainable. Improved access is therefore enhanced. This important concept is shown by the results above.

The results above are similar to those of Okojie and Lane (2020) who noted that provision of basic drugs and medicines improves access to healthcare. In addition, Young and Scheinberg (2017) noted the provision of much needed funding by the ministry of health for the procurement of drugs and critical medical supplies via its Medical Stores Department. In Contrast however, Young and Scheinberg (2017) expressed that Low- and Middle-income countries usually face real shortages of essential supplies and drugs which poses a challenge in accessing healthcare.

4.10 Inferential analysis of Factors that influence NHIF members Access to Health services

4.10.1 Normality Testing and Causal Relationships

To determine the factors influencing access to health services among NHIF insured persons in Makadara Constituency, Nairobi County, the following hypothesis were tested. The dependent variable was access to health services categorized as "accessible" and "not accessible". This was achieved by consolidating all responses on access to health services and access test score computed. The questionnaire had eight items measuring access to health services on a five-point Likert scale. Access test score ranging from 8 to 16 implied that outpatient health care services are easily accessible by NHIF insured patients. Scores above 16 implied that health services are not easily accessible by the NHIF insured patients. Preliminary test of hypotheses was done using the chi square test of significance.

As shown in table below, normality tests done indicated that the data was not normally distributed. The two tests demonstrated below are Kolmogorov-Smirnov and Shapiro-Wik. In statistics, Kolmogorov-Smirnov test (KS test) is a non-parametric test that compares a sample with a reference probability distribution or used to compare two samples. In this study, the cumulative distributions of the two data sets were compared and a p value was calculated from the cumulative distributions. This test is useful for data sets where n=>50. The two sample K-S test is one of the most useful and general non-parametric test used to compare two samples. Samples are standardized and compared with a standard normal distribution. If the value surpasses the set value e.g. p-0.05, it is normally distributed. In this study, the sig. value was 0.00 indicating that the data is skewed hence not normally distributed. On the other hand, Shapiro-Wik is used for data sets where n-<50 but can still be utilized as seen below. The Shapiro-Wik

test is also a non-parametric test. If the sig. value is greater than 0.05, the data is normally distributed. If it is less than 0.05, it is skewed hence not normally distributed. In the table below, Shapiro-wik sig value is 0.00 hence the data is not normally distributed. This is shown in Table 4.12.

Table 4. 12

Test of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Access to NHIF	.349	400	.000	.636	400	.000
Knowledge of NHIF benefits recoded	.517	400	.000	.411	400	.000
Knowledge of NHIF Processes recoded	.519	400	.000	.400	400	.000
Frequency of drugs supply recoded	.445	400	.000	.574	400	.000

The Chi square test was chosen to show the relationship between two categorical variables since the data is not normally distributed. As referenced earlier, the variables in this study were made into categorical data so as to facilitate analysis. The eight items measured on 5-point Likert scale related to access to health services were collapsed into binary outcome using the compute function in SPSS. This was deemed to be the best method for this study since all the variables were categorical in nature.   Due to the binary nature, the Chi square test was chosen and obtained by running cross tabulations in SPSS. Since correlation is not causality, we chose the logistic regression to determine the relationship among the variables. This was deemed best due to the binary nature of the data. However, it is worth noting that, correlation does not necessarily mean causality. For this reason, logistic regression was used to determine the cause and effect relationship among the study variables. Logistic regression is used when the dependent variable is binary in nature.

4.10.2 Hypothesis Testing

Hypothesis testing occurs in statistics as a test of a theoretical probability. It is based on an assumption regarding a parameter under study by using simple data derived from a population. The goal is to test the plausibility of the null hypothesis. The null hypothesis is a hypothesis of equality between two populations. The alternative hypothesis is the opposite. Results of the test are as shown below;

Hypothesis 1

H_0: There is no significant relationship between knowledge of NHIF benefits and access to outpatient healthcare services among NHIF insured members in Makadara Constituency, Nairobi County. This was achieved by cross-tabulating responses knowledge of NHIF benefits and access to healthcare services among the NHIF insured. Pearson's chi-square results, $\chi^2 = 12.292$, p = 0.001 show that the relationship between knowledge of NHIF benefits and access to outpatient healthcare services among NHIF insured members in Nairobi County is significant. Thus, we reject the null hypothesis at p = 0.05 and conclude that the knowledge of NHIF benefits is significantly associated with access to outpatient healthcare services among NHIF insured members in Nairobi County.

NHIF as a social health insurance in Kenya has revolutionized healthcare by allowing ordinary Kenyans to access healthcare at an affordable rate. NHIF has plenty of benefits that make it attractive to the ordinary health consumer. It has an inpatient cover, outpatient cover, maternity and reproductive health cover, Ex-ratia payments, Last expense cover, group life cover, specialized radiology and Cancer care. The inpatient cover encompasses doctor visits including specialized care, bed charges, diagnostic and radiological tests, all drugs and medication costs. The outpatient cover takes care of consultation, Laboratory, essential drugs, radiology, physiotherapy, occupational

therapy, optical and dental care, minor surgery and referrals even to countries like India. These benefits provide a comprehensive cover not only to the ordinary Kenyan but even to Kenyans with private insurance since it covers bed charges. The wide variety of NHIF services and benefits allow better health delivery to our ordinary Kenyans and their dependents. When healthcare becomes affordable and attainable, greater access is achieved as evidenced by the NHIF cover. In addition, Knowledge of these benefits allows us to close the gap 3 and 5 of the service delivery model (see Literature review) that states that there is a gap between service quality and that which is delivered to the user and gap between perceived service and actual service delivered respectfully.

The results above are similar to those of Nassor (2021) which stated that NHIF customers were knowledgeable of the benefits of NHIF and had good utilization. In contrast were the results by Kibambila (2017) who noted that population under study were confused on the benefits entitled when accessing NHIF services. Also refuting the results of my study was Abdi et al (Mohamed, 2020) who found that uptake of NHIF among the Muslim population was low due to lack of awareness of benefits as well as socio-cultural and religious barriers.

Hypothesis 2

The study also sought to determine whether NHIF processes is significantly associated with access to outpatient healthcare services among the NHIF insured in Makadara Constituency, Nairobi County. To guide the achievement of his objective, the following hypothesis was formulated.

H$_0$: NHIF processes do not influence access to outpatient healthcare services among NHIF insured members in Makadara Constituency, Nairobi County. The results of the analysis were as follows: The Pearson's chi-square, χ^2 = 11.930, p = 0.001 imply that

NHIF processes are significantly associated with access to outpatient healthcare services among NHIF insured members in Nairobi County. Consequently, the null hypothesis is rejected at p = 0.05 and it is concluded that NHIF processes are significantly associated with access to outpatient healthcare services among NHIF insured members in Nairobi County. The systems theory in Management, a foundation of organizational development, views an organization as an open system of processes interlinked to ensure a smooth flow. It process has a distinct function and is an integral contribution of the whole. A malfunction of one process interferes with the function of the system.

It is with this theory in mind that NHIF has perfected its processes to ensure a smooth flow to both the end users and its staff. A keen look at the NHIF portal shows how each process is interlinked. Processes here refer to knowledge on how to register for NHIF and the admission criteria into the cover. It also outlines the process of processing the card, how to use the card, how long it takes to use the cover, the services covered and how to fill forms as required. The process also includes the monthly payments and penalties for delay in payments as well as how to change the facilities visited. All these were explored in this study and it was noted that in most aspects more than half of the respondents knew of the processes and this greatly enhanced access to healthcare. This therefore helps close gaps 1-5 in the service gap model as well as ensure smooth flow of services as pertains the systems theory. The NHIF insured in Nairobi County through knowledge of NHIF process are able to gain greater access. This trend should continue and NHIF encouraged to continue updating its website and ongoing media campaigns. Greater access means higher uptake amongst Kenyans. This in turn ensures better health amongst the population and we as a country inch closer to attaining the

millennium development goals 5 (Improve Maternal Health) and (Combat HIV/AIDS, malaria and other diseases) among other health goals.

The findings here are similar to the study done by Mulungye (2020) who found that Safe health services (p=<0.05) and satisfactory services including sufficient waiting time (p=<0.05) positively influenced utilization of health services in NHIF facilities.

Hypothesis 3

The study also aimed at establishing whether frequency of drugs supply is significantly associated with access to health services among the NHIF insured in Makadara Constituency, Nairobi County. To guide the achievement of this objective, the following hypothesis was formulated and tested at 5% level of significance.

H$_0$: Frequency of drugs supply does not influence access to outpatient healthcare services among NHIF insured members in Makadara Constituency, Nairobi County. The results of the analysis were: The Pearson's chi-square, χ^2 = 22.583, p = 0.001. These results indicate that the frequency of drugs supply is statistically and significantly associated with access to outpatient healthcare services among NHIF insured members in Nairobi County. Drugs and essential medicines are key to managing complex diseases and ensure better health for all. They ensure adequate eradication as well as secondary prophylaxis against complications and death. A health facility with an inadequate drug supply is ineffective in providing accessible healthcare for all. Even with an adequate supply of drugs, the cost of these medicines need to be affordable in-order to reach as many people as possible. Given the cost of production and professional input, the price of the drugs become a function of all inputs given as well as incorporate the cost of research. Social insurance like NHIF enables such drugs to be affordable and attainable in both public and private facilities hence improving access among the

insured. This was depicted here. In addition, the facilities accredited by NHIF undergo rigorous scrutiny by the scheme to ensure that adequate drugs are available and of good quality. By doing this, NHIF has increased access to healthcare among its ensured and proved the systems theory that smooth flow of service as pertains frequent drug supply is key to successful service delivery. This is commendable.

The findings here are similar to the study done by Mulungye (2020) who found that Facility amenities including drug supplies as well as physical outlook significantly influenced utilization of services in NHIF facilities (r=0.220, p<0.05).

Hypothesis 4

The study also aimed at establishing whether there is a significant relationship between socio-demographic characteristic and access to outpatient healthcare services among NHIF insured members in Makadara Constituency, Nairobi County. The socio-demographic variables in this study included, gender of the respondents, level of education, marital status, number of children one has and the household income. To guide the achievement of this objective, the following hypothesis was formulated and tested at 5% level of significance.

H$_0$: Socio- demographic characteristics do not significantly influence access to health services for NHIF insured in Makadara Constituency, Nairobi County.

The Pearson's chi-square results were as follows; For gender, $\chi^2 = 0.136$, p $= 0.712$; marital status, $\chi^2 = 2.890$, p $= 0.409$; number of children, $\chi^2 = 0.329$, p $= 0.848$, education level $\chi^2 = 1.013$, p $= 0.961$, and household income $\chi^2 = 4.444$, p $= 0.217$. These results imply that all socio-demographic factors are not significantly associated with access to outpatient healthcare services among NHIF insured members in Nairobi County. Thus, the study failed to reject the null hypothesis that socio-demographic

characteristics do not influence access to outpatient healthcare services among NHIF insured members in Makadara Constituency, Nairobi County.

Socio demographic factors in a population are dynamic except for static ones like gender. With static concepts, the paradigm tends to shift depending on the season and locality. An example would be level of income. In this study, the majority earned between 20,000-50,000 Kshs per month. If the study was done in 10 years from now, it probably would find the same cohort having a higher earning potential and still utilizing the insurance. This paradigm shift may affect access in terms of increasing it due to increased income but again lower it since now the population has aged and is focused on other life needs. Lack of stability in socio-demographic characteristics may be one reason why it did not influence access to healthcare amongst the NHIF insured.

Another explanation could be that the variables studied were mostly continuous, with few being categorical, hence influencing the tests used.

All in all, the fact that Socio-demographic characteristics do not influence access to healthcare amongst NHIF users may be a positive finding indicating that Universal healthcare is indeed attainable to all despite their social standing, physical characteristics, income earning potential, marital status, education level or gender.

These findings are similar to the study done by Appiah et al. (2015) who found that the effect of socio-demographic characteristics was minimal except for rural residence and occupation of those studied. Being unemployed or a student decreased the odds of access using NHIS according to the (OR=0.4, p=<0.05). Being a Rural resident or living in the low-end areas of the metropolis decreased the likelihood by 0.31 of accessing healthcare (OR=0.31, P=0.05). Age, gender, marital status and education of the respondents had no significant relationship.

4.11 Multivariate analysis

The chi-square results earlier discussed only demonstrated whether a relationship exist between the dependent and each independent variable. However, it did not show the cause and effect relationship existing between each independent variable and the dependent variable. Consequently, binary logistic regression was done to establish the cause and effect relationship existing among the study variables. Logistic regression is used when the dependent variable is binary in nature. In this case, the dependent variable was access to healthcare services among the NHIF insured in Nairobi County which was categorized into 'accessible 'and 'not accessible'. Logistic regression also facilitated in determining the influence of each independent variable on the dependent

Table 4. 13

Omnibus Tests of Model Coefficients

	Chi-square	Df	Sig.
Step	45.374	18	0.000
Block	45.374	18	0.000
Model	45.374	18	0.000

The omnibus test of model coefficients is a key indicator of the models predictive ability when you consider all the study variables as a block. As shown in Table 4.13 that the p – value of the model as a block was p<0.01 which indicates that the model has great predictive ability.

Table 4. 14

The Model Summary

-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
508.783	0.451	0.512

As shown in Table 4.14 the four independent variables account for about 51.2 % of the variations in access to health care for NHIF insured in Nairobi County. This in effect implies that about 48.8 % of the variation in access to healthcare is still not explained in this study. This calls for more studies in this area to unearth all the factors influencing access to healthcare among NHIF insured as the country embarks in the implementation of universal health care.

Table 4. 15

Hosmer and Lemeshow Test

Chi-square	Df	Sig.
11.660	8	0.167

The Hosmer and Lemeshow Test is another measure of binary logistic model is fit for prediction. The null hypothesis is that the model is fit against the alternative that the model is not fit. As presented in Table 4.15, the chi-square results, were $\chi^2 = 11.660$, p=0.167. Thus, we failed to reject the null hypothesis. This implies that the model is fit for this study and possess significant predictive ability. It was concluded that the model is appropriate for this study.

Multivariate logistic regression results

The ultimate goal of performing multivariate logistic regression as earlier discussed was to establish the influence of each independent variable on the dependent variable. The procedure involved performing iterations using multivariate logistic regression. In

the first iteration, all the four independent variables were related to the dependent variable and variables which were not significant in this iteration were filtered. Second iteration involved analysis of the variables which passed the second iteration. At this stage, all the socio-demographic variables were filtered confirming the results of chi-square test that socio-demographic factors are not significantly associated with access to health care among the NHIF insured. Table 4.16 presents the results of the analysis. The results indicated that a statistically significant relationship exist between knowledge of NHIF benefits and the access to health care services among the NHIF insured in Makadara Constituency, Nairobi county. The respondents who were not aware of the NHIF benefits were 0.543 times less likely to access health care services using the NHIF scheme. The results were significant at 5% level. It is important to note that in the above table the initial values are denoted in negative since thy report the null e.g. Being not aware of NHIF benefits is denoted as -0.610. The alternative would be awareness of NHIF benefits which if analyzed would be reported in the positive.

Table 4. 16

Multivariate logistic regression results

Variables	B	S.E.	P – value	Odds Ratio
Socio-demographic characteristics				
Gender of the respondent	0.067	0.215	0.75	1.07
Marital status	-21.657	230645	0.99	0.00
Number of Children	-0.68	0.659	0.798	0.845
Education level	-0.176	1.149	0.986	1.238
Age in years	-21.06	40188	0.402	0.00
Household Income	-0.223	0.449	0.169	0.00
Knowledge of NHIF Benefits				
Aware of NHIF Benefits (reference)	-	-	-	1.000
Not Aware of NHIF Benefits	-0.610	0.345	0.037	0.543
Knowledge of NHIF Processes				
Aware of NHIF processes (reference)	-	-	-	1.000
Not Aware of NHIF processes	-0.763	0.344	0.027	0.466
Frequency of Drug Supply				
Frequently Use NHIF card (reference)	-	-	-	1.000
NHIF card not frequently used	-0.829	0.250	0.001	0.437

The odds ratio is a measure of association between an exposure and outcome. It measures the odds of an event happening given a certain exposure against the odds of the event happening outside the exposure. An odds ratio of more than 1, indicates increased occurrence of the event while if less than 1, there is a decreased occurrence otherwise known as protective exposure. In rare instances, the odds ratio is equal to the relative risk (RR) when the incidence of event occurrence is <10%. In this study, the odds ratio was 0.543 in respondents not aware of NHIF benefits. This means that they were 0.543 times less likely to access healthcare using the NHIF scheme.

'Knowledge is power' goes the famous adage. Knowledge of NHIF benefits makes it attractive to the end user. It also helps explain the reason why NHIF would benefit the ordinary Kenyan more than private insurances which have high premiums and are

unreachable to most. By sharing this odds ratio results especially to the public, it would inform them to make wiser decisions and consider uptake of the NHIF cover if they have not already done so. For those who utilize NHIF, they would be encouraged to use it and be reassured that the benefits are available to all. These results also imply that the NHIF providers should focus on making the public aware of the benefits so as to increase consumption and hence improve access to healthcare.

The results also indicated that knowledge of NHIF processes is significantly associated with the odds of access to health care among the NHIF insured in Nairobi County. Those who were not aware of NHIF processes were 0.466 times less likely to access health care services when compared to those who were not aware of the NHIF processes. The results were significant at 5% level. This also follows our discussion on knowledge of benefits. Knowledge of NHIF processes means that access to healthcare is smooth lined and made readily available. It also allows the NHIF providers to close system loops that would derail the process of easy access. Some of these loops include long waiting times before approval, long card processing times, ghost NHIF registered members etc. Knowledge of the NHIF process also means that patients have more tolerance to delays hence are patient when it comes to accessing health services when using the scheme. This enhances utilization and helps them give positive feedback to the scheme for continuous improvement. The systems theory here is key. Furthermore, knowledge of NHIF processes means that whenever there is an overt delay, the process is delayed and access is compromised. When access is compromised, end users abandon the scheme and seek healthcare elsewhere including cheap and illegitimate practitioners which can compromise their health.

In terms of frequency of drug supply, the results further indicated that a significant relationship exists between access to health care services among the NHIF insured and

their knowledge about the frequency of drug supply. Respondents who were not aware of the frequency of drugs supply were 0.437 times less likely to access health care services when compared to their counterparts who were aware of the frequency of drugs supply. The results were significant at 5% level.

Drug supply being an important endpoint in healthcare means that it's crucial that the supply is kept constant and available. It goes without saying that facilities with a poor supply of drugs will be less frequented as opposed to a well-stocked one. The results show that this greatly improves access. NHIF accreditation has attempted to ensure that the facilities involved in the scheme has good drug supply. This is wanting in some areas e.g. Public facilities where ironically the need is the greatest. My study shows that the odds of access are low if frequency of drug supply is not known or erratic. The end users have a right to healthcare and the results show that access can be enhanced by end users being assured of a constant supply of quality medicines in the healthcare facilities they visit.

In the study by Appiah et al. (2015) we see how the factors studied influenced the choice of access. Students and the under/unemployed had less odds of accessing a healthcare facility using their NHIS card (OR=0.2, $p<0.05$). Residing in a rural part of the sub-metro decreased one's likelihood of accessing healthcare using the NHIS card as compared to those residing in urban areas (OR=0.4, $p=<0.05$). Clients who viewed health provider's skills as good were 1.9 times more likely to access healthcare as compared to those who rated the provider skills as poor or very poor (OR=1.9, $p=<0.01$). Clients who viewed the overall health provision as good or very good were 2.1 times more likely to access healthcare with NHIS provision ($p-<0.01$). Perceptions of healthcare did not significantly influence clients' decision to access facilities with NHIS. Although the factors studied by Appiah are mostly sociodemographic, they show

that client characteristics can influence significantly how a social insurance like NHIF is utilized hence affecting access to health services. However, it is important to note that in his study, the overall effect of sociodemographic characteristics on Access was negligible which is similar to my findings.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This section looks at a summary of findings in the thesis as pertains the main objective and sub-objectives. It provides a birds'eye view of the chapter 4 and offers conclusions based on the results as well as recommendations concerning subject matter discussed. This was to assist in improving services under study.

5.2 Summary of Findings

The results showed that majority of the participants were male, between the ages of 26-33 years and were married. The highest education level was the diploma level followed closely by the degree holders. Majority of the respondents had not more than 4 children and about the same number of household occupants. They resided in Buruburu (majority) or Umoja and its environs given that the study was conducted in the Makadara Constituency of Nairobi. Most respondents were under the Civil service cover (83.5%). Majority were primary members (75.75 with 81.25% having had their dependents registered under their NHIF card. A majority, 78.25% had accessed a health facility in the recent past while 44.8% were not sure of ever accessing the facility using their card. Despite this, 23% agreed that when in use, the card allowed better and easier access to health services.

The dependent variable in this study was to determine access to outpatient healthcare services by NHIF members. Majority of the respondents 187 (46.8%) agreed that NHIF services were always available. NHIF facilities were noted to be closer to the homes (164, 41.0%) with affordable fares to the facilities (35.8%). When the respondents were asked whether they were asked to co-pay for services, majority were neutral (146, 36.3%). This means that some were asked to co-pay for services but this depended on

the cost. Majority responded that they disagreed with long waiting times (189, 47.3%) however 198 respondents noted that they were not always treated well at the healthcare facilities (49.5%). In addition, 239 respondents disagreed on having access to all NHIF services (59.8%).

The study sought to find out the knowledge among NHIF members on the benefit package. Results revealed that 277 respondents (69.3%) agreed that they were aware of the overall benefits they are entitled to by NHIF, while 79 respondents (19.8%) were not sure and 44 respondents (1.3%) strongly disagreed to being aware of NHIF benefits.

Most of the participants were agreeable that NHIF benefits improved access as evidenced by the higher percentages in the group as compared to the neutral group and the ones who disagreed; NHIF, however, was found to be unequal in entitlements such as covering cancer treatments and tests as well as other tests like x-rays, CT scans, and MRI, with a significant number being neutral or disagreeing to these facts.

Majority of the survey respondents i.e. 236 agreed to being aware of NHIF health services (59 %), with only 18 respondents (4.5%) and 4 respondents (1 %) disagreeing and strongly disagreeing respectively.

Majority of the respondents i.e. 290 were aware that NHIF covers health services (72.5%) as well as private services i.e. 276 (68%). About 268 respondents (67.2%) knew how to register and were knowledgeable about the waiting period between registration and accessing services. They had probably been trained on the above. In training, 234 (58.6%) respondents probably were shown how to use their cards and 207 knew how to change facilities i.e. 51.9%.

As for whether, the respondents used their cards in private facilities since they had quality medicines, the responses were mixed. The respondents who agreed were 138

(34.5%) while those who were neutral were 134 (33.5%) and those who disagreed were 128 respondents (32.1%).

In Inferential statistics, tests of normality using Kolmogorov-Smirnov and Shapiro-Wick were done. The data was skewed i.e. not normally distributed hence the Chi-test which is a non-parametric test was used to test hypotheses. All factors except sociodemographic factors failed to reject the null hypothesis. NHIF knowledge of benefits, processes and frequency of drug supplies positively influenced health accessibility (p=0.037, p=0.027, p=0.001) respectfully. All three of the null hypothesis were rejected.

The respondents who were not aware of the NHIF benefits were 0.543 times less likely to access health care services using the NHIF scheme. Those who were not aware of NHIF processes were 0.466 times less likely to access health care services when compared to those who were not aware of the NHIF processes. Respondents who were not aware of the frequency of drugs supply were 0.437 times less likely to access health care.

5.3 Conclusion

In conclusion, knowledge of NHIF benefits and processes as well as frequency of drug supplies have a positive influence on accessibility to healthcare services by the NHIF insured unlike sociodemographic characteristics in this study. Socio-demographic characteristics of a population are important but not vital to access as shown in this study. The NHIF board should put into place strategies to ensure equality and equity in distribution of NHIF cards to enable all to access their services. In addition, they should invest in media campaigns suggesting the same.

Knowledge of NHIF benefits was important in enabling access to healthcare services by the NHIF insured. NHIF users should be encouraged to find out about benefits in-order to enhance the customer care experience. This can be done at the point of recruitment through trainings, webinars and good media coverage. Services offered through NHIF, even with benefits, should be affordable to the end user. Perhaps a discounted rate on healthcare services should be considered so as to cater to the common *mwananchi* and allow for more diverse services. The fact that some services require a co-pay was also a hindrance. This should be revised and the government can consider subsided costs by topping up financially on most needed services e.g. Chemotherapy, Radiology etc. The NHIF, government and private partners should work together in order to avail much needed specialist services found primarily in private sectors especially as pertains to non-communicable diseases. This is an additional benefit.

From the study, the NHIF processes were found to have a significant impact on healthcare access by the NHIF insured. Staff at NHIF facilities should be trained on customer care and good public relations in order to provide better services. The facilities should find ways of shortening ques e.g. increasing staff, spaced timings, and consultations on appointment basis, liaison officers to shorten time between pre-authorization and service as well as hotlines to address patient concerns. Physical access was found to be good with most facilities available closer to the patient. This trend should continue.

A frequent drug supply chain significantly improved access to healthcare services by the NHIF insured. The NHIF Corporation needs to ensure that facilities under the scheme including public hospitals are well stocked and inform the public of the same. Those facilities without capacity of handling complex medications can get support from

the Government through trainings as well as specialized equipment and adequate funding.

5.4 Recommendations

From the study findings the following are the recommendations:

i. NHIF users should be encouraged to find out about benefits in-order to enhance the customer care experience.

ii. Staff at NHIF facilities should be trained on customer care and good public relations in order to provide better services and smooth NHIF processes. This also includes staff at Huduma centers.

iii. The NHIF Corporation, including its working personnel, needs to ensure that facilities under the scheme including public hospitals are well stocked with drugs and other supplies in accordance with the universal health coverage mantra which states that all persons should have adequate access to health services and supplies when needed. In addition, dissemination of this information is to be given to Huduma centers in order to facilitate process improvement. Thereafter, we applaud the government for establishing these centers but recommend that the number should be increased to National as well as county coverage.

iv. Sociodemographic factors though not influential on access as per this study are important. The Scheme should maximize service delivery to its popular group i.e. the young, married, educated, employed individuals who have young families. In addition, they should find creative ways to reach out and increase consumption in the older generation, the unemployed or those with young families or no income. One way is through community insurance where a group

of individuals are covered under one scheme. Other ways include public-private partnerships, employment schemes, subsidized packages etc.

The above recommendations can be implemented effectively by giving the results of the study to NHIF corporation, allowing them to review the results and having consultations with relevant staff on how best to tackle implementation. This is however subject to their internal processes and regulations. These results will be shared with them and the principal investigator will follow-up on the same.

5.5 Suggestions for Further Studies

More studies are need to be done in the greater Nairobi as well as other cities/Towns in Kenya so as to get a good representation of the influence of the independent variables and other social factors on access to NHIF services.

Specifically, a similar study focusing on sociodemographic population characteristics and its influence on access to NHIF would prove to be a valuable resource if it's done Nationwide and covers majority of the communities in Kenya including the marginalized ones.

An in-depth look at which NHIF processes can be improved would also be valuable. Other areas of interest would be the role of Medical information systems and medical staff trainings on access to healthcare.

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Appendix I: Questionnaire

This research questionnaire seeks to establish the factors affecting NHIF insured patients accessing health services within Makadara Constituency, Nairobi County. The study is strictly for academic purpose.

(Tick and fill were appropriate)

Residence (Estate): _____

Type of NHIF membership: Civil servant / National cover

When was the last time you accessed a health facility? _____

SECTION A: SOCIO-ECONOMIC INFORMATION

A1. Are you a principal member or a dependent?

Principal. [   ]

Dependent. [   ]

A2. Are all your dependents registered under your NHIF card? Yes   No

A3. Sex

Male   [   ]

Female   [   ]

A4. Marital status

Single   [   ]

Married   [   ]

Divorced

Widowed

A5. Number of children _____

A6. Number of people living in the household _____

A7. Occupation _____

A8. Level of education

Primary

Secondary

Certificate   [   ]

Diploma   [   ]

Degree   [   ]

Post-graduate   [   ]

A9. Age (in years) _____

18-25 Years   [   ]

26-33 Years   [   ]

34-41 Years   [   ]

Above 42 years   [   ]

A10. Level of household income per month

Less than 20,000   [   ]

20,000-50,000   [   ]

50,000-100,000   [   ]

More than 100,000   [   ]

SECTION B: KNOWLEDGE OF NHIF BENEFITS

To what extent do you agree with the following statements with Strongly Agree-SA, Agree-A, Not Sure-NS, Disagree-D, Strongly Disagree-SD

I am always entitled to the following benefits	SA	A	NS	D	SD
B1.General consultation					
B2. Treatment of local diseases					
B3. Basic Lab investigations					
B4. Prescription and administration of drugs					
B5. Health education and counseling					
B6. Minor surgical procedures under local anesthesia					
B7. Inclusion of up to 4 dependents					
B8. Inclusion of my spouse					
B9. NHIF covers Cancer treatments and tests					
B10. NHIF covers tests like x-rays, CT scans and MRI					

SECTION C: KNOWLEDGE OF NHIF PROCESSES

To what extent do you agree with the following statements with Strongly Agree-SA, Agree-A, Not Sure-NS, Disagree-D, Strongly Disagree-SD

I am aware of the following	SA	A	NS	D	SD
C1. NHIF covers health services					
C2. NHIF covers private health services					
C3. How to register					
C4. Waiting period before registration and accessing services					
C5. How to use my card					
C6. How to change health facility of choice					

	SA	A	NS	D	SD
C7. How to access NHIF information in the media					
C8. Amount of monthly contributions needed					
C9. Penalties in case of defaulting payment for 3 months					

SECTION D: FREQUENCY OF DRUG SUPPLY

To what extent do you agree with the following statements with Strongly Agree-SA, Agree-A, Not Sure-NS, Disagree-D, Strongly Disagree-SD

I am always likely to use my NHIF card	SA	A	NS	D	SD
D1. To visit a health facility where medicines are always available					
D2. In a health facility where I can obtain drugs immediately					
D3. Where there was always a wide variety of drugs					
D4. Within hospitals since they have quality medicines.					
D5. Within private hospitals since they have quality medicines.					
D6. I never use my card to obtain medicine.					

SECTION E: ACCESS TO HEALTH SERVICES

To what extent do you agree with the following statements with Strongly Agree-SA, Agree-A, Not Sure-NS, Disagree-D, Strongly Disagree-SD

NHIF has enabled me to	SA	A	NS	D	SD
E1. NHIF services are always available					
E2. NHIF prescribed services are always available					
E3. My NHIF facility was close to home					
E4. The cost/fare to the facility was always affordable					
E5. Sometimes I am asked to co-pay for consultation, labs and medicine					
E6. The waiting time in my registered facility was too long					
E7. I am always treated well at my facility					
E8. I have access to ALL NHIF services					

THANKS FOR YOUR COOPERATION

Appendix II: Informed Consent

FACTORS INFLUENCING ACCESS TO HEALTH SERVICES FOR NHIF INSURED IN HOSPITALS WITHIN MAKADARA CONSTITUENCY, NAIROBI COUNTY.

Name of principal investigator: Miriam W. Gatehi

Name of the institution: Kenya Methodist University.

1.1 Introduction

As indicated above, my name is Miriam Gatehi, a Masters training for her postgraduate medical education at the Kenya Methodist University.

This document gives a detailed account of the research that I am undertaking involving patients such as you.

The research is on factors affecting your use of the NHIF insurance to obtain treatment in facilities within Nairobi County.

I will give you information about the research and invite you to participate.

Before conducting the above, I was explaining it to you in detail and you are encouraged to ask questions freely in areas where you may not understand.

1.2 Purpose of the research

To guide clinical care in assessing the reasons influencing your use of NHIF within facilities in Nairobi County particularly the Makadara region. This will eventually help in improving the service and allow more patients, such as yourself, to use it frequently and efficiently.

1.3 Procedure

You were contacted via telephone having been selected from the Nairobi County Hamza database of NHIF users. I will read out the document to ask for your permission verbally. After asking your permission, you will be asked a few questions regarding NHIF. This was take about 10 minutes. These questions will be focused on your age, sex, occupation, salary, NHIF processes and benefits as well as frequency of drug supplies in health facilities.

1.4 Duration of the study

The research will take place during your routine working hours and is designed to span over a period of not more than five months beginning in February 2021 to June 2021.The questions will take about 7-10minutes to complete. You will have only one session.

1.5 Confidentiality

As a participant in the study, you are guaranteed full confidentiality. Your name and personal contacts will only appear in my records and not on the study documents, (these are coded). Only persons involved in the study shall have access to your information. A consent will be obtained before participation in the study.

Data collected will be coded with identification numbers. These will be recorded in an excel sheet. The codes will be kept under lock and key in the supervisors' cabinet.

1.6 Risks

There are no documented risks (psychological or otherwise) to this research. However, should you develop any distressing symptom such as anxiety when answering the questions, I was call at a more appropriate time and if necessary refer you to a counsellor or otherwise.

1.7 Benefits

Benefits of conducting this research will include provision of knowledge to the NHIF team so as to improve care delivered to you as an esteemed customer. This is to help us enable you to have better service delivered in future. It is hoped that the study will be published in local literature and those interested in obtaining the material will be asked prior and emailed the study findings. There is however **NO COMPENSATION** in terms of money or time allocated to the research.

1.8 Withdrawals and Concerns

Participation in the study is Voluntary. If you decide to participate in the study, you are free to leave at any point during the process. You are still entitled to NHIF benefits in spite of your participation or decision to withdraw from the research. There are no penalties for withdrawing.

Feel free to address any concern you may have using the contacts below;

Miriam W. Gatehi

Tel number   0722441891

P.O Box   39544-00623

Nairobi, Kenya

1.9 Recruitment and selection of Subjects

You have been selected to take part in the study since you are an adult NHIF registered member who has been randomly selected from the NHIF database within Nairobi County. Only members who are above 18 years, deemed mentally competent, can

converse in English/Kiswahili and are registered over a 10-year period was in invited to participate in the study.

2.0 Description

If you agree to participate, you will have your details filled in terms of age, sex,

Thereafter you will be required to provide a verbal telephone consent that you have agreed to participate. You have been randomly selected by a computer from the Nairobi NHIF database. Those individuals who are dependents less than 18 years, are mentally unsound and can only speak in Vernacular are excluded from the study. Questionnaires will be used for data collection with the primary outcome being the number of patients who are utilizing NHIF services in the Makadara Constituency in Nairobi county. This will be measured as a percentage from the total number of NHIF patients registered under NHIF. This will give a percentage depicting utilization of services. Thereafter the factors which have been stated i.e. sociodemographic data, NHIF processes and benefits as well as frequency of drug supplies will be analyzed to see how these affect access hence utilization. Data analysis will be conducted using SPSS and Microsoft excels computer applications. Data will thereafter be presented in tables, charts and graphs with the explanations following.

2.1 CONSENT

I…...hereby agree to take part in This study, having been fully informed of the nature of the study by Miriam W. Gatehi.

Date…………………………………………………………………………………….

Signature…………………………………………………………………………………...

I, Miriam W. Gatehi, has fully explained to the patient the nature of the study and hereby undersign

Date…………………………………………………………………………………….

Signature…………………………………………………………………………………

Appendix III: KEMU Ethical Clearance

KENYA METHODIST UNIVERSITY

P. O. BOX 267 MERU - 60200, KENYA   FAX: 254-64-30162

TEL: 254-064-30301/31229/30367/31171   EMAIL: serc@kemu.ac.ke

October 2, 2020

KeMU/SERC/HSM /20/2020

Mirriam Wangari Gatehi
Kenya Methodist University

Dear Mirriam,

SUBJECT: FACTORS INFLUENCING ACCESS TO HEALTH CARE SERVICES FOR NHIF INSURED WITHIN NAIROBI COUNTY, KENYA.

This is to inform you that Kenya Methodist University Scientific Ethics and Review Committee has reviewed and approved your above research proposal. Your application approval number is KeMU/SERC/HSM/20/2020. The approval period is 2nd October 2020 – 2nd October 2021.

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,

Dr. A. WAMACHI
Chair, SERC

Appendix IV: NACOSTI Letter

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

DIRECTORATE OF POSTGRADUATE STUDIES

October 9, 2020

Commission Secretary,
National Commission for Science, Technology and Innovations,
P.O. Box 30623-00100,
NAIROBI.

Dear sir/ Madam,

RE: MIRRIAM WANGARI GATEHI (HSM-3-0954-1/2017)

This is to confirm that the above named is a bona fide student of Kenya Methodist University, Department of Health Systems Management undertaking a Degree of Master of Health Systems Management. She is conducting research on, '*Factors influencing access to Health care services for NHIF insured within Nairobi County, Kenya*'.

We confirm that her Research proposal has been defended and approved by the University.

In this regard, we are requesting your office to issue a permit to enable her collect data for her research.

Any assistance accorded to her will be appreciated.

Thank you.

Dr. John Muchiri, PHD,
Director Postgraduate Studies

Appendix V: NACOSTI License

RepuBlic of Kenya

NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY & INNOVATION

Ref No: 452534

Date of Issue: **15/February/2021**

RESEARCH LICENSE

This is to Certify that Dr.. MIRIAM wangari murithi of Kenya Methodist University, has been licensed to conduct research in Nairobi on the topic: FACTORS INFLUENCING ACCESS TO HEALTH SERVICES FOR NHIF INSURED IN HOSPITALS WITHIN NAIROBI COUNTY,KENYA for the period ending : 15/February/2022.

License No: **NACOSTI/P/21/8919**

452534

Applicant Identification Number

Director General
NATIONAL COMMISSION FOR
SCIENCE,TECHNOLOGY &
INNOVATION

Verification QR Code

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

Appendix VI: NHIF Letter

KENYA METHODIST UNIVERSITY

Department of Health Systems Management

P. O. Box 45240-00100, NAIROBI, KENYA
Tel: 020-2247987, 020-2248172
Fax: 02-248160

Mobile: 0725-751878
0735 - 372326
E-mail nairobicampus@kemu.ac.ke

10th March, 2020

TO WHOM IT MAY CONCERN

Dear Sir/Madam,

RE: REQUEST FOR INFORMATION ON A RESEARCH PROJECT ON FACTORS INFLUENCING ACCESS OF NHIF INSURED PERSONS IN NAIROBI COUNTY BY MIRIAM GATEHI REG. HSM-3-0954-1/2017

The above named is a student in the Department of Health System Management pursuing a Masters's degree in Health System Management.

She is doing a research project on the Factors influencing access of NHIF insured persons in Nairobi County. She specifically requires information on NHIF members to enable her to do this project.

Any assistance accorded to her will be highly appreciated.

Yours Sincerely,

Dr. Kezia Njoroge
Chair
Department of Health Systems Management
E: kezia.njoroge@kemu.ac.ke/ Cell: 0738 970746