SATISFACTION WITH THE QUALITY OF HEALTHCARE DELIVERY AMONG

CLIENTS USING HEALTH INSURANCE   IN NYERI COUNTY, KENYA

BY

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Student's Declaration

I, the undersigned, declare that this research project is my original work and has not been submitted to any institution other than the University of Nairobi for academic credit.

Signature _____ Date 20/11/2022

SAMSON OCHIENG' ODONGO (X53/27632/2019)

This research project has been presented for examination with my approval as the appointed supervisor.

Signature _____ Date 20/11/2022

DR. MARTINE ODHIAMBO OLECHE

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Dedication

Special dedication to my parents, Mr. Joseph Odongo Olik and Mrs. Christina Achola Odongo

Acknowledgment

Abstract

The agenda stage set by Universal Health Coverage calls for reforms that seek to ensure that everyone in society has access to quality healthcare at an affordable cost that protects the users from experiencing financial hardship related to healthcare costs. Therefore, the main objective of this study is pegged on the pillars of Universal Health Care, which are health insurance, health accessibility, and quality healthcare, to evaluate the satisfaction with the quality of healthcare delivery among clients using health insurance services in Nyeri county, Kenya.

To operationalize the research questions, a phenomenological survey of healthcare experience among health insurance users in Nyeri county was conducted through descriptive cross-sectional research. The interviewer collected data using a structured questionnaire from 320 health insurance users in Nyeri county.

The study found that 65.3% of clients accessing healthcare using different types of health insurance are unsatisfied with healthcare quality compared to 34.7% who perceived that healthcare service delivery in Nyeri County met the quality merit defined in UHC in Nyeri County, Kenya. The key variables which significantly influence the perception of quality of healthcare are age, marital status, household size, type of insurance, adequacy of the health services, Distance covered to health facility and waiting time.

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ABBREVIATIONS

SDG; Sustainable development Goals (SDG)

UHC; Universal Health Coverage

U.N; United Nations

MIC; Middle-income countries

NGOs, Non-Governmental Organizations

KENAS; Kenya National Accreditation Services

KQMH; Kenya Quality Model for Health

MOH.Ke; Ministry of Health of Kenya

OECD; The Organization for Economic Cooperation and Development

HIV/AIDS; Human Immunodeficiency Virus)/ Acquired Immunodeficiency Syndrome

THE; Total Health Expenditure

KHHEUS; Kenya Household Health Expenditure and Utilization Survey

NHIF; National Health Insurance Fund

USA; United States of America

EDP; Expectation disconfirmation paradigm

CBHI; Community Base Health Insurance

CHAPTER ONE

INTRODUCTION

1.1   Background of the study

Sustainable development Goals (SDG) initiated a global policy agenda on the healthcare system through agenda three, which advocates for good health and well-being (Mucheru, 2021). Accordingly, the U.N. member countries where Kenya belongs were challenged to champion a healthcare system that ensures everyone has access to healthcare. As a result, many countries have adopted Universal Health Coverage (UHC), which promises every individual the quality health services they need without experiencing economic hardship (Ifeagwu et al., 2021). For this goal, the government of Kenya has taken a lead role in formulating health reforms in its Big Four priority plan to ensure a functional health system. (Keitany et al., 2020)

The key stakeholders of the Healthcare system are patients, healthcare providers, financial agents or payers, and Policymakers, altogether represented as 4Ps (Rachev et al., 2021). The Financial agents are responsible for collecting, managing revenues, and purchasing health care. Healthcare providers equally play a vital role in providing health care to patients while patients pay premiums to the financial agents or act as self-financial agents and seek healthcare services from the providers when the need arises (Rachev et al., 2021). As an oversight authority, the government is pivotal in policymaking to create an enabling environment where the other three players mutually trade to improve patient health.

Despite the adoption of global health policies in Sub African countries, Middle-income countries (MIC) are still facing bureaucracy challenges related to conflict of interest in healthcare, where the private healthcare providers and private insurance agents focus on profit maximization, and the

public sector on the other side crippled by corruption (Odoch et al., 2022). Conflict of interest creates an inefficient healthcare system, increasing the risk of violating patient rights to quality healthcare (Yaqoob et al., 2021). On the other hand, an efficient healthcare system organizes human and non-human resources in private and public institutions to meet the common goal of providing patient-centered healthcare.

From the contractual point of view, the insurance agent relieves the patient from healthcare-related financial uncertainties. The financial agent contracts the healthcare provider to provide the agreed healthcare poly to the Policyholder. However, in most cases, the patient accepts the policy cover without the capacity knowledge regarding the health cover limits (Lazar et al., 2018). Hence, Quality care is a policy issue that requires continuous monitoring by independent bodies such as government, NGOs, international communities, and researchers to address the principal-agent conflict in the health insurance industry (Vian et al., 2020).

1.2 **Quality health care**

Kenya adopted and piloted the UHC in four counties in the year 2018 (MOH-Ke 2018) and later officially launched the UHC program in all 47 counties in 2022 on the recommendation that the stakeholders improve the standard of health care. The UHC program seeks to make health care accessible, affordable, and quality pegged on patient-centered care. The patient's needs and health outcomes indicators are the critical foundation of the health quality-management system (Parliament of Kenya, 2022). The SDG3 policy recommends that providers and financial agents treat the patient with care, not merely from a clinical perspective.

Quality of Care measures health service procedures and related outcomes prescribed by local and international standards known to be safe to improve or maintain the target population's health

(Busse et al., 2019). As a component of UHC, quality of care is measurable, and evidence base improves the utility function of health; the consumers can rate their satisfaction level with the whole process and outcome of health care as influenced by health insurance services as a commodity in the market. The combination of units of production of health care, such as insurance agents and provider units, results in a differentiated health care utility. Quality health insurance services enhance effective, safe, and responsive healthcare (Kabaniha et al., 2020); hence client satisfaction indicators strengthen policy procedures that protect consumers by advocating for equity, timely services, efficient delivery, and continuation of care.

In Kenya, Kenya National Accreditation Services (KENAS), the National Hospital Insurance Fund, professional bodies, and ISO conduct accreditation of health services and facilities, Kenya Quality Model for Health (KQMH) and Joint Health Inspections Checklists guides the accreditation processes (MOH.Ke 2020). In addition, the Insurance Regulation Authority regulates the health insurance sector under cap No 487 of the Parliament of Kenya. However, despite the established regulatory framework of health provision and insurance, there is still a gap in the continuous monitoring of quality care in most African countries. (Umeh, 2018).

1.3   **Patient Satisfaction**

Patients are stakeholders and consumers of healthcare products in an insurance scheme; the contractual parties, patient, healthcare provider, and financial agents, have a contractual expectation that needs to be discharged by the obliged party. Contractual terms are express and tacit terms forming contract warranties (Lauslahti et al., 2017). For the patient, the implied quality warranty is satisfied when financier- provider mix provides healthcare that meets the satisfaction level. Therefore, Patient satisfaction is a perception and attitude that a patient has or views toward a total experience of health care compared to a predetermined standard of Care (Ng et al.,2019).

Several studies indicate that health quality is measured base on service time, safety, equity, professionalism, efficiency, accessibility, and patient-centered service (OECD et al., 2018, Kazak et al., 2017).

Although the Constitution of Kenya states that "every person has a right to the highest attainable standard of health, which includes the right to health care services," the standard is relative to providers and financial agents who act as patient agents. The patient satisfaction survey is a gold standard for measuring quality healthcare, which helps identify gaps associated with principal-agent conflict and improve quality health insurance services (Kipo, 2018). Concerning patient Satisfaction, the health provider needs to have a positive attitude toward patients; the contracted financial agent needs to deliver financial facilities as promised.

Point of patient experience with the provider entails the accessibility of the provider, admission process, and waiting time as influenced by the insurance agent, provider environment, health outcome, and discharge process. Similarly, the point of patient experience with the insurance agents is the efficiency of payment, patient identification, effective policy regarding value for money, and patient protection from catastrophic expenditure.

1.4 **Health Insurance Landscape in Kenya and Nyeri.**

As many countries put effort into Universal Coverage of Healthcare, quality has remained the global standard of an effective healthcare system. In this spirit, Kenya has remained committed to building a progressive, responsive, and sustainable healthcare system through extensive reforms in health purchasing schemes for both public and private purchasers. Immediately post-independence period, Health Ministry introduced standardization of the user fee, which targeted all Kenyans; however, there was low uptake of healthcare because the payment was not affordable (Dennis et al., 2020). To counteract the high cost of health, the Government of Kenya abolished

user fees in 1965 and resorted to funding health services exclusively from its revenue. Unfortunately, this practice resulted in low-quality healthcare with a high burden on the government; hence the policy was discontinued in 1989 to revert to standardized use fees except for Children under five years of Age and services such as immunization, HIV/AIDS, and tuberculosis.

To improve health utilization at a sustainable cost, the MOH reduced user fee services provided in primary healthcare in 2002. The established National Health Insurance Fund bill, funded through a tax social insurance scheme, was rejected in that Parliament. In the vision to attain UHC, the government resolves to strengthen NHIF as the primary financing vehicle. Initially, the fund was not sustainable and could not improve healthcare utilization. Hence, the following reforms were effected; introduction of the civil servant's scheme, revision of the policy rate as per the job group, mandatory contribution for both informal and formal employment sectors, introduction of elderly and people with disability subsidies, and Out of Pocket cost-sharing among the many reforms (Barasa et al., 2018). Despite the policy reforms, Kenyans are still experiencing disparity in health utilization regarding geographical location, payment mode, and financing scheme (Ilinca, 2019, McCollum et al., 2019).

As of 2015/2016, Kenya's health sector received a mixed health-financing model comprising the government, households, and donors (Ministry of Health. 2019). The donors contributed 23.4%, the government contributed 33.5%, and private schemes contributed 39.6% of the Total Health Expenditure (THE) (Ministry of Health. 2019). According to 2013 KHHEUS, NHIF, as a component of government sources funded through tax and premium payments, covered 88.4% of the insured, while private's sources through private insurance, community-based health insurance, and others cover 11.6% of the population covered.

Despite the apparent benefit of health insurance, especially economic cautioning in LMIC, there has been sluggish service uptake since its conception. For instance, in Kenya, the health insurance coverage in 2003, 2007, and 2017 was 9.7%, 10.0%, and 17.1% of the total population, respectively (2013 KHHEUS). Health insurance coverage is asymmetrical across various incomes, education levels, and gender. Geographically, the central region of Kenya has the highest uptake of Health insurance products, while the Northern part of Kenya trails behind, as shown by the 2013 KHHEUS.

Nyeri County justifiably has a unique health profile that fits this study; it is among the four counties with the highest health insurance coverage (32.9 %) as of 2013, experienced a UHC pilot for one year in 2019 and in addition, it is the county with a high prevalence of non-communicable diseases in Kenya (2013 KHHEUS, Turpin et al., 2018).

1.5 Statement of the Problem

Health corridors and social media in Kenya have become the court of complaints against health insurance and healthcare providers where Policyholder has consistently expressed dissatisfaction with the health insurance services. The criticisms include but are not limited to a lack of continuity of care, unexpected and high co-payment costs, inadequate health care, and a tediously tiresome admission process, which is insensitive to the pain experienced by the clients (Chesire, 2021).

In the USA, a study about satisfaction with health services among patients using various health insurance schemes revealed no significant difference in the effect of public and private health insurance coverage on satisfaction with health insurance services (Wray et al. 2021). The result of the study was due to the proactive health policies in the USA, which have since set the standard of quality health care. A similar survey in Turkey demonstrated that gender, marital status, education,

occupation, self-perceived health status, area of residence, and type of household plan significantly affected satisfaction with National health insurance (Ali Jadoo et al., 2012). In Nigeria, Enwerem et al. (2022) established that provider attitudes, healthcare environments, waiting time, and cost of care significantly influence satisfaction with the Nigerian National Health Insurance Scheme. In both countries, concerned agencies have strengthened customer satisfaction surveillance with an increased focus on healthcare quality.

In Kenya, several studies have been conducted on health insurance, for instance. a study to examine health insurance uptake in Nyeri County (Njogu, 2019), an Evaluation of health insurance Satisfaction service delivery and Quality in Kenya, a Case study of Langata Sub-County (Chesire, 2021), determinant of health insurance demand among the migrants in Kenya (Orayo, 2014) and Challenges in uptake and Provision of Medical Insurance (Muiruri, 2014). However, none of these studies illustrates the influence of the insurance, provider, and client factors on satisfaction with the quality of healthcare in Nyeri County and Kenya, which would be a vital tool for group-sensitive health insurance reforms. Therefore, the study seeks to fill the gap by determining satisfaction with the quality of healthcare delivery among clients using health insurance services in Nyeri county, Kenya.

1.6 Research Questions

i. What is the pattern of satisfaction with the quality of health services among health insurance users in Nyeri County, Kenya?

ii. What factors influence health service quality satisfaction among health insurance users in Nyeri County, Kenya?

1.7   Objectives of the study

1.7.1   General Objective

The broad objective of the study is to evaluate satisfaction with the quality of healthcare delivery among clients using health insurance services in Nyeri county, Kenya.

Specific Objectives

i.   To establish the pattern of satisfaction with the quality of healthcare delivery among medical insurance users in Nyeri County, Kenya.

ii.   To examine specific factors influencing the perception of satisfaction with the quality of health services among medical insurance users in Nyeri County, Kenya.

iii.   To deduce policy recommendations from (ii) above.

1.8   Justification/Contribution of the Study

1.8.1   Researchers and Academicians

In contributing to health research, researchers may use the study results to deduce research problems in the health insurance field. Secondly, it will add literature about customer relations for health management and law students in the health and health insurance industry.

1.8.2   Policy Makers (Government and Insurance Regulators)

The study will provide evidence that policymakers such as the Insurance Regulation Authority of Kenya, the National Health Insurance Fund, and the Ministry of Health Kenya may formulate policy that strengthens health policyholders' rights and fair competition in the health insurance industry.

1.8.3 Health Insurance Companies, Health provider management, health insurance policyholders/beneficiaries.

The study will provide meaningful customer feedback on overall health insurance service that health insurance firms will use to develop policies that streamline channels in which patient feedback or complaints are addressed for Continuous quality improvement of health insurance services in Kenya. In addition, the study will inform Health insurance companies about gaps that affect the efficiency of health insurance as a barrier to accessing quality healthcare.

Healthcare providers will benefit from the study by understanding their role in universal health coverage in the context of effective communication between insurance firm-health provider-patient mix and health provision.

1.9   Scope of the Study

The study was a cross-sectional survey among clients using public, private, and community-based health insurance in Nyeri County. The interpretation of the findings on satisfaction with the quality of health care is limited to clients using health insurance in Nyeri County or any other County in Kenya with a similar characteristic as of November 2022.

CHAPTER TWO

2.0 LITERATURE REVIEW

2.1   Introduction

This chapter presents and analyses documented theories and journals to provide an in-depth understanding of customer Satisfaction in Health Insurance services and formulate a conceptual framework that explains the causal effect in the problem statement specific to the study area. The two primary approaches of the literature review applied are theoretical and empirical.

2.2   Theoretical Literature review

The main objective of this study is to identify and explore the magnitude of factors influencing the satisfaction of patients obtaining health services using various health insurance in Nyeri County, Kenya. Therefore, the paper explores customer satisfaction theories and their application in healthcare. This literature review section focuses on the theories relevant to the study.

2.2.1   Grossman's model of health demand

Grossman posed that health is the capital stock of both consumption and investment. When one consumes healthcare, the quality of adjusted life years is improved, while when one fails to finish healthcare, health capital reduces with deterioration in health status. Hence, an individual would buy health insurance of a given level of health insurance package as an input to health investment, creating a healthcare expectation

2.2.2   Utility function model

The model helps measure the satisfaction level of welfare or satisfaction that a consumer experiences in consuming one product over the other. In the context of the study, the marginal utility function is significant in explaining that a healthcare consumer would prefer investing in a given type of health insurance due to the additional benefit it has over other types of health

insurance or health policy such as medical condition covered and variety of health care providers. Therefore, the study seeks to establish the level of satisfaction across the types of insurance as influenced by consumer choices as a determinant of health insurance satisfaction. Also essential, the model guides that Utility can be expressed in an ordinal scale, which enables the study to apply the Likert scale to measure the level of satisfaction across independent variables of the study.

2.2.3 The Dissonance Theory, Festinger (1957).

The theory submits that customers with high expectations but receiving a low-quality actual perception of the product will recognize disparity resulting in psychological dissonance (Yi, 1990). In the context of the dissonance theory, patients will compare previous experiences or expectations and the current product or service experience to rate their satisfaction. According to the idea, the dissonance creates uncomfortable pressure, which results in the adjustment of the disparity. Hence disconfirmation varies based on the client's effort to access the product or during the experience of the product as an attempt to reduce the dissonance. However, this theory fails to accurately account for customer satisfaction because the firms may raise customers' expectations but deliver lower-performance products to attract high product evaluations. Even though the approach usefully generates the principle that customer satisfaction is dynamic and can change during the experience, it does not pay attention to the desired product performance, which is a crucial aspect of healthcare.

2.2.4 Value concept theory

While EDP theory holds expectations as a reference for confirmation, Value percept theory, in contrast, holds that the ideal point of contact of confirmation should be valued. The theory accounts

that in most cases, what is expected may not be of value in product performance, just like what is of performance value may not be of customer expectation.

According to the value percept, value performance should be the point estimate of the standard from which the customer may affirm or disaffirm Satisfaction, Fishbein and Ajzen (1975).

In application, Value percept acknowledges that customer satisfaction cannot be an event but a scale of value disparity from the standard, which describes the extent to which experience deviates from the desired characteristics of the product value. Even though value percept holds weight as a point of the estimate, Westbrook and Reilly confirmed that expectation disconfirmation strongly influences customer satisfaction rather than value perception disparity. In the context of healthcare, value percept theory adds value to customer expectation of EDP theory in setting the standard of patient-centered care from which the disconfirmation is made in establishing the level of customer satisfaction.

2.3 Empirical literature review

The section provides reviews of journals, articles, or approved publications, which address the critical objectives of the study and are related to health insurance satisfaction in Kenya, Sub Sahara, and globally to develop a conceptual framework that will guide the research methodology. The specific objective that shows the literature review are; to insurer factors influencing patient satisfaction, to evaluate the influence of provider factors on patient Satisfaction, and identify the consumer factors influencing the level of patient satisfaction in Nyeri County

2.3.1 Insurance factors related to satisfaction with the quality of healthcare

In a study by Arokiasamy et al. (2014), customer satisfaction is associated with tangible assurances, reliability, responsiveness, and empathy for insurance agencies. In healthcare, insurance service is consumed at the time when the customer is in their time of pain. Therefore,

insurance cover with the highest customer satisfaction scale is sensitive to human emotions and suffering. Hence insurance that does not add pain to the existing suffering of the patients or caregivers by ensuring that the services are seamless with no additional cost is said to be empathetic; its reward is customer loyalty.

Hossein et al. (2013) conducted two descriptive study methods using a Likert scale-based questionnaire; in the first, 140 participants were recruited to examine customer satisfaction, while in the second study, the researchers recruited 350 participants to identify factors related to success in the insurance industry. The data analyzed using SPSS indicated that at 95% Confidence level reliability tested on access, three elements positively influenced customer satisfaction. The critical success factors tested were; accessibility to insurance contract interpretation and the responsiveness of the insurance service in terms of waiting time and compensation.

In another research by Arokiasamy et al. (2014), the researcher evaluated customer satisfaction with insurance services in the automobile industry using Pearson correlation coefficients. With a sample size of 380 and a p-value of < 0.05, the researcher found that customer satisfaction relates moderately (R square =.256) with assurance, positively(R square =0.370) with empathy more vital, and positively (R square =.364) with tangibles, stronger and positively (R square =.561) with reliability and stronger and positively (R square =0.65) with responsiveness.

2.3.2 Health Provider factors related to the quality of healthcare

A study to evaluate Patient Satisfaction with Hospital Inpatient Care in China indicated that 24% of the patients were unsatisfied with hospital care. Logistic regression further explained that patient Satisfaction was positively associated with a higher level of trust, lower levels of hospital medical expenditure, good staff attitude, empathy, quality safety, and equity in health insurance service (Shan et al. 2016)

Another study conducted in Ethiopia by a specialized Government applied a cross-sectional study design to assess the patient satisfaction level and its determinants. Of relevance to the provider factor, the researchers found waiting time satisfaction at 47% (190 participants), 52% with the information provided on the available services, and 48.7% with the admission processing.

As illustrated in the background of this study, there is a close correlation between patient safety and health service quality. Furthermore, the service delivery procedure has been identified to have a strong positive influence on the relationship between the provider and the patient. The overall description of the patient-provider relationship is termed provider friendliness (Xiao et al., .2008). Customer-friendly factor has been for long the competitive edging element of private health providers over public health providers. Health providers, which offer customer-centered services, are considered friendly. In other studies, social services entail the privacy of the patient and the language used by the provider in passing the information or treatment instructions. (Fatima et al., .2018)

Health satisfaction is closely related to health outcomes as a quality indicator. Apart from the human factor described, some physical aspects that have been identified to influence patient satisfaction significantly include; the environment in which the health service is provided and the Distance covered by the patient to access the care. In their study to assess whether differences in travel time or Distance to healthcare for adults in global north countries are associated with an impact on health outcomes, Kelly et al. (2016) found that most studies reported a negative correlation between travel time to healthcare facilities and health outcomes. Distance (Travel time) is relevant to this study, primarily where the insurance agency lists the limited provider options.

The study aims to focus on the physical/tangible environment, which entails infrastructure, hygiene of treatment areas, sanitation, and ergonomic designs to reduce physical falls and

accommodate people with physical disabilities and the elderly. American Hospital Association (AHA) (2016) argued published three main factors influencing patient satisfaction in clinical areas; people, process, and physical environment. The article further elaborated that hospitals with a comfortable, clean, and easy-to-navigate environment reported high patient satisfaction and loyalty.

2.3.3   User base factors related to satisfaction with the quality of healthcare delivery

Patient-specific factors relevant to the study are Age, education level, awareness of contribution, type of insurance scheme, number of beneficiaries, length of assistance, health status, and income level.

Age; Scientific reports and studies show that younger people of 45 years and below have fewer hospital visits than older adults above 45. Therefore, the need to reduce the financial risk associated with healthcare is higher among the elderly than younger people. This explains the reasons behind the high number of adults on insurance coverage compared to those who subscribe to health insurance due to mandatory policy. A chi-square test for the characteristic of patients and their level of Satisfaction towards National Health Insurance in Istanbul City (Turkey) indicates a modest correlation between Age and the level of satisfaction; the Pearson, correlation coefficient value, was 0.238 and significant at $p>0.01$ (Jadoo et al., 2012). A slight difference is reported by a study in Nigeria which indicated that older adults had higher satisfaction with insurance schemes as compared to younger people (mean age 42.49 (SD = 8.97, p = .001) (Mohammed et al. 2011). Education level; people who have post-secondary school education are more likely to understand the insurance policy and become more critical in demand than those with lower education levels. For example, according to Mitiku et al. (2019), bivariate analysis indicates that patients with higher education status recorded lower satisfaction with community-based health insurance schemes

compared to participants in the low-educated group in Ethiopia; a Similar study in Bangladesh supports the findings (Sarker et al., 2018).

Knowledge of Insurance Policy and Package; Insurance policy includes learning about the monthly contribution of the insured, the type of the illness covered, the amount of premium contributed by the third party (employer or government subsidy into their insurance scheme), and the total amount of medical bill payable by insurance per year. Knowledge of contribution and insurance policy positively correlates with health insurance satisfaction. (Mohammed et al., 2018). For example, a study in Ethiopia conducted by Mitiku et al. (2019) found that participants' Knowledge of Community Base Health Insurance (CBHI) scheme benefit packages had a substantial influence on satisfaction with the CBHI scheme (p<0.05).

Type of the insurance scheme; Kenya has two main categories of health insurance schemes, Private and public insurance. Private insurance entails health insurance as a product sold by insurance firms, an In-house medical scheme offered by health service providers, and a contracted health insurance scheme offered by employers through a Health management organization (Kimani et al., 2012). The second category is Public Health Insurance, which entails National Health Insurance Fund (NHIF) and community-based health insurance schemes. NHIF is a mandatory pool of risk and resources to those employed in public and formal private sectors while a voluntary contribution to those used in the informal sector (self-employed). Community-Based Health Insurance schemes (CBHI) are a pool of health risks and resources made by a group of people in society, such as Makueni County care (MakueniCare) and Jamii Bora Trust (Mwaura et al., 2012). According to a study carried out in Turkey, there was a significant reported difference in customer satisfaction among patients using different types of insurance schemes (Jadoo et al., 2012)

Size of household; Health insurance beneficiaries are individually covered under one cover; in Kenya, one policy can cover up to seven to 9 members, depending on the type of cover. NHIF, for instance, has a maximum cap of up to a spouse and five children under the Age of 21 (Mbau et al., 2020), while Liberty Insurance covers a registered spouse and up to 6 children under the Age of 25 (Liberty Kenya, 2022).

Length of contribution; this is the time when the patient has stayed enrolled on the health insurance policy. Policyholders who have been paying insurance coverage for an extended period have a higher expectation of service reliability from the insurance company and health provider. Hence, any element of anticipation not met, such as financial and health product reliability, has a more significant influence on overall satisfaction than individuals who have been on an insurance policy within a short period.

Level of income; every person strives to satisfy their needs. However, the resources are unequally scarce. Therefore, the insurance premium paid by the Policyholder from the lower-income category as a percentage of their income is much higher than those in the higher-income category. It is known that payment directly impacts the economic status and affordability of healthcare services; however, Sarker et al. 2018 and Jaadoo et al. 2012 found no significant relationship between financial situation and satisfaction with health insurance schemes.

Type of employment; In Kenya, the working population can be grouped as either government employees, private sector employees, or self-employed. Health insurance is part of the employment incentives lacking in self-employment. However, this does not necessarily mean that the employed are equally satisfied with the health benefit scheme.

A gull poll in Washington DC, America, indicates that 80% of government employees were more satisfied with health benefit schemes as compared to their counterparts at 57% (Emily Ekins, 2015)

Gender; According to Woodward M. (2019), Men have fewer hospital visits than their female counterparts; in agreement with other studies, people who visit hospitals more are more likely to express higher satisfaction with health insurance than people with fewer hospital visits. The theory is justified by the finding of pf studies in Ethiopia (Mitiku, 2019) and Turkey (Jaadoo et al., 2012), which saw female participants with higher satisfaction with health insurance schemes.

Health status; even though it is expected that people with chronic illness would be the first to appreciate medical insurance coverage, studies show conflicting results. For example, in one study, Jaadoo et al. 2012 indicated that people who perceived them perceived higher satisfaction (63.9%) than those who perceived themselves as unhealthy (37.2%) to the health insurance scheme. In contrast, In Bangladesh, a study indicates that beneficiaries' worst self-reported health status was significantly satisfied with the health scheme (Sarker et al. 2018).

Overview   of   Literature   and   conceptual   framework
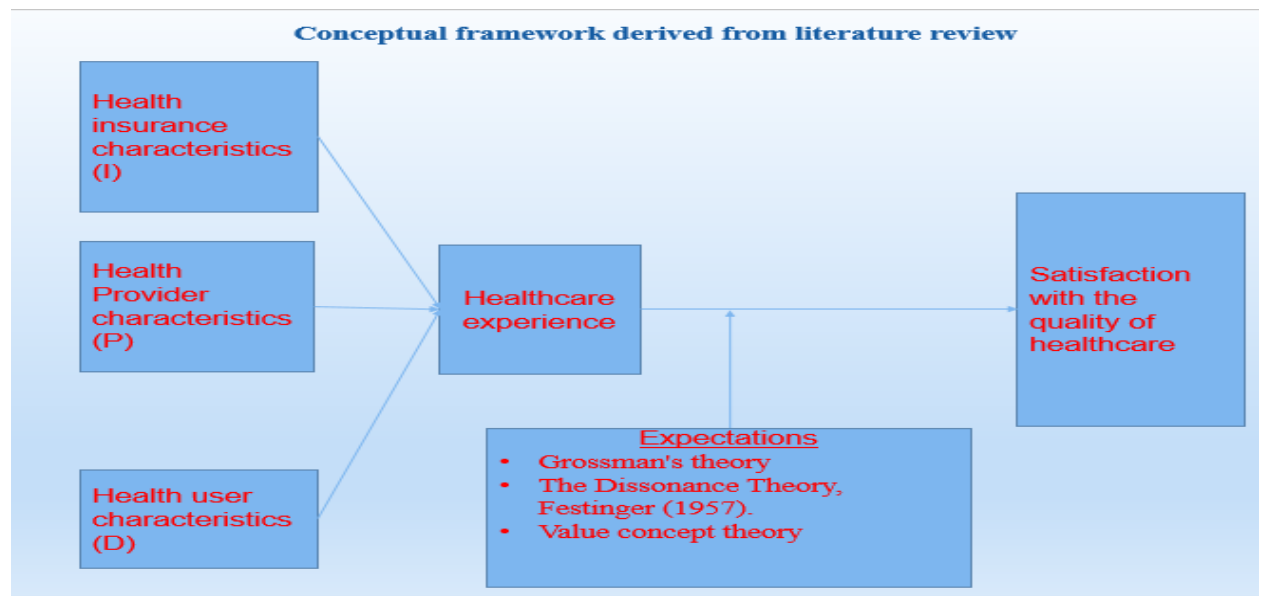
Figure iconceptual framework

source; Author

Conclusively, the reviewed theories provide a framework for defining satisfaction with healthcare delivery. Further, most researchers argued that satisfaction could be expressed in two possible results: dissatisfaction and satisfaction when the consumer's experience falls short of expectations or surpasses the threshold point (expectation point) respectively. In both, there is a point of reference that a customer uses to compare the experience. Finally, both theories agreed that the expected perception of satisfaction could be derived externally or internally; this has contributed to understanding the variables of this study by understanding the external factors, such as characteristics of health insurance firms and health providers, and internal sources, such as patient demographic factors, which might influence the client expectations.

Regarding empirical analysis, the critical health insurers' factors identified are tangibility, assurances, reliability, responsiveness, and empathy for insurance agencies. Healthcare provider factors are; patient payable expenditure, patient-provider relationship (good staff attitude, trust, and empathy), quality safety, equity in health insurance service, waiting time, adequate information on the service provided, admission processing or the service delivery procedure, adequacy /continuity of health care provision, physical environment and distance (travel time) covered by the patient.

Lastly, the critical patient factors that are significant to the study are Age, Education level, Knowledge of Insurance Policy and Package, Type of insurance scheme, number of household members, Length of contribution, Level of income, Type of employment, Gender, and Health status. This paper established the level of health service satisfaction in the context of health insurance.

CHAPTER THREE

3.0 RESEARCH METHODOLOGY

3.1   Introduction

This chapter explains the analytical framework, conceptual framework, economic model, definition of variables and their measurements, and diagnostic test of the models and data source to find operationalize the study, which seeks to examine the predictors of the patient perception of satisfaction on health insurance services in Nyeri, Kenya.

3.2   Analytical framework

Grossman's theory (1972) deduced that health is an investment; the individual's overall health status measures the output of all assets in health. The study seeks to evaluate the level of satisfaction with health services among health insurance clients in Nyeri County. Health insurance positively influences the ability of an individual to avert risks related to illness. However, an individual must experience healthcare as compensation or benefit of medical insurance to appreciate the risk protection attributed to health insurance. Therefore, satisfaction with risk aversion is the total experience with health care delivery from the access, admission, care, and discharge process. Hence, satisfaction is the overall Utility obtained from experience measured against expectation.

Functionally, the satisfaction expectation or expected utility U is an expression of the function of health status and consumption of health services as described below

$U = f(H, C)$ …………………………………Equation 3.1.1

 Where;

   U; Utility of the Health insurance client

H; Healthcare status

C; Consumption of health and insurance services

The healthcare status (H) achieves the highest possible rating if the health insurance user perceives satisfaction against their expectation. Hence satisfaction with healthcare is given by;

$H = QiI + QhP + D$ -- Equation 3.1.2

 Where

Q_i is the quality of services offered by the insurance services

Q_h is the quality of services offered by the health service providers

D is the client's demographic characteristics.

Therefore, information related to the quality of health insurance services, healthcare provision, and demographic characteristics of the clients will be used to model the Utilitylity of the health service delivery among health insurance clients in Nyeri county.

3.3 Econometric model

3.3.1 Logit model

The researcher applied the probit logistic model to examine whether clients using insurance services in accessing healthcare services are satisfied with the quality of service delivery. Then, in the assumption of the linear relationship between the outcome (latent variable S) and predictor variables (xi), the model was used to conduct a regression analysis and determined the probability of the respondent being satisfied (1) or not satisfied (0) as influenced by the independent variables. The probit fits the study because the researcher categorized the dependent variables into (0,1), where 0 indicates those who are not satisfied and 1 indicates those who are satisfied with the quality of health services offered in various facilities in Nyeri County.

The analytical framework equations above are reduced to an econometric model to answer the research questions. *The satisfied* outcome indicates agreement that the health delivery services are of quality and capable of producing the highest health status or averting health-related risk, while *not satisfied* indicates that the response is in disagreement that health care delivery services are not of quality and lack capacity to produces highest health status or avert health-related risk. the model, therefore, takes the form below;

$$Su = \beta Xi + \varepsilon \text{ ----------------------------3.2.3}$$

Where;

S_u is the Utility experienced by an insured individual using chosen insurance to access health services at the preferred provider.

β is the vector of parameters to be estimated and explains the impact of X on S_u for every unit change.

X is the explanatory variable; health insurance, health service provider, and individual characteristics

ε is the error term that accounts for unobserved variables which might have a random effect on the model.

From the above explanation, the expectation point of disconfirmation or confirmation can be expressed as k (a latent unobserved choice), below which the customer disconfirms satisfaction and above which the customer confirms satisfaction that the health delivery process is of quality to avert health risk.

$$Su = 1 \text{ if } k \text{ utility is } > 0, Su = 0 \text{ if } k \text{ utility is } < 0 \text{ ----------------------------3.2.4}$$

Assuming that the model which determines the latent choice k is linear, the assumption holds that the S_u, which is the observed outcome and the explanatory variables x_i in the model, are

independent and identically distributed random variables with normally distributed and homoskedastic ε.

$$k = \beta Xi + \varepsilon i; \quad given \quad \varepsilon, \sim N\,(0,\delta 2)\,\text{----------------------------}3.2.5$$

This implies that the probability of observing a customer satisfied with the quality of service expressed as $S_u = 1$ given a predictor variable x_i can therefore be presented using cumulative distribution function (cdf) as shown;

$$P\,(\boldsymbol{S_u} = 1|\,Xi) = P\,(k > 0|\,Xi)$$

Therefore the equation may be expressed regarding equation 3.2.5 as $P\,(\beta X_i + \varepsilon_i > 0|\,X_i)$ and further simplified or rearranged on the symmetry of the standard distribution curve as;

$$P\,(\varepsilon i > -\beta Xi\,|\,Xi) = P\,(\varepsilon i \le \beta Xi\,|\,Xi)\,\text{----------------------------}3.2.6$$

In summary, the probit models the probability of a health insurance user rating the services as quality in averting health-related risk.

$$\int_{-\infty}^{\beta Xi} \emptyset(\beta Xi)dxi = \Phi(\beta Xi)\,\text{----------------------------}3.2.7$$

3.4 Specification of the Model

The model specification tool connects the analytical and econometric models with the study's theoretical framework to balance the effect of including the entire variable into the model and statistical power for a straightforward interpretation of the data. This paper will apply the information criterion method to identify which specific variable to be included or remove from the group of Insurance factors (*I*), Health care provider factors (*H*), and Patient factors (*P*). The fit of each variable in the category will be tested using the maximum likelihood factor to help advise the best variable to be included in the model.

From the econometric model, the specification model of the study will take the following regression equation given that healthcare delivery satisfaction is expressed as Health status (H);

$$H = QiI + QhP + D \text{ -- Equation 3.1.2}$$

The Healthcare status equated as the Satisfaction Utility (Su) obtained from the e experience with healthcare delivery has been illustrated in the economic model to be a value between 0 and 1. Hence, the link function that forms the multivariate regression analysis in generating cumulative standard ordinary regression is

$$Su = f(\beta o + \beta 1\chi 1 + \beta 2\chi 2 \ldots \ldots \ldots \ldots \beta p\chi p) + \varepsilon \text{-----------3.3.1}$$

And applied in this study as ;

$$Su = \beta o + \beta 1\, I.Tan + \beta 2\, I.Ass + \beta 3\, I.Re + \beta 4\, I.Res + \beta 6\, I.Typ + \beta 7\, H.Ad$$
$$+ \beta 8\, H.work + \beta 9\, H.Dis + \beta 10\, H.phy + \beta 11\, H.time + \beta 13\, D.Age$$
$$+ \beta 14\, D.Edu + \beta 15\, D.status + \beta 16\, D.Gen + \beta 17 D.emp + \beta 18\, D.inc$$
$$+ \beta 19\, D.Mar + \beta 20\, D.Hsz + \beta 21\, D.Know + \varepsilon$$

Where

Su = Satisfaction Utility of healthcare delivery as expressed by the health insurance users in Nyeri county

βo = the intercept point of Satisfaction Utility for all the explanatory variables.

I.Tan = insurance Tangibility,

I.Ass = insurance Assurance

I.Re = insurance Reliability

I.Res = insurance Responsiveness

I.Typ = Type of Insurance agency

H.Ad = Adequacy of health services provided by the healthcare provider

H.work= Competency of Health workers

H.Dis = Distance covered to the health service center

H.phy = physical environment

H.time= Waiting time

D.Age= Age of the respondent

D.Edu = Education level of the respondent

D. status = Health status of the respondent

D.Gen = gender of the respondent

D.emp = type of employment of the respondent

D.inc= level of income of the respondent

D.Mar = Marital status of the respondent

D.Hsz = Household size of the respondent

D.Know = Knowledge of the respondent on the Insurance Policies /Package

3.5   Definition, measurement, and expected signs of variables

Table 1 Definition, measurement, and expected signs of variables

Variable	Measurement	Expected sign
Dependent variable/outcome		

Satisfaction with the quality of Healthcare delivery	Takes a binary dummy of **1** = **satisfied** with the Healthcare services and delivery and 0 for **Not satisfied** with Healthcare services and delivery	Dependent variable
Predictor variables		
Insurance predictors	Assumes nominal measurement scale	
Tangibility,	1= the health insurance agent is accessible 0 = the health insurance agent is not accessible	We expect positive signs because the physical and communication accessibility of the insurance agent has a positive effect on the satisfaction of the health insurance services.
Assurances	1= assure 0 = less assure	The variable test the level of trust the Policyholder has in the insurance agency; a stronger assurance level increases satisfaction with the service quality. Hence we expect a positive sign
Reliability	1= reliable 0 = less reliable	We expect a positive sign because the variable test whether the Policyholder experienced precisely what the insurance agent promised in the contract.

Responsiveness,	0 = not responsive 1= responsive	We expect a positive sign, the variable test whether the insurance services are offered promptly in a manner that does not delay healthcare when the Policyholder is in urgent need.
Type of Insurance agency.	0= "Public" 1= "Private" 3= "community base /others."	NHIF or Government agency base contracted are public insurance and mandatory among the employed, while private and community base insurance a voluntary; hence we expect positive signs (Alcalá et al., 2018)
Healthcare factors		
Adequacy of health services	0= "Some of the health services are obtained elsewhere." 1= "health facility provides all healthcare needs."	One chooses to have medical insurance to access adequate healthcare under one roof. Hence we expect positive signs (Amankwah et al., 2019).
Competent health workers	0= "incompetent workers." 1= competent workers	Workers who are perceived as competent positively contribute to customer satisfaction. Hence we expect positive signs (Tefera et al., 2021).

Distance covered to the health service center	0= Near 1= Far	A person who covers a short distance to seek healthcare has higher accessibility to healthcare than someone who covers a long length. Hence we expect a negative sign (Kelly et al., 2016).
physical environment	1= well equipped 0= less equipped	Facilities with a sensitive patient structure have strong customer satisfaction; hence we expect positive signs (American Hospital Association, 2016).
Waiting time	0= short 1= long	Healthcare offered efficiently within a short time has higher customer satisfaction; hence we expect a negative sign (Alarcon-Ruiz et al., 2019).
Patient factors		
Age	1= > 45 0= < 45	Older policyholders are more exposed to non-communicable diseases than younger policyholders; hence Age positively influences satisfaction with health insurance (Jadoo et al., 2012
Education level	0= post-secondary 1= secondary and below	People with higher education are more aware of the insurance package and become more critical of the expectations than counterparts with lower educational levels. Hence we expect negative signs (Mitiku et al., 2019),

Health status	0 = no chronic illness 1= chronic illness	A person with chronic disease is more likely to be satisfied with health insurance; hence we expect positive signs.
Gender	0= Male 1= Female	Women have a higher demand for healthcare as compared to men. Hence we expect a positive sign.
Type of employment	0=" private informal" = employee." 1 = "private formal" 2= "government"	Mandatory health insurance deduction increases from private informal and private formal to government employment; hence we expect positive signs.
Level of income	0= "< 30,000" 1 = "30,000- 69,000" 2 = "> 69,000"	Policyholders in a higher income bracket have a higher health insurance package than those in a lower income bracket; hence we expect a positive sign.
Marital status	0 = Not married 1= Married	Marriage increases the risk of health expenditure and experience; we expect positive signs.
Household size	0= less than three 1= three and above	A family of more than three households has higher health uncertainties than a family of lower than three members. Hence we expect a positive sign

Knowledge of Insurance Policies and Package	1=. Understand the insurance policy 0 = do not understand an insurance policy	Awareness about health insurance policies directly correlates with understanding the insurance contract; this makes the Policyholder more critical of healthcare expectations. Hence we expect a negative sign.

Origin: Author

3.6 Diagnostic test

This section explains how well a binary regression model predicted the study outcome, considering that the survey took a cross-sectional descriptive study method. The predictive performance of the model was evaluated using several performance metric that included prediction accuracy, correctly classified instances and incorrectly classiefied instances. All the categorical features were used to predict the binary response variable.

Multicollinearity assumption; to ensure that only independent variables that do not influence each other significantly were included in the model, Chi-square (χ^2) test of indepence was used, Multicolinnearity would be detected if the the associated p value of the test statistics is < 0.05. Otherwise, the variable were independepenent.

3.7 Data source

A structured questionnaire was used to collect cross-sectional data on satisfaction with the quality of healthcare delivery in Nyeri County among clients using health insurance services. The study's target population was 32.9 % of Nyeri County's population covered under various forms of health insurance (Kenya Household Health Expenditure and Utilization survey, 2018).

3.8 Sample size

The study used Fischer et al. (1991) sample size formula to identify the number of respondents that is large enough to represent the perception of the proportion of the population under health insurance coverage in Nyeri County. In the application of the Fischer et al. (1991) sample size formula, the required sample size (n) is;

$$n = ((Z_{(\alpha/2)})^2 (p`q`))/ d^2$$

n= sample size required for the study

Z = the critical value at a 95% Confidence Level

p`= the proportion of the population under insurance coverage in Nyeri county, according to the most recent Kenya Household Health Expenditure and Utilization survey, 2018.

q = 1- p`

d = degree of precision at $\pm$ 5%

Hence, the required sample size will be;

$$n = ((1.96)^2 (0.329 \times (1-0.329`)))/ 0.05^2$$

$$= 340$$

3.9 Sampling technique and procedure

A structured Likert scale questionnaire was used to collect data. The questionnaire will be administered in a scheduled interview with the respondent selected purposively at the main exit point of the four leading Hospitals; Nyeri Level 5 Hospital, Outspan Hospital, Karatina Level four, and Mathare Mission Hospital in Nyeri County. Each data collection site contributed an equal portion of the sample size.

3.10 Exclusion and inclusion criteria

The respondents were enrolled in the study using the listed criteria

I. Must be under health insurance cover

II. One who is of sound mind and the legal Age of 18 and above

III. Must be receiving health services within Nyeri county

IV. Must be a resident of Nyeri county

V. Must be household head or co-household head

People unwilling to participate in the study or not meeting the above inclusion criteria were not interviewed.

3.11 Ethical consideration

Approval for data collection was obtained from the National Council of Science, Technology, and Innovation (Licence NACOSTI/P22/22028) and the Department of health services, Nyeri County government. The researcher complied with data protection laws during and after the study. The researcher further received consent from the respondent and created awareness of the respondent's research.

CHAPTER FOUR

4.0 DATA ANALYSIS, INTERPRETATION, AND DISCUSSION OF RESULTS

4.1 Introduction

This section explains and analyzes how health insurance, health provider, and client demographic factors influence the perception of health care quality among the clients using health insurance services in Nyeri County, Kenya. The researcher has employed binary regression analysis to interpret the behavior of respondents collected in a cross-sectional survey to establish the pattern and specific factors that influence the perception of satisfaction with the quality of health services among medical insurance users in Nyeri County, Kenya.

4.2 Descriptive statistics

The result indicates that 65.3% percent of the clients using health insurance services were unsatisfied with the quality of healthcare delivery in Nyeri County. A one-sample proportion z-test showed that the proportion of those unhappy with the services is significantly hogher than those who are satisfied, $z = 5.47, p < 0.0001$. The result was obtained from 320 participants interviewed, representing a 94.12% response rate of the targeted 340 respondents; our response rate was statistically significant to provide representation data of the target population (Brooks Holton et al., 2022). The following tables present the pattern of the responses and further analysis of the results

4.2.1 Independent variables

4.2.2 Demographic factors of respondent

The study seeks to determine the pattern of satisfaction with quality healthcare quality across key demographic indicators;

Table 2 Client demographic predictors

1. Gender	Observation	Percent
Male	130	40.63%
Female	190	59.37%
2. Age		
Less than 45 years	218	68.1%
Greater than 45 years	102	31.9%
3. Marital status	Responses	Percent
Not married	143	44.7%
Married	177	55.3%
4. Education level		
College or university	220	62.5%
Secondary or primary	120	37.5%
5. Employment status		
Self-employed in small business	216	67.5%
Self-employed or employed in large business	70	21.88%
Employed by the government of Kenya or County government	34	10.62%
6. Level of income		
Less than Ksh. 30,000	154	48.12%

Between Ksh. 30,000 to Ksh 69,000."	112	35%
Above Ksh. 69,000"	54	16.88%
7. Numbers of beneficiaries		
Less than three	125	38.75
Three and above	196	61.25
8. Knowledge of Insurance Policies and Package		
No	208	65
Yes	112	35
Response rate	**320**	**100%**

Origin; Author, 2022

Gender; From the study, 40.63 population covered by health insurance are men while 59.37 are women. This revelation confirms that health-seeking behavior among women is higher than among men. Secondly, women of childbearing age have higher health uncertainties related to pregnancy and childhood illnesses.

Age; the distribution of health insurance per Age greater than 18 years and above indicated that most of the population under health insurance are aged 45 years and below at 68.1% compared to 31.9% of the people above 45 years. This finding is in line with the fact that the Kenyan population is a youthful country.

Marital status; to further understand the profile of the study population, the researcher asked the respondent to describe their marital status; from the study, the majority of the respondent (55.3%) were slightly different from those who were not married (44.7). This confirms the effect of the inclusion criteria in the study, where most of the target population gets married at an average age of 21.5 (Nyawira, 2020).

Employment status; the researcher asked the respondent how they would describe their type of employment. The study reveals that the majority of the population who are using health insurance services are self–employed people at 67.5%, those who are either employed at large-scale businesses (Private formal employment) or own large distributed companies at 21.88 %, while those used by the national or county government came distant third at 10.62 %

Level of income of the target population; It is a fact that household income level influences the type of health insurance and choice of the healthcare provider. In this study, the researcher asked the respondent to describe the average monthly income from three categories of the multiple-choice question.   The study found that 48.12% of those using health insurance services to access healthcare are from lower income levels. In comparison, 35% are from the middle-income group, and only 16.88% reported a higher income level greater than Ksh. 69, 000.

The number of beneficiaries per health policy; The respondents were asked to state whether those covered under their respective health insurance covers were less than three or three and above. The study found that most insured share a health insurance policy with at least three people at 61.25 %. At the same time, those with less than three or at most two policyholders per cover are reported to be 38.75%.

Knowledge of Insurance Policies and Package; The researcher asked whether the respondents were aware of the health insurance terms. The study established that 65% of those using health insurance in Nyeri County do not know their health insurance terms. Only 35% of the policyholders knew about diseases and the cost limits of their respective cover.

4.2.3 **Health insurance services**

Health insurance services are essential in healthcare provision among those accessing healthcare using health insurance; the researcher examined the pattern of the critical indicators of quality in health insurance services.

Table 3 Health insurance service predictors

1. Type of Insurance agency	Observations	Percent
Both public and private insurance	91	28.44%
Public health insurance only	173	54.06%
Private health insurance only	40	12.5%
Community-based health insurance or others	16	5%
2. Tangibility,		
No	215	67.19%
Yes	105	32.81%
3. Assurances		
No	106	33.13
Yes	214	66.87 %
4. Reliability		
No	244%	76.30%
Yes	76%	23.70 %
5. Responsiveness		
No	208	65%
Yes	112	35%
Total responses	**320**	**100%**

Source; Author, 2022

The following questions were used to establish the pattern of perception of health insurance services in Nyeri County.

Types of health insurance; the researcher seeks to weather the respondent has one or mixed health insurance policy. The study finding indicates that some clients (28.44%) have more than one health insurance. However, public health insurance (NHIF) is the lead health insurance coverage at 54.06 %. Private health insurance services and community-based health insurance covered 12.5 % and 5% of the population using health insurance.

Tangibility; the researcher seeks to weather the health insurance users can access the health insurance service provider physically or via phone call for any assistance when experiencing challenges in utilizing health insurance and acquiring healthcare. The study established that 67.19% of the insured population had received service from their health insurance provider when they visited physically or via phone communication, and 32.81% reported that they have at least failed to receive help from their health insurance provider when made physical or via phone communication to facilitate access to healthcare services.

Assurances; The researcher seeks to establish whether health insurance services are offered in the manner stated in the health policy. However, the study found that 66.87% have or a person under their policy cover at least lacked access to critical healthcare at the point of delivery.

Reliability; Majority of the clients accessing healthcare through health insurance (76.30%) report that they cannot entirely rely on health insurance for accessibility of all their healthcare services. A small proportion of the population (23.70%) reports that they can depend on health insurance to access all healthcare services.

Responsiveness; this indicator seeks to evaluate whether health insurance services facilitate efficient admission and bill payment processes in an emergency or critical needs. The study's findings explored that 65% of the population reported that health insurance is not responsive in the time of need, and 35% agreed that health insurance services are responsive in critical healthcare needs.

4.2.4 Healthcare provider predictors

Independently from the healthcare insurance and user predictors, the pattern of influence of crucial quality indicators of healthcare providers on quality healthcare perception among health insurance users was determined. The table below illustrates the quantitative perception with the key indicators of healthcare providers.

Table 4 Healthcare provider indicators

1. **Adequacy of health services**	**Observation**	**Percent**
No	191	59.69%
Yes	129	40.31%
2. **Competency of health workers**		
Not Competent	65	20.3%
Competent	255	79.7%
3. **Distance covered to a healthcare provider**		
Near	203	63.4%
Far	117	36.6%
4. **Physical environment**		

Yes	256	80%
No	64	20 %
5. Waiting time		
It takes a long time	189	59.1%
Takes Short time	131	40.9%
Total response	**320**	**100%**

Origin; author, 2022

Adequacy of health services; the researcher seeks to explore the availability of healthcare services at the selected facilities independent from the health insurance package. The study established that 59.69% of the population had been referred from the facility of their choice to seek healthcare elsewhere, and 40.31% reported that the facilities have adequate healthcare services for their needs. The underlying cause of the referral was the unavailability of medication and diagnostic services at their facility of choice.

Competency of healthcare workers; the researcher explored whether healthcare workers offer healthcare services in a patient-centered manner. The study established the majority of the population perceives that healthcare workers are competent. Hence services are provided in an empathetic and professional manner.

Physical accessibility of the healthcare provider; the study seeks to determine the impact of Distance covered by the population to seek healthcare at their registered facilities. The study's finding establishes that the majority of the population (63.4%) reports that the facility is near, while 36.6% say otherwise, that the facility is far from their residence; hence they have to use the vehicle as means of transport to access healthcare services.

Waiting time was investigated as turnaround time for process and resources put in place by the healthcare provider to facilitate admission and initiation of the actual healthcare delivery. The study revealed that 59.1% of the population accessing healthcare through health insurance perceives the process as long and takes a long time for one to access healthcare and 40.9% of the population opinioned that the process is efficient and takes a short time to access healthcare.

4.2.5 Dependent variable/outcome

4.2.6 Satisfaction with quality of healthcare delivery in Nyeri County, Kenya

Based on the experience of the respondent with healthcare as influenced by the health insurance services and healthcare service provider, 65% of the target population perceived that they are not accessing quality healthcare at any time and at an affordable cost as compared to 34.7% who perceived that they have access to quality healthcare at any time of need and reasonable price in Nyeri County, Kenya.

Table 5 Dependant variable outcome

Satisfaction with quality of healthcare delivery in Nyeri County, Kenya	Observation	Percent	Response Target	Response rate
Yes	111	34.7%	N/A	N/A
No	209	65.3%	N/A	N/A
Total responses	320	100%	340	94.12%

4.3 Inferential statistics

A binary logistic regression was performed to ascertain the effects of the independent variables on the likelihood that participants were satisfied. All the categorical features were used to predict the binary response variable. Chi-square tests on the explanatory variables showed that the involved

variables were independent of each other (p > .05). The data upheld the assumptions underlying Binary Regression.

The logistic regression model was statistically significant, $\chi^2(19) = 64.718, p < .0001$. The model explained 61.9% (Nagelkerke R^2) of the variance in satisfaction of the participants and correctly classified 81.7% of cases. The Hosmer and Lemeshow Test indicated a good fit (p = 0.50). The sensitivity of the model in predicting satisfaction was 85.7%. The specificity in predicting those who were not satisfied was 77.1%.

The prediction model is:

$$
\begin{aligned}
Su = {} & -3.494 + 1.463\,I.Tan - 0.423\,I.Ass + 0.745\,I.Re - 0.556\,I.Res + 1.01\,I.Typ \\
& - 1.582\,H.Ad + 2.444\,H.work - 1.516\,H.Dis + 0.073\,H.phy \\
& + 1.832\,H.time - 2.302\,D.Age + 1.711\,D.Edu - 0.648\,D.status \\
& + 0.286\,D.Gen - 0.663\,D.emp + 0.239\,D.inc + 2.111\,D.Mar \\
& - 2.321\,D.Hsz + 0.684\,D.Know
\end{aligned}
$$

Where:

I.Tan = insurance Tangibility,

I.Ass = insurance Assurance

I.Re = insurance Reliability

I.Res = insurance Responsiveness

I.Typ = Type of Insurance agency

H.Ad = Adequacy of health services provided by the healthcare provider

H.work= Competency of Health workers

H.Dis = Distance covered to the health service center

H.phy = physical environment

H.time= Waiting time

D.Age= Age of the respondent

D.Edu = Education level of the respondent

D. status = Health status of the respondent

D.Gen = gender of the respondent

D.emp = type of employment of the respondent

D.inc= level of income of the respondent

D.Mar = Marital status of the respondent

D.Hsz = Household size of the respondent

D.Know = Knowledge of the respondent on the Insurance Policies /Package

Table 6: Logistic regression results

Variables	**B**	**S.E.**	**Wald**	**df**	**Sig.**	**Exp(B)**
Gender	0.286	0.659	0.188	1	0.665	1.331
Age	**-2.302**	**1.01**	**5.196**	**1**	**0.023**	**0.1**
Marital status	**2.111**	**1.006**	**4.402**	**1**	**0.036**	**8.252**
Education level	1.711	0.972	3.096	1	0.078	5.532
Health status	-0.648	0.827	0.615	1	0.433	0.523
Type of employment	-0.663	0.629	1.112	1	0.292	0.515
Level of income	0.239	0.658	0.132	1	0.717	1.27
Household size	**-2.321**	**0.929**	**6.24**	**1**	**0.012**	**0.098**

Knowledge of Insurance Policies and Package	0.684	0.734	0.87	1	0.351	1.983
Type of Insurance agency	**1.01**	**0.474**	**4.54**	**1**	**0.033**	**2.746**
Tangibility,	1.463	0.834	3.076	1	0.079	4.317
Assurances	-0.423	0.793	0.284	1	0.594	0.655
Reliability	0.745	0.919	0.657	1	0.417	2.106
Responsiveness,	-0.556	0.711	0.611	1	0.434	0.574
Adequacy of health services	**-1.582**	**0.771**	**4.209**	**1**	**0.04**	**0.206**
Competent health workers	**2.444**	**1.088**	**5.048**	**1**	**0.025**	**11.52**
Distance covered to a health care facility	**-1.516**	**0.722**	**4.402**	**1**	**0.036**	**0.22**
Physical environment	0.073	0.916	0.006	1	0.937	1.076
Waiting time	**1.832**	**0.715**	**6.568**	**1**	**0.01**	**6.249**
Constant	**-3.494**	**1.56**	**5.014**	**1**	**0.025**	**0.03**

*Significant at a 5% significance level.   Source: Author's computation based on

data collection questionnaire

4.4   Empirical Discussion of the results

These sections explain the regression analysis per variables compared to findings in similar

studies.

4.4.1 Influence of demographic factors on the perception of quality of healthcare in Nyeri County

Gender

The researcher asked the respondent to state whether they are Male (0) or female (1); statistical regression reveals that gender has an insignificant correlation with the perception of the quality of healthcare (p=0.665). Women have higher health-seeking behavior as compared to men, hence are 1.33 times more likely to report higher satisfaction due to the perception of risk reduction (Mitiku, 2019)

Age

The researcher asked the respondent to state whether they were less than 45 years of Age (0) or otherwise (1). Our finding indicates that older clients were 0.1 times less likely to be satisfied with the quality of healthcare than younger clients; this is contrary to the result of Jadoo et al., 2012, which could be attributed to other factors.

Marital status

In the study, respondents were asked to state whether they were not married (0) or otherwise (1). The study found that marital status significantly influences the perception of healthcare quality in Nyeri county; married people were 8.25 times more likely to be satisfied with the quality of healthcare than un married people (Exp (B) =8.252, p= 0.036). The married population has a wide margin of health risk; hence, every utilization of health services by self or policyholders under their cover reduces the total health burden compared to unmarried populations with a narrow health risk margin.

Education level

The survey investigated whether the participants attained college and university (0) or secondary education and below (1). Even though the findings were that education level was statistically insignificant in the model, those with lower education levels were 5.53 times more likely to be satisfied with the quality of healthcare services than clients with higher education levels (Exp(B) =5.532 p=0.07). The study result agrees with Mitiku et al. (2019) that people from lower education levels have lower expectations and hence less likely to be critical with healthcare experience compared to patients with higher education scores.

Health status

The population's health status was established based on chronic illness (1) or otherwise (0). The study findings indicate that patients with chronic illness were 0.52 less satisfied with the healthcare quality as compared to a patient with absences of chronic illness (Exp(B) =0.523, P=0.433).), the result is supported by findings of a study conducted by Jaadoo et al. 2012, their study reports that majority of the clients with long term illness were found unsatisfied with the quality of health services.

Type of employment

The target population described themselves as self-employed in small businesses (0), Self-employed or employed in large businesses (1), or operated by the government. The study's findings found type of employment was insignificant in determining the satisfaction of healthcare quality among the population using health insurance to access healthcare services in Nyeri county (p=0.292). However, every point increase in a type of employment bracket from the self-employed group to the employed by government group results in 0.51 less likely to be satisfied with healthcare services (Exp (B)=0.515, β = -0.663)

Level of Income

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The target population was classified into three income groups representing lower, middle, and upper-income levels. The study found that income level does not significantly influence the perception of healthcare quality. Still, individuals in the upper-income category were 1.27 times more likely to be satisfied with the quality of healthcare services (Exp (B)=1.27, β = 0.239, P=0.717). The finding is consistent with Sarker et al. 2018 study on health insurance satisfaction.

Household size

The survey used the variable to estimate the number of dependents on every policyholder. Household size had a strong statistically significant negative influence on satisfaction with healthcare quality; individuals who share one health insurance policy with two or more dependants were found to be 0.01 less satisfied as compared to individuals whore share a health policy with utmost one dependant (Exp (B 0.098, β = - 2.321, p=0.012). Patients or clients with more than three beneficiaries use health facilities more frequently than clients with less than three. Hence they develop higher expectations and become more critical of healthcare quality.

Knowledge of insurance policy

Quantitative results found that the majority of the population is not aware of the terms of the health insurance policy; those who know the terms of the health insurance policy were two times more satisfied with the quality of healthcare services (Exp (B)=1.98, β =0.684, p=0.351) contrary to results found in a study conducted by Mohammed et al., 2018.

4.4.2 **Impact of Health insurance services on quality of healthcare delivery**

Type of insurance agency

There are four main types of insurance; a combination of public and private, public, private, and community-based health insurance. The study found a significant positive correlation between the type of health insurance agency and the perception of healthcare quality, a change in health

insurance from public health insurance to private insurance was found to increase chances of the satisfaction with healthcare by 2.7 times more than using public insurance (Exp (B = 2.746, β = 1.01, p=0.033). The results indicate that the population who uses private and community-based health insurance has access to quality healthcare more than the population who uses public health insurance (NHIF); the result is consistent with the findings of a study conducted by Chesire, 2021 in Lang'ata Sub-county Kenya.

The tangibility of health insurance agent

The impact of accessibility of the health insurance agent on the perception of quality healthcare was investigated and was found to be statistically insignificant. The study further shows that those with access to insurance agents are 4.3 times more likely to be satisfied with the services than clients who have difficulty accessing health insurance agents. (Exp (B)=4.317, p=0.079).

Assurance of health insurance

People who perceived that the health insurance services are not assured were found to be 0.6 times less likely to be satisfied with healthcare services than those who are assured of health insurance services in time of health care needs (β = 0.423, p=0.594); the results are in line with the Arokiasamy et al. (2014) and Chesire, 2021 reports on clients satisfaction with health insurance services.

The reliability of health insurance policy

Health insurance is satisfactory if it protects the users from all financial uncertainties related to health burdens. The study results indicated an insignificant positive correlation between health insurance reliability and healthcare quality(p>0.05). However, the clients who report that they can rely on health insurance for all their medical costs were found to be 2.1 more likely to be satisfied with health care services

Responsiveness of health insurance agent

The responsiveness of health insurance was measured as Not responsive (0) and Responsive (1) based on the efficiency of admission and payment of bills using health insurance at the facility. A statistically insignificant correlation was observed with those who have responsive health insurance were found to be 0.574 more likely to be satisfied than those who report that health insurance is not responsive (p=0.434)

4.4.3 **Influence of Healthcare Providers on the quality of healthcare**

Adequacy of healthcare services

The survey investigated whether health insurance users do not have access to some of the healthcare services or some healthcare services are not available at all or sometimes (0), or have access to all healthcare services at all times (1) from the facilities where their outpatient healthcare services are registered. The study results indicated a statistically significant correlation between the adequacy of the facility's health services and the perception of quality of care (p=0.04). Secondly, those who have been referred elsewhere from their hospital of choice were found to be 0.22 less likely to be satisfied with health care services than those who reported that they have never been referred elsewhere.

Competency of healthcare workers

The variable evaluated the impact of competency as human factors such as empathy, kindness, and professionalism on the perception of quality healthcare among the clients accessing healthcare through health insurance. The result of the study indicated a significant correlation between the competency of health workers and the quality of healthcare (β=2.444, p=0.025). The findings agree

with the results of (Fatima et al., .2018) that competent health workers increase the likelihood of satisfaction by 11.52 compared to incompetent workers. (Exp(B)=11.52)

Distance covered to healthcare facilities

The result is supported by findings of a study conducted by Kelly et al. (2016) on healthcare satisfaction. Distance directly influences travel time, and the survey evaluated whether the respondent's residence is near the facility of choice (0) or far away from the facility of choice (1). The result indicated a significant negative correlation between the distance covered by the clients and the level of perception of quality healthcare (β=-1.516, p=0.036).

The physical environment of the health facilities

The report indicated that the majority of health facilities in Nyeri County are clean and satisfactory fracture; physical environmental hygiene increases the likelihood of satisfaction by 1.076 times more than facilities that are perceived to have a poor physical environment (Exp(B)= 1.076)

Waiting time at the facility

Lastly, the turnaround time due to the processes put in place or available resources at health facilities from admission time to the actual process of delivery of care was found to be a statistically significant negative correlation with the perception of quality of healthcare in Nyeri county (β= -1.832, p=0.01). This finding affirms the result of a study by MR et al., 2018 on the effect of patient appointment scheduling systems on customer satisfaction. Those served within a short time were 6.3 times more likely to be satisfied with the quality of services than those who reported that the admission processes take a long time (Exp(B)=6.249).

CHAPTER FIVE

5.0   SUMMARY, CONCLUSIONS, AND POLICY RECOMMENDATIONS

5.1   Introduction

This section highlights the findings of correlations of significant variables of the study to answer the study's objectives. Conclusion and policy and research recommendations are later made at the end of the chapter.

5.2   Summary of the findings

The result analysis indicates that older people were 0.1 times less likely to be satisfied with healthcare quality than young people. Married clients were 8.25 times more likely to be satisfied with the quality of health services than unmarried ones. Household with two or more dependants were found to be 0.01 less satisfied as compared to household with utmost one dependant because larger household has higher expectations derived from experience hence were more critical on healthcare quality.

 For a 4-point type of insurance agency, every point increase increases the odds of client satisfaction by 2.75. Clients who received adequate health services at their preferred facility were 0.21 times more likely to be satisfied with the healthcare services than those referred elsewhere. Clients served by competent health workers are 11.52 times more likely to be satisfied with healthcare quality than incompetent workers. Clients who travel long distances to access health were 0.22 times less likely to be satisfied with the health services than those who travel a shorter distance. Clients who waited a long time for admission were 6.25 times less likely to be satisfied than those who took a shorter time for admission.

Therefore , the resultant regression model which explain the main factors that influence the satiafction with the quality of healthcare among health insurance users in Nyeri County is;

$$Su = -3.494 - 2.302\, D.Age + 2.111\, D.Mar - 2.321\, D.Hsz + 1.01\, I.Typ$$
$$- 1.582\, H.Ad + 2.444\, H.work - 1.516\, H.Dis + 1.832\, H.time$$

5.3   Conclusion

The study findings established that most of the clients (65.3%) using health insurance services are not satisfied with the quality of health care services in Nyeri county, Kenya.

Out of the 19 variables investigated, eight significantly predicted satisfaction with the healthcare quality in Nyeri county. These identified variables are Age, marital status, household size, type of insurance agency, adequacy of health services at the facility, competency of the health workers, distance covered to the health care facility, and waiting time during hospital admission.

5.4   Recommendations.

5.4.1   Research recommendations

I.   Further studies need to be done to find out patterns of referrals among patients accessing healthcare services in public and private hospitals

II. The economic impact of health insurance limitation to one outpatient facility on health household health expenditure and the cost-effectiveness of public health insurance need to be explored

III. Factors influencing waiting time during the admission process need to be evaluated.

5.4.2   Policy recommendation

i.   Health insurance regulators must formulate a policy that guides refund of health insurance users who incur extra financial costs if they are referred from their facility of choice to a different facility for healthcare services covered by the insurance policy.

ii.   There is a need to establish minimum healthcare products that must be available in all facilities contracted by health insurance agents to provide healthcare services under the insurance.

iii.   Healthcare services need to be contracted based on specific healthcare packages and cost limitation contracts instead of cost limitations alone to increase the accessibility of healthcare among clients accessing healthcare using health insurance services.

iv.   The county government of Nyeri needs to develop a standard customer satisfaction questionnaire specific for health services, which may help monitor the pattern of healthcare satisfaction in all public and private hospitals.

v.   National health insurance Fund as the single and mandatory public health insurance to ban insurance discrimination in access to health and alied health insurance benefit base on employement status. Government employed policy holder have more benefit than private and self employed policy holders paying the same amount of subscription.

vi.   In order to increase acess to health care sevices with reduction of out of pocket expenditure among the insured and a benefit of health protection from over the counter misuse of medication, contracted health facilitieas need to have satellite pharmacies or chemist for dispensation of over the counter medication.

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6.0 APPENDICES

6.1 Consent form

SATISFACTION WITH THE QUALITY OF HEALTHCARE DELIVERY AMONG CLIENTS USING HEALTH INSURANCE IN NYERI COUNTY, KENYA

Dear respondent

My Name is Odongo Samson Ochieng, and I am a student at the University of Nairobi.

I am researching the level of satisfaction with the quality of healthcare services among users covered by various forms of health insurance in Nyeri County, Kenya.

I seek your participation by filling out the attached questionnaire. There is no point where your identity will be required or revealed.

Kind requests,
SAMSON ODONGO
X53/27632/2019

Figure ii Consent Form

6.2   RESEARCH AUTHORIZATION -NYERI COUNTY HEALTH DEPARTMENT

REPUBLIC OF KENYA

COUNTY GOVERNMENT OF NYERI
DEPARTMENT OF HEALTH SERVICES
OFFICE OF THE DIRECTOR

Email: nyericountyhealth@yahoo.com
0758563121

COUNTY COMMISSIONER'S HQ
BLOCK 'A'
P.O. Box 110 – 10100
NYERI

REF: CGN/HEALTH/HRM/5/VOL.II

Date: 11th November 2022

TO WHOM IT MAY CONCERN

RE: RESEARCH AUTHORIZATION

The bearer of this letter, **Samson Odongo** is a student at University of Nairobi pursuing a Master of Science in Health Economic Policy Management.

He has written to this office seeking authority to collect data from our health facilities. Consent has been given and he is hence introduced to carry out a research on **"Satisfaction with quality healthcare among health insurance users in Nyeri County."**

Kindly accord him the necessary assistance.

The student **must** deposit a copy of the final report with the department following completion of the study.

Date

Dr. Nelson Muriu
County Director for Health
NYERI

Figure iii RESEARCH AUTHORIZATION -NYERI COUNTY HEALTH DEPARTMENT

6.3   Questionnaire

Table 7 Questionnaire

| Specific variables	**Operationalized questions**	**Respondent PIN** --------- -
	Demographic factors of respondent	

Gender	1. What is your gender
	
	     0. Male
	
	     1. Female	

Age	2. What is your Age
	
	    0. Less than 45 years
	
	    1. Greater than 45 years	

Marital status	3. What is your marital status?
	
	     0. Not married
	
	     1. Married	

Education level	4. What is your highest education level?
	
	     0. College or university
	
	     1. Secondary or primary	

Health status	5. Do you suffer from any chronic illness?
	
	     0. Yes
	
	     1. No	

Type of employment	6. How can you describe your employment?
	
	     0. Self-employed in small business
	
	     1. Self-employed or employed in large business	

	2. employed by the government of Kenya
Level of income	7. What range in Ksh. Does your current monthly income fall? 0. Less than Ksh. 30,000 1. Between Ksh. 30,000 to Ksh 69,000." 2. Above Ksh. 69,000"
Household size	8. How many numbers of the beneficiary are covered under the health insurance policy you are using? 0. Less than three 1. Three and above
Knowledge of Insurance Policies and Package	9. Do you understand your health insurance policy in terms of; the amount payable to the inpatient or outpatient bills and the diseases covered? 0. Yes 1. No
	Questions about health insurance
Type of Insurance agency	10. How would you describe the type of health insurance that you are using? 0. Both public and private insurance 1. Public health insurance only 2. Private health insurance only 3. Community-based health insurance or others
Tangibility,	11. Can you access your insurance agent offices physically or via phone in your time of need?

	0. Yes
	1. No
Assurances	12. Have you or a person under your cover paid for a health need that was critical to you but was not covered by the insurance even though it is included in your policy? 0. Yes 1. No
Reliability	13. Can you rely on your health insurance policy for all your health bills? 0. Yes 1. No
Responsiveness,	14. Would you say that processing your health insurance for admission and bill payment has always been smooth and efficient? 0. Yes 1. No
	Questions related to Healthcare provider factors
Adequacy of health services	15. Have you ever been referred elsewhere by your hospital or health Centre of choice to obtain a service they were not offering? 0. Yes 1. No
Competent health workers	16. How would you describe health workers at the hospital where your Health insurance is registered? 0. Not competent 1. Competent

Distance covered to the health care facility	17. How can you describe the Distance from your residence to the hospital where your health insurance is registered? 0. Near 1. Far
physical environment	18. Would you describe the hospital where you receive treatment as clean, safe, and having space for everyone's privacy? 0. Yes 1. No
Waiting time	19. How can you describe the admission and treatment processes at the hospital where you receive treatment? 0. It takes a Long time 1. Takes short time
	Dependent variable/outcome
Satisfaction with quality of healthcare delivery	Based on the information you have provided in the above questions regarding health insurance and healthcare providers, are you satisfied that you have been receiving **quality healthcare** at **all times** at **any place** of your need in a manner that is **affordable**? 0. Yes 1. No

MAP OF NYERI COUNTY-KENYA
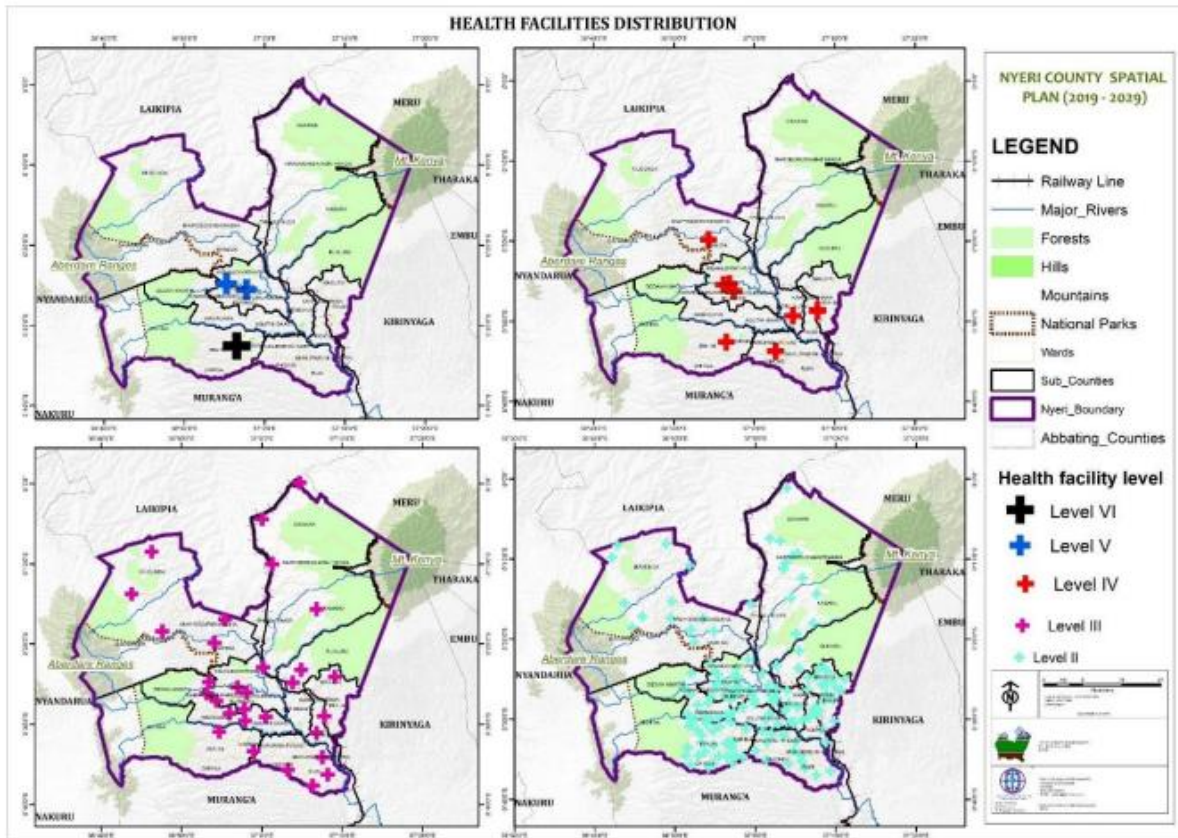
Source: Two EMS Associates, 2019.

Figure iv Map showing distribution of health facilities in Nyeri county.

END.