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Understanding the dynamics of private medical insurance uptake: a cross-sectional survey among social media users in Kenya.

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UNDERSTANDING THE DYNAMICS OF PRIVATE MEDICAL INSURANCE UPTAKE: A CROSS-SECTIONAL SURVEY AMONG SOCIAL MEDIA USERS IN KENYA

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DECLARATION

I, Dennis Okaka, declare that this research dissertation is my original work, and it has not been previously submitted and approved for the award of the degree by this or any other university. To the best of my knowledge and belief, the dissertation contains no material previously published or written by another person except where due reference is made in the thesis itself.

Signed……. Date…17th May 2024….

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Approval

This proposal has been reviewed and approved for examination purposes by:

Signed…….

Date…17th May 2024…….

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LIST OF ABBREVIATIONS

AKI	Association of Kenyan Insurers
CBHI	Community-based health insurance
FFS	Fee for Service
IRA	Insurance Regulatory Authority
KDHS	Kenya Demographics and Health Survey
KES	Kenyan shillings
LMICs	Lower and Middles Income Countries
NHIF	National Health Insurance Fund
OECD	Organization for Economic Co-operation and Development
OOP	Out-of-Pocket Expenditure
PHI	Private Health Insurance
SDGs	Sustainable Development Goals
UHC	Universal Health Coverage
UN	United Nations
US	United States

ABSTRACT

Kenya aims to achieve Universal Health Coverage (UHC) by 2030, ensuring access to quality health services without financial hardship. Various prepayment mechanisms like private health insurance (PHI) can mitigate catastrophic health spending, yet their uptake remains low. This study examined factors influencing PHI uptake in Kenya through a cross-sectional analytic study with 440 participants (235 female, 205 male) aged 18-59 years. It aimed to provide context-specific evidence on strategies that can be tailored to increase the uptake of private medical insurance in Kenya. Study data was collected via an online self-administered survey, and both bivariate and multivariable logistic regression analyses were conducted to ascertain relations between various variables in the study. A thematic analysis was also done to explore the challenges mentioned in accessing PHI via feedback from social media users.

The study found that 70% of respondents had PHI, most of which was employer-provided. Although not reaching a statistical significance, PHI ownership peaked among those aged 30-39 years and was positively associated with higher monthly household income. The key barriers found to the uptake of PHI included a lack of information, high cost of premiums, lack of trust in the PHIs, and complex claim processes. Despite the high coverage in the study sample, gaps still remain for achieving universal coverage.

The recommendations to PHIs include differentiated pricing strategies, reducing premiums altogether, targeting older adults and the informal sector, improving transparency, and enhancing communication. However, PHI alone may not achieve UHC, as evidenced from this study and others; thus, a tax-funded system should be considered for significant progress towards UHC.

CHAPTER ONE

INTRODUCTION

1.1. Study Background

Globally, the current health agenda has prioritized financial risk protection to ensure that individuals do not suffer financial hardship when accessing necessary health services. Achieving Universal Health Coverage (UHC) is central to this goal, as articulated by both the World Health Organization and various national health strategies, including those of Kenya. Financial risk protection involves mechanisms that prevent individuals from incurring high out-of-pocket (OOP) expenses, which can lead to impoverishment and reduced access to healthcare services.

In Kenya, the healthcare sector faces significant challenges such as inadequate funding, insufficient human resources, and high OOP spending, exacerbated by the rising burden of chronic diseases (Kimathi, 2017; Oleribe et al., 2019). Addressing OOP expenditures is critical, and strategies have included the introduction of prepayment mechanisms such as public/social, community-based, and private health insurance schemes (Jalali et al., 2021). Key to the strategies for reducing OOP was the introduction of pre-payment mechanisms either as subsidy programmes or enrolment of the population into public/social, community-based, or private health insurance schemes (Al-Hanawi et al., 2021; Jalali et al., 2021).

The benefits of having any prepayment mechanism, and especially and insurance, were seen from the Oregon Health Insurance experiment in the US (Finkelstein et al., 2012). In this, a group of uninsured low-income adults were given health insurance and followed up for a year, and this group were found to have statistically significantly

lower OOP expenditures and medical debt, with better self-reported physical and mental health that those who did not get signed up for the insurance. This simply underscores the potential benefits of having UHC on a population.

Despite the benefits of having a population covered by health insurance, insurance uptake in Kenya has remained low and characterised by inequitable distribution (Kazungu & Barasa, 2017). For instance, recent evidence indicates that health insurance coverage in Kenya remains low with only 26.5% of the population covered and over 90% of these covered by the National Health Insurance Fund (NHIF) (KNBS and ICF, 2022). NHIF coverage in informal sector has remained low over the years making more Kenyans are turn to private medical insurance as an alternative to public health insurance (Obermann et al., 2018). Private medical insurance is critical in a country like Kenya, where public health facilities are often overburdened, and private facilities, which make up nearly 50% of all health facilities, offer an alternative (MoH, 2023).

On the other hand, social media platforms have become an important tool for the dissemination and communication of healthcare information in Kenya (Kass-Hout & Alhinnawi, 2013). According to a report by Hootsuite and We Are Social, there were 11.9 million social media users in Kenya in 2021, representing a penetration rate of 24%. As these social media platforms, such as Facebook, Twitter, and WhatsApp, have become important sources of healthcare information for Kenyans, then, it became essential to examine the specific factors that would influence the uptake of private medical insurance among social media users in Kenya.

Our discussion proceeds as follows: This chapter will set the stage for private health insurance and the need for financial risk protection as a tenet for achieving universal health coverage (UHC). It will explore the current gaps and explain the need for the

study as was done. In the second chapter, theories that influence the decision making behind purchase or uptake of PHIs will be explored, and these will be used to build a basic conceptual framework that underscores the influences of the identified variables on PHI uptake. The third chapter will describe the study methodology and present the sampling, whereas the fourth chapter will describe the results and elucidate the analysis of these same. The study will then report on the findings in the final chapter and link these to existing bodies of literature, then provide recommendations on the way forward.

1.2. Problem Statement

Despite the roles that prepayment mechanisms such as private health insurances have in reducing the financial burden of accessing health services, their uptake has been lower than expected, where only 3.8% of females and 4.2% of males are covered (KNBS and ICF, 2022). This low uptake has stalled the progress towards UHC as it has predisposed the population to experiencing financial hardship while accessing care using OOP (O'Connell et al., 2014). Despite a spirited effort by the insurers to increase awareness about their covers, there is still a dearth of evidence about the factors that would influence patients' (as current and potential users of the covers) uptake of private medical insurance in Kenya. This is evidenced by the fact that the percentage of the privately insured population in Kenya has barely changed in the past decade, and that the PHI industry as a whole has also barely made substantial profits over the same period (Insurance Regulatory Authority, 2017).

Secondly, insurances primarily work on risk pooling which involve getting as many and as diverse a population as possible to achieve income and risk cross-subsidization. As a result, the percentage of a population served should be high enough to allow for

the registration of enough healthy persons who would pay premiums and not have high claim pay-outs. This would leave a buffer for an insurer to administer the cover and allow a profit margin for the insurers from the premiums paid. However, as of 2016, many of the private insurance companies reported losses in their medical businesses despite a growth from the previous year and a general growth of the economy (Insurance Regulatory Authority, 2017). These losses have generally been ascribed to a low uptake of private medical insurance which creates a poor risk pool.

Third, although private facilities account over 50% of all health facilities in Kenya (MoH, 2023), often the cost of accessing services from these facilities is higher than accessing the same services in public facilities and except in tertiary public facilities, most other public facility levels are not contracted by private insurers. This means that half of the access to care will potentially be in facilities that charge higher than public facilities and thus will more likely need financial protection from a prepayment mechanism.

Health insurance is a critical component of health financing, especially in countries without socialized health systems or established prepayment mechanisms. It helps mitigate the financial risks associated with accessing healthcare services, primarily through risk pooling. In Kenya, where health insurance coverage is low, understanding the factors influencing the uptake of private medical insurance is essential for expanding coverage and protecting individuals from catastrophic health expenditures.

This study thus intended to understand the various factors that would influence the uptake of private medical insurance to provide context-specific evidence on strategies that can then be tailored to modify the uptake of private medical insurance in Kenya. The knowledge garnered from this study can then be used to influence strategies that

can help private medical insurers design products or entry strategies that appeal more to the market and help them effectively increase their risk pools and hopefully move back to profit-making.

1.3. Purpose of the Study

This study examined the factors that influence private medical insurance uptake among social media users in Kenya. While there have been studies on health insurance uptake in various contexts, there is limited evidence on the specific factors influencing private medical insurance uptake among social media users in Kenya. This group represents a unique demographic with potentially different motivations and barriers compared to the general population. Understanding these factors is crucial for developing targeted strategies to increase private health insurance coverage.

1.4. Research Objectives

i. Identify the demographic characteristics of social media users in Kenya who have private medical insurance.
ii. Identify the extent to which economic factors influence the uptake of private medical insurance among social media users in Kenya.
iii. Evaluate the level of knowledge and awareness of private medical insurance among social media users in Kenya.
iv. Determine the challenges social media users in Kenya face in accessing private medical insurance.

1.5. Research Questions

i. What are the demographic characteristics of the coverage of private medical insurance among social media users in Kenya?
ii. To what extent do economic factors influence the uptake of private medical insurance among social media users in Kenya?
iii. What is the level of knowledge and awareness of private medical insurance among social media users in Kenya?
iv. What are the challenges social media users in Kenya face in accessing private medical insurance?

1.6. Scope of the Study

The study analysed the factors were influencing the uptake of private medical insurance among social media users in Kenya, focusing on demographic characteristics, economic factors, knowledge and awareness of private medical insurance, and challenges in accessing insurance. As previously mentioned, social media users represent an untapped and unique demographic with potentially different perceptions to and motivations around PHI as compared to the general population.

The study was thus conducted as an online survey, and social media users were invited to complete an online survey on private health insurance. Social media platforms were used to share the link and invite people to complete the questionnaire. In this study, social media users were defined as people utilising different social media platforms and were based in Kenya.

1.7. Significance of the Study

This study was considered important for the following reasons:

Policy: The findings for the study would be critical in developing policies that would help improve the governance of private medical insurance, including cost models.

Private medical insurance companies: The study findings offer insights that can help private health insurance companies configure better insurance packages and better market strategies for their schemes in order to increase their uptake among individual persons. This is especially important noting that most of the companies have been making underwriting losses over the past few years (Insurance Regulatory Authority, 2017).

Universal Health Coverage: As the Kenyan government seeks ways to achieve UHC, it will need to be more innovative and responsive to people's needs in devising strategies to increase the acceptability of its products.

Researchers: Academicians and researchers in healthcare financing will gain from the additional pool of knowledge into how financing can be altered and the factors that affect uptake of various means of financing for healthcare. The study provides a chance to increase the knowledge in the area further and allow contribution to academic knowledge in the field.

CHAPTER TWO: LITERATURE REVIEW

2.1. Introduction

This chapter highlights the theoretical foundations around medical insurance and the decisions that influence its acquisition in public and private sectors. It also highlights various phenomena that determine the decision to purchase medical health insurance. The various variables will be evaluated, and a gap in the studies identified to indicate the area of coverage for this research. It will eventually be followed by a conceptual framework outlining how the various study variables interplay with each other.

2.2. Theoretical Framework

The demand for medical services is irregular and unpredictable, in addition, these services are associated with an assault on personal integrity (Arrow, 2004), and some risk or uncertainty regarding death or functional impairment. This intense uncertainty is usually then mitigated by the purchase of or enrolment into medical insurance. Medical insurance is defined as an agreement between the holder of a policy (the premium-giver) and a third-party (the insurer) that the healthcare costs for the holder of the policy shall be reimbursed either partly or in full at a previously agreed rate (Green & Rowell, 2011). This kind of agreement can be purchased by a different group to form the different classifications of health insurance i.e. group, individual, private, and public, etc. The main value or selling point of medical insurance is one that is rooted in the unpredictability of medical spending (Cutler & Zeckhauser, 2000), this means that one cannot predict when they will get ill and if so, how much they shall spend for the journey back to good health. As such, one can mitigate this risk by borrowing money when sick or saving money beforehand while healthy to pay for medical care while ill.

Since one's savings cannot certainly offset their own medical bills depending on the condition, the obvious next step is to have many persons pooling their resources together so that the healthier ones pay for the ones who are ill and vice versa, and thus medical insurance (Cutler & Zeckhauser, 2000).

In this study, three theories have been adopted to understand the factors that influence the uptake of private medical insurance in Kenya. These theories include neoclassical economic, expected utility, and prospect theories. The neoclassical economic theory has been used to determine the factors that influence individuals' decision to take up private medical insurance. Previous research suggests that the pricing of insurance premiums, the benefits provided, and the quality of healthcare services are significant factors that modify individual decisions to take up private medical insurance (Ally et al., 2020). The expected utility theory has also been applied to examine these same factors. Previous studies suggest that individuals' perception of their own health status, the likelihood of experiencing a health problem, and the potential financial impact of medical expenses are significant factors that drive the decision to take up private medical insurance (Ogola et al., 2020). Furthermore, prospect theory has been adopted in this study to understand the factors that influence individuals' decision to take up private medical insurance. Previous research suggests that individuals' perception of the financial risk associated with medical expenses, the potential losses they may incur, and their risk aversion are significant factors that push individuals to take up private medical insurance (Ogola et al., 2020).

By adopting these three theories, this study aims to provide a comprehensive understanding of the factors that could influence the decisions of social media users in Kenya to take up private medical insurance, these factors will determine the data to be

collected and hence the variables to be considered for the study. The examination of economic factors, individual perceptions of risk, and demographic characteristics allowed the study to identify barriers and challenges that individuals face when seeking to access private medical insurance.

Moral Hazard

Moral hazard in insurance is a phenomenon where persons tend to or are tempted to over-utilize healthcare services under the guise that they are not paying for these or that they are only required to pay for a fraction of these costs (Sohn & Jung, 2016). Having a medical insurance cover is thus associated with an increase in the utilization of healthcare service. Econometric evidence suggests that having an insurance cover reduces one's incentives to avoid risks (Arrow, 2004). This was seen in South Korea (Sohn & Jung, 2016) where persons with medical insurance went to hospital more frequently and this was increased with the number of medical insurances a person had. This effect was also seen in the United States after the launch of the Affordable Care Act by the Obama administration, where the utilization of healthcare services increased by 3.5 percent even among supposedly healthier young adults (Antwi et al., 2015). What did not seem to change for them was the intensity of the treatments given for these same visits.

Moral hazard has an influence on uptake of medical insurance via a phenomenon so labelled, "selection on moral hazard" (Einav et al., 2013), where individuals who exhibit a greater behavioural response to coverage, like via having more dependents, are in turn likely to choose higher coverage plans, or plans that have higher benefits and hence have to pay higher premiums, meaning they would be more willing to pay regardless of their economic situation.

Justification for use

In relation to the study, people mainly utilize medical services when they have a guarantee that part of the costs will be catered for. Persons with certain lifestyles might be more likely to purchase insurance coverage and might be more willing to pay for the same. The study aimed to identify if certain demographics or lifestyles would be more associated with differences in uptake of private medical insurance.

2.2.1. Neoclassical Economic Theory

Neoclassical economics can best be described as a meta-theory (Weintraub, 2002), weaving together the basis for a number of economic theories. The neoclassical theory is based on three fundamental assumptions about people: first, that people exhibit rationality in their preferences, secondly, that people seek maximum utility whereas firms seek to maximize profits and lastly, that people act independently if given full and relevant information on a subject matter (Weintraub, 2002). This all basically means that when a person wants to make a purchase (e.g. an insurance scheme), they will do so if they feel that what they ultimately gain from it is more than the cost of the payments, in our case the premiums paid out. In line with these, the firms that offer the goods or services paid for (the insurance company) also seek to maximize their profits from the transaction, but one side (the insured) acts only with limited knowledge of what is available in the market, thus there can be a tendency for insurance companies to "cherry-pick" the kinds of persons they insure to minimize their risk of payout and hence maximize their profits (Ruger, 2007).

Conversely, there exists a knowledge imperfection on matters of health due to its complexity as a commodity (Jiang, 2008) that leads to an agency problem that eventually affects the choice of purchasing an insurance scheme or not. Part of a

physician's utility would be that of seeing their patients get better, but acting as an agent to the patient, they also need to earn their daily living which rests on having the patients visit more frequently or having more individual patient visits. Such might lead to the physician creating an artificial demand for their services, thus indirectly increasing the need for insurance.

Justification for its use in the study

In relation to this study, this model mainly posits that consumers will purchase insurance when they felt that they stood to gain from it. Due to the unpredictable nature of the onset of diseases, it was predicted that a population (including social media users) would be more likely to purchase private health insurance to protect themselves from the likely costs of healthcare when they fall sick. On the other hand, the insurers are predicted to target social media users due to their higher knowledge and ease of access of health insurance information but also easier to selectively target their clientele to minimize their pay out and increase their profits. This study aimed to understand how much awareness or knowledge then would influence the decision to take up a private medical insurance cover.

Similarly using prospect theory, Njeru and Njoroge (2020) found that in Kenya, individuals' risk aversion is a significant factor that influences their decision to take up health insurance. Karani and Oyugi (2018) also adopted this theory and found that low awareness and low knowledge of health insurance products is a barrier to the uptake of health insurance.

2.2.2. Expected Utility Theory

The expected utility theory, first fronted in 1738, states that a person takes an action based on the expected value to be gained from that action, even if there is a temporary loss made (Bernoulli, 2011; Risk & BERNOULLI, 1954). In this, someone would take out an insurance cover, and though there would be anticipated losses from paying out the premiums, the possibility of averting larger losses due to illness makes the action of paying premiums become a value-based action. People would prefer the certainty of the loss in money by making premium payments than the risk of not knowing when illness would strike. The assumption thus, is that persons are by nature risk-averse, and potentially place higher value on having medical insurance, weighed against the option of taking on an out-of-pocket payment. In this regard, there must be other factors that would drive persons away from taking insurance, and these are what we intend to uncover.

The theory proposes that the more risk-averse a person is, then the higher the level of insurance coverage they will buy, but the theory is silent about the level of the person's income and its eventual impact on the choice of insurance (Schneider, 2004).

Justification for its use in the Study

In relation to this study, people will mainly purchase insurance in order to avoid imminent losses that are costlier contrary to losses encountered when one is covered. It was posited therefore that social media users would purchase private health insurance so order to limit the impact of financial losses. The application of expected utility theory in this study helped identify the extent to which economic factors influence the uptake of private medical insurance among social media users in Kenya. The theory suggests that individuals' perception of their own health status, likelihood of experiencing a

health problem, and potential financial impact of medical expenses are significant factors that influence individuals' decision to take up private medical insurance (Ogola et al., 2020). Therefore, examining these economic factors and their influence on the uptake of private medical insurance will be crucial in achieving the study's objectives.

2.2.3. Prospect Theory

The prospect theory questions and refutes the aspects of the expected utility theory by proposing that the choice is not about uncertainty, but the expected gains and losses from the various choices, (Schneider, 2004). According to the prospect theory, people generally place a higher weight on the amount of loss in a decision than on the anticipated gains, we are more wired to respond to avert loss than to create gains (Kahneman & Tversky, 1979). As such, when making the decision to purchase an insurance scheme, one might be tempted to either purchase a cheaper scheme or ignore the purchase altogether citing the risk of not getting ill and using the cover thus viewing the premium payment as a loss. The efforts to reduce loss are a concern for overall well-being made because people reason in terms of expected utility relative to a specific reference point e.g. one's economic status, rather than the expected absolute outcomes (healthcare bill reimbursement). The neo-classical and prospect theories thus, while both have the same intentions to protect one's self-integrity, lead to different outcomes regarding the decision to purchase medical insurance. This can be applied to mean that a determination of one's risk status can be inferred by their demographics that can then infer one's willingness to be insured.

Justification for its Use in the Study

This theory mainly states that the decision to purchase insurance is mainly associated with the price of the package or the belief that the chances of getting ill are limited. Patients will, therefore, seek cheaper insurance packages, or avoid altogether purchasing the insurance if payment of insurance is perceived to be expensive and the risk of getting ill is perceived to be low. Consequently, in finding the application of this theory in medical insurance sector, Bukachi et al. (2019) found that the perceived financial risk associated with medical expenses significantly increases the likelihood that one will take up health insurance in Kenya. Whereas Kabia and Akura (2020) found that individuals' perception of their own health status and the likelihood of experiencing a health problem significantly influence their decision to take up health insurance in Kenya. The correlation between economic factors and insurance uptake or other variables will thus be examined, and the influence of each variable quantified henceforth.

2.3. Empirical Review

2.3.1. Need for Medical Insurance

The World Health Organization (WHO) defines health as: "…a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity" (Sharp, 1947). The organization goes on to describe health as one of the fundamental rights that every human being should have. They further declare that the achievement of such a scenario by any State for its people as being of value to all. This then underscores the importance of healthcare to a country and the need to take steps to ensure that universal access to adequate healthcare.

One of the key targets under the Sustainable Development Goal (SDGs) 3 on ensuring good health and wellbeing is the need to achieve Universal Health coverage (UHC) by 2030. This SDG is supportive of the declaration of health as a human right. UHC requires every individual to have access to good quality health services that they need without suffering from financial hardship from this (Kieny & Evans, 2013; United Nations, 2015). Consequently, financial risk protection becomes a key tenet of UHC (Saksena et al., 2014). Financial risk protection requires individuals to be shielded from the burden of out-of-pocket (OOP) health expenditures. The burden of OOP has been summarized as either resulting in catastrophic health expenditure, impoverishment, or both. Globally, OOP has been a major barrier for people especially the poorest from accessing health care (Xu et al., 2007). For instance, other than preventing people from seeking healthcare, evidence from low and middle-income countries (LMICs) indicate that nearly 150 million individuals encounter what would be termed catastrophic health expenditure annually as a result of having to dig into their pockets to access health services (Xu et al., 2007). Furthermore, evidence from a study that examined the how

frequently catastrophic expenditure occurred and the impoverishing effects of OOP in Kenya showed that 4.52% of Kenyans (453,470 persons) experienced a catastrophic health expenditure and were pushed into poverty every year, respectively, as a result of having to make direct payments for health services (Barasa et al., 2017).

To mitigate against the catastrophic health expenditures and impoverishing effects of OOP and the uncertainty about when a person can fall sick, individuals can take up some prepayment mechanisms (hereafter called medical insurance) by enrolling to either public health insurance plans such as the National Hospital Insurance Fund (NHIF) in Kenya, Community-Based Health Insurance (CBHI) or Private Health Insurance (PHI).

Medical insurance refers to a contract formulated between a consumer and an insurance company in which an agreement is formed where the individual pays a particular sum of money to enjoy certain health benefits associated with healthcare (Statistics et al., 2017). This payment is mainly triggered by a current or potential critical or chronic illness which is associated with high medical expenses because of seeking healthcare. Medical insurance gives its users security and makes them less at risk from financial loss due to medical bills and helps in the development income and wealth (Australian Hospitals Association, 2017).

2.3.2. Uptake of Medical Insurance

The achievement of UHC is to a larger extent dependent on ensuring the population is protected from financial hardships through some form of financing to direct quality health services to priority populations and ensure financial protection (World Health Organization, 2018). Several countries have fully adopted health insurance models in the provision of quality healthcare (Fox & Reich, 2015). According to (Evans et al.,

2013), the main goal in relation to the achievement of UHC is to ensure that all individuals in the society can acquire quality healthcare services without subjecting themselves to financial hardships due to out of pocket payments.

Medical insurance exists in two major forms. The first and more prominent kind globally, is the mandatory health insurance often characterized by public funding or compulsory payments, the so-called public payer or social health insurance. The second type is voluntary and is privately funded, the private medical or private health insurance (McIntyre, 2007). The main difference between these two is the source of the funds used to pay for the healthcare costs incurred. In the first type, the funding sources are usually federal or state taxes, or some form of mandatory public contribution to the scheme. The latter type of insurance is primarily funded from private funding via periodic voluntary contributions from either the user or their employer that are then taken by a for-profit company and used to pay for healthcare costs for those covered under the said scheme. An example is in the US where there exist many private medical insurances that run as for-profit organizations (Niedzwiecki et al., 2018).

Since private medical insurance is largely voluntary, then it stands that its uptake is then affected by various market and human factors (Adebayo et al., 2014), and the modification of these factors can then either increase or decrease the uptake, usage and eventually profits of the private medical insurance companies.

In Kenya, the private medical insurers are regulated by the Insurance Regulatory Authority (IRA), established under the Insurance Act. The Association of Kenya Insurers (AKI) and the Insurers' Institute of Kenya (IIK) are also tasked with the duty of enhancing professionalism in and quality standards in the delivery of the service. As of 2015, Kenya had 49 licensed insurance companies, 170 insurance brokers and 3942

insurance agents (Abuya et al., 2015). Thirty-two out of the thirty-five registered private insurance companies in Kenya offer medical insurance (Insurance Regulatory Authority, 2017). These companies collected a net direct premium of KES. 23.9 billion in 2016, which was a thirty percent growth from the previous year and paid out 18 billion in claims, to give an overall utilization ratio of 75% (Insurance Regulatory Authority, 2017). Medical claims accounted for 33% of all industry claims for the period and the sector thus closed the year at a loss position of KES. 800 million. The five biggest players in the industry are: Jubilee Insurance Kenya, controlling 23% of the market, followed by AAR Insurance at 16%, UAP Insurance at 15%, Resolution Insurance at 9.3% and APA Insurance at 7.4% to give a top five total market share of 70% of the private medical insurance market (Insurance Regulatory Authority, 2017)

The number of persons currently covered by private medical insurance in Kenya has been estimated at 1.5 million and the penetration rate for private medical insurance has been estimated at 2% (Netherlands Enterprise Agency, 2016). Most of these persons have their premiums paid via employment-based insurance covers, which are sourced by employers for the benefit of their employees. The employees are provided care through a health facility owned by the employer or through contracts with health facilities. Additionally, all individuals who require medical assistance can obtain private insurance through fee-for-service (FFS) plans or by purchasing the medical insurance from private insurance brokers /licensed medical insurance providers.

Most patients in Kenya pay for services from their pocket as only approximately 26.5% of the population have some form of health insurance (KNBS and ICF, 2022).

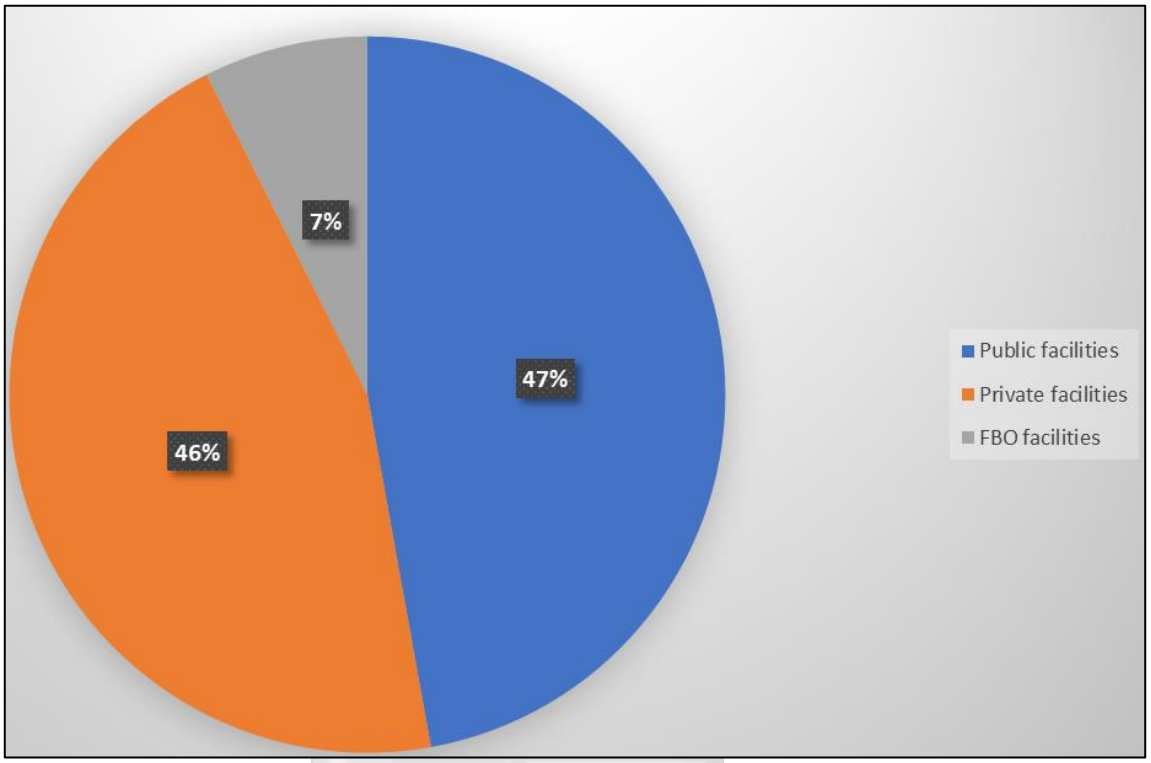

Figure 1: Ownership of Registered Health Facilities in Kenya
Source: Kenya Master Health Facility List, 2023

There are 7345 health facilities in the private sector. Of these, 6314 are private for profit while 1031 are faith-based (MoH, 2023) . These form the main users of private medical insurance.

2.3.3. Uptake of Private Medical Insurance

Private health insurance coverage remains low in Kenya with only 3.8% of females and 4.2% of males are having a cover (KNBS and ICF, 2022). Even though having health insurance (including private health insurance) has been associated with a reduction in odds of experiencing catastrophic or impoverishing health spending (Barasa et al., 2017), the factors for uptake of private health insurance in Kenya remains unclear.

In the Netherlands, for example, the demand has been quantified to be quite dynamic and impacted on by various factors including marital status, education (strongly related

to cognition), and levels of income (Bolhaar et al., 2012). Closer home in Africa, many of the studies done around insurance seem to focus more on publicly funded insurance schemes and CBHIs and model their discussions around these. The CBHIs are smaller scale voluntary insurance programs that focus on simplicity and affordability, and draw on social cohesion as a solution to the problems that would arise from smaller risk pools and moral hazard among others (Tabor, 2005).

Studies around CBHIs and public insurance schemes can still be used to model and extrapolate a few aspects relating to private health insurance and provide a basis for product changes. As many African countries make moves towards setting up the public insurances schemes, there is both a perceived and real danger that the private health insurance companies may be rendered irrelevant and thus lose place in the greater scheme as noted in places like Uganda (Zikusooka et al., 2009). For this reason and in order to survive these changes, private health insurance schemes need to study and establish means to adapt and survive.

In addition to a focus on public schemes, many of the studies carried out in Africa are done in rural communities with a focus on the lower income classes of households as a driver for increased risk pooling and eventual increase in uptake of said schemes. Similar factors have been shown to influence the uptake of public insurance in Kenya (NHIF) in both Kibera slums (Mutinda, 2015) and in Murang'a (Ndung'u, 2015). These studies have mostly been focused on the public insurance in Kenya bit none has so far looked at the factors regarding the private insurance sector in Kenya or in Africa. A separate study focused on the population found in shopping malls across Kenya (Mburu, 2017) brought in a separate aspect of the social setup where insurances are not trusted in terms of their word to pay for the healthcare services as promised while taking

up the policies. They also brought out the aspect of slowness in paying out of claims for services by the insurers. A meta-analysis of factors affecting voluntary uptake of CBHIs in LMICs (Dror et al., 2016) found an impact from demographic characteristics including household size, income, age and education status of the head of the household and marital status plus chronic illnesses in the household. This study had similar perspectives to another done to look at the factors affecting demand of health insurance among workers in the informal sector in Kenya (Mathauer et al., 2008) which found similar factors but also highlighted the awareness gap as a challenge to the uptake.

In Kenya, the AKI carried out a market survey of the uninsured market (Association of Kenya Insurers, 2008) and found that the top complaints about insurance were costly premiums, complexities in claims, delays in claim payments, lack of trust and declined claims. The same survey found that cost was the biggest reason restricting the purchase of an insurance product though their study focused on low-income earners and the informal sector.

2.4. Existing Gap

To date there have not been local country-specific studies looking at the factors that influence uptake of private medical insurance and what specific influence these factors had. There have been studies that considered the willingness to pay for public health insurance and others that looked at the determinants of NHIF in Kenya, but no study has so far considered these determinants for private health insurance in Kenya. This is especially interesting given that many of the same companies have been registering losses in their businesses in the past few years. This means that they need to strategize their approach to insurance sales, and the place to start would be getting potential customer views and perception on the market.

2.5. Conceptual Framework

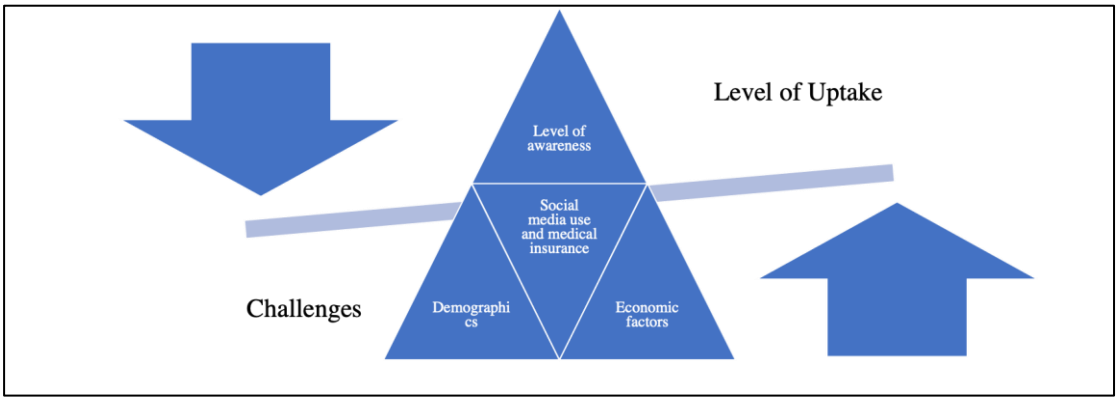

Figure 2: Conceptual Framework
Source: Researcher

2.6. Operationalization of Variables

A person's health status is widely believed to play a critical role in determining their decision to purchase or health insurance, despite this, there is little consensus on how this affects the individual coverage rates (Bundorf et al., 2010). There are a few studies that compare the health status of persons with and without insurances and these find relatively little evidence of health status affecting the insurance status. In the US in 2017, an estimated 8.8 percent of people had no health insurance coverage at any point in the reported year, with higher private medical insurance coverage noted at 67.2 percent, compared to 37.7 percent publicly insured persons (Berchick et al., 2018). Age was an important demographic variable for insurance coverage, with a higher likelihood for the elderly (over 65 years old) and children (under 19 years old) to be covered by insurance. The other major determinants to uptake were marital status, disability status, work experience, educational attainment and household income. A significant proportion of Kenyans meanwhile, are uninsured, due to a variety of factors including that the many Kenyans work in the informal sector, and with the focus on the formal

sector, insurance then is voluntary for informal sector workers (Kazungu & Barasa, 2017). Many Kenyans are also unable to afford the insurance premiums since they live below the poverty line.

2.6.1. Demographic Factors

From the risk aversion theory, persons are more likely to take an insurance when they are older, or married, the argument being that they have much more to lose in case of illness or that they have dependents who are unable to sustain themselves in case of calamity (Masengeli et al., 2017). Educational status is seen as a consistent factor for enrolment in medical insurance across the globe as supported by various authors. This has been seen even among more educated informal sector workers, among whom higher insurance coverage was reported as compared to their less educated counterparts (Sundays et al., 2015). Younger persons are also seen as being less likely to purchase a health insurance scheme, especially those below 25 years (Masengeli et al., 2017). There are age-based demographic differences in Kenya versus the US regarding age and insurance, with the elderly, with the very young (<19 years) and the very old (>65years) in the US more likely to have insurance cover (Berchick et al., 2018) compared to the reproductive and working age population having the same characteristics in Kenya. In the 2014 KDHS, the coverage was positively correlated with the presence of a chronic diseases e.g. diabetes or hypertension (KNBS and ICF, 2014). The level of education has been argued to have a direct impact on uptake of and enrolment into many forms of medical insurance (Sundays et al., 2015). This effect of educational status has been seen in Nigeria (Onwujekwe et al., 2010), with those having higher income basically being more willing to pay for medical insurance of any kind, even independent of their level of income.

2.6.2. Economic Factors

The main reasons found for slowed uptake of public health insurance in Kenya have been found to be related to the cost of the premiums and the fixed timelines for payment of these contributions in addition to having penalties levied for delayed payments (Sundays et al., 2015). This is further supported by the same authors who showed a statistically significant association between the level of income and one's enrolment in the said insurance scheme. This aspect of one's income has been broken down further into aspects of low- and irregular-income streams, and unsecure employment. The reasons for this could be the increase in purchasing power by higher income groups plus the higher perceived access to medical insurance information, either from work or media. The other aspect of affordability has got to do with upfront payment of annual premiums expected by the insurance company for planning and contractual purposes, this could be the hindrance in terms of a lack of financial (De Allegri et al., 2006). Alternatively, the persons might have the ability and means but not the willingness to pay for insurance since this can be affected by many more factors than just the income received monthly for the family (Dong et al., 2004).

2.6.3. Perceptions and Level of Awareness

Increased awareness is shown to have a positive correlation with the uptake of medical insurance of any kind, private or public, this has been demonstrated across various countries and regions globally. How awareness was raised in Kenya mostly depended on mass media, with radio being the most influential channel of communication on the matter. This was especially so in the rural communities in Kenya (Ndung`u, 2015) and (Odeyemi & Nixon, 2013) in Nigeria. In Kenya, some of the examples of a reduced lack of awareness are centred around the existence of the specific schemes and the exact

services offered by the schemes (Mulupi et al., 2013). A general perception among potential clients to insurance is that the schemes are not exactly meant for them, in the case being informal sector workers, since the majority started on such schemes due to them being a legal requirement as for formal sector workers. This is even despite the high impact of healthcare spending on the income levels of persons from such LMICs as Kenya as captured in the rural areas (Barasa et al., 2017). Interestingly, while it is easy to make an assumption that informal sector workers have low awareness of the concept of insurance, it has been shown that such workers in parts of Kenya have a clear understanding of the concept of prepayment for health services but this has not been taken advantage of by PHI companies due to the choice of the prepayment mechanism (Okungu et al., 2018).

2.7. Summary

The uptake of medical insurance can be influenced by several factors that then directly influence the uptake of private medical insurance. These factors include the level of awareness on insurance packages, demographic, academic and economic factors.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1. Introduction

The purpose of this study is to determine the level and determinants of uptake of private health insurance among social media users in Kenya. This chapter hence describes the methodology chosen to address how the research objectives were achieved and justifies the methodology used in the process. The areas covered are design of the research, its target population, sampling and sample size, data collection methods, pilot-study, reliability and validity of instruments, data collection, data analysis procedures and ethical considerations to be used in the study.

3.2. Research Design

The study adapted a cross-sectional analytic design as data was collected once from each respondent over a specified period. According to (Mugenda & Mugenda, 2003) cross-sectional study design mainly capture a snapshot and observing the variables over a specific period. This design also enabled the analysis of multiple variables and determine the association between the variables (Kothari, 2009).

3.3. Research Philosophy

This study relied on the philosophy of axiology which is mainly a study associated with value and how it is perceived in the society (Bahm, 1993; Chatzistavrakidis et al., 2012; Hart, 1971). This philosophy is embedded on the need to understand the role of value and its associated judgements. This philosophy was therefore critical in understanding why people take up insurance or reasons as to why they do not take up these packages.

3.4. Study Population

This study focused on social media and internet users across various social media platforms including Twitter, WhatsApp, Instagram, and Facebook. In this study, social media users were defined as people utilising the different social media platforms and were based in Kenya. Social media users were specifically selected for this study due to several reasons:

1. Due to the information sharing of private medical insurance. Private insurers use social media platforms to market private health insurance and therefore would be a good platform to understand the reach and uptake among this targeted population. Besides, the role of social media has been emphasised in behaviour change (Laranjo, 2016) and other studies (Chen & Wang, 2021; Ventola, 2014).
2. The rise in the population accessing the internet in Kenya which translates to the use of social media. In early 2023, 37% of the population had access to the internet in Kenya which representing an 8% increase from 2022 (DataReportal, 2023).

3.4.1. Inclusion criteria

1) All persons who consent to participate in study.
2) All persons who are 18 years and older and able to participate in the study.

3.4.2. Exclusion criteria

1) All people who lack internet access to answer the questionnaire.
2) All persons unwilling to participate in the study.

3.5. Sample Size Determination

The Fischer's Formula (2003) was used to determine the sample size. This formula is mainly utilized for calculation of samples from population that are higher than 10,000

$$n = \frac{Z^2 \times p \times q}{d^2}$$

Where:

Z= the standard normal deviate assuming 95% CI=1.96

P= proportion of target population with medical insurance=19.59% (Kazungu & Barasa, 2017).

q= 1-p (1-0.1959=0.8041)

d=margin of error 0.05

$$n = \frac{1.96^2 \times 0.1959 \times 0.8041}{0.05^2} = 242.05 \approx 243$$

From the formula a minimum sample size of 243 individuals is needed. To account for non-response and refusals, the sample size will be inflated by 20% following the formulae recommendation by (Hickey et al., 2018) resulting in a sample size of 292 respondents. This sampling was to inform the variate analysis threshold.

3.6. Sampling Technique

Participants for this study were invited to participate using a link containing the study questionnaire that was shared via various social media platforms such as Twitter,

WhatsApp, Instagram, and Facebook. Participants were allowed to complete the questionnaire only once.

3.7. Data Collection Methods

Primary data was collected via online self-administered questionnaires sent to persons through social media platforms (Twitter, WhatsApp, Instagram, and Facebook). The questionnaire included questions about the sociodemographic factors (such as age and gender) of the patients (Bourne & Kerr-Campbell, 2010), economic factors e.g. employment status (Kimani et al., 2014), educational factors (such as the level of education of the respondent and other questions related to the level of awareness of the respondent about private health insurance, exposure to media, marital status (Kiplagat, 2011), whether the respondent has a chronic disease condition e.g. diabetes or hypertension (Kazungu & Barasa, 2017) and whether the patient has any private health insurance cover (yes or no). These factors included as they have been associated with health insurance coverage in previous studies. Besides, the questionnaire design adopted the health insurance section of the nationally representative Demographic and Health Survey questionnaire format (KNBS and ICF, 2022).

The questionnaire first introduced the study and sought informed consent (Appendix 1) prior to starting the study questions. Study participants signed an informed consent form by appending their names prior to completing the survey questions.

The primary data questionnaire is appended in Appendix 2.

3.7.1. Reliability

First, the study questionnaire was piloted among social media users to verify understandability and pick out subtle areas for making changes to the tool. Second, the

Lee Cronbach Alpha test was used to test for the reliability of the research instrument. An alpha value of 0.7 and above is deemed to be an appropriate threshold. Cronbach's Alpha indicates reliability by giving a true score of the 'base' or 'underlying' construct (Corbin & Strauss, 1990). This testing was done on a sample of 10 respondents who were selected from the researcher's academic circle consisting of social media users.

3.7.2. Validity

The questionnaire was cross-checked and compared to other studies to make it cover the objectives. Expert advice was also acquired to make readjustments on the questionnaire.

3.8. Data Analysis

Several approaches were adapted to analyse the data as per the study objectives. First, a descriptive analysis using percentages, means and ranges to explore the distribution of the sample across selected sociodemographic factors was used. This was used to achieve objectives 1,2 and 3. Second, the study explored the distribution of the outcome variable (whether a respondent has private health insurance or not) across selected sociodemographic factors to understand the distribution of private health insurance coverage among study participants. Third, we conducted bivariate analyses to examine the level of association between the outcome variable and each of the independent factors included. Last, we fitted a multivariable logistic regression model with private health insurance ownership being the outcome variable (as described above) against the respondents' sociodemographic variables describe in section 3.7 above (Katz, 2003). The multivariable logistic regression was adopted for this analysis due to the binary nature of the outcome variable.

To answer objective 4, we conducted a thematic analysis of the information on the question that assessed the challenges social media users in Kenya face in accessing private medical insurance. This was an open-ended question where respondents filled in with text expressing their challenges. Thematic analysis was preferred following it's use in other research and due to the nature of the question where a pattern of challenges were aimed to be explored from the texts (Braun & Clarke, 2012).

3.9. Research Quality

The study ensured that high standards are adopted in line with recommendations in literature. This ensured that all steps were conducted with rigor and high credibility to ensure that outputs from this study were of high quality. For instance, we have included validity and reliability checks to improve research quality.

3.10. Ethical Issues in Research

Ethical approval was obtained from Strathmore University Institutional Ethics Review Board (SU-IERB) (Appendix 5) and approval was sought from the National Commission for Science, Technology & Innovation (NACOSTI) (Appendix. Participants were also required to fill out a consent form to acknowledge that they understood the purpose and aspects of the study and that their participation is voluntary. The respondents were assured of their confidentiality and no personal identifying information was collected.

3.11. Data Management

The information collected via Google Forms was securely stored on a Strathmore Business School server, with password-only access achieved by a 2-factor authentication system.

3.12. Dissemination of Study Findings

A manuscript will be prepared and submitted for publishing at a reputable business journal for public dissemination of information. Copies of the manuscript will be made available upon request and will also be sent to medical insurers via the Insurance Regulatory Authority and the Association of Kenya Insurers.

CHAPTER FOUR

RESULTS

4.1 Respondents' characteristics

The survey was answered correctly and completed by 440 social media users in Kenya thus attaining a general response rate of 151%, surpassing the targeted minimum sample size of 292 respondents.

More than half of the respondents were female (53.4%), aged 30-39 years (70.4%), married at the time of the survey (62.5%), had a University degree (96.8%) and from households with monthly incomes between KES 50,001 and KES 100,000 (Table 1).

Table 1: Participants' characteristics

	Total Number (n)	% [95% CI]
Gender		
Female	235	53.4 [48.7 - 58.0]
Male	205	46.6 [42.0 - 51.3]
Age category		
25-29	38	8.6 [6.3 - 11.7]
30-39	310	70.4 [66.0 - 74.5]
40-49	57	13.0 [10.1 - 16.4]
50-59	35	8.0 [5.8 - 10.9]
Marital Status		
Not Married	165	37.5 [33.1 - 42.1]
Married	275	62.5 [57.9 - 66.9]
Employment status		
Not employed	17	3.9 [2.4 - 6.1]
Informal/Self-employment	39	8.9 [6.5 - 11.9]
Formal employment	384	87.2 [83.8 - 90.1]
Highest level of education		
Tertiary Education (College, Polytechnic)	14	3.2 [1.9 - 5.3]
University education (Bachelor's degree)	426	96.8 [94.7 - 98.1]
Household Monthly Expenditure		
Under 10,000	29	6.6 [4.6 - 9.3]
10,001 - 50,000	68	15.5 [12.4 - 19.2]
50,001 - 100,000	169	38.4 [34.0 - 43.1]
100,001 - 200,000	107	24.3 [20.5 - 28.6]
Over 200,000	67	15.2 [12.2 - 18.9]

4.2 Private Health Insurance Coverage

Table 2 shows the distribution of the percentage of respondents with private health insurance across selected factors. Overall, over 7 in 10 social media users indicated having private health insurance in Kenya. Coverage was higher among women 78.7% than men 72.7%, increased with age peaking among those aged 30-39 years (77.7%), marginally higher among those not currently married. Across the economic factors on employment, education and household wealth status, private health insurance was higher among those not employed 88.2% compared to those employed in the informal sector and those employed in the formal sector. Besides, private health insurance coverage was higher among social media users from households with higher monthly expenditures (Wealth status) their employers had purchased than poorer households. While private health insurance was either self-purchased or purchased by employer, 96.7% of those with private health insurance. Regarding awareness of private health insurance among social media users, we found that 76.0% are aware of its existence. Besides, a larger share of the respondents indicated not knowing its benefits. Furthermore, a slightly higher percentage of social media users agreed that private health insurance failed to pay for healthcare.

Table 2: Private Health insurance coverage and its distribution by selected factors

	Total Number	n insured	% [95% CI]
Gender			
Female	235	185	78.7 [73.0 - 83.5]

Male	205	149	72.7 [66.2 - 78.4]
Age category			
25-29	38	27	71.1 [54.9 - 83.2]
30-39	310	241	77.7 [72.8 - 82.0]
40-49	57	44	77.2 [64.5 - 86.3]
50-59	35	22	62.9 [46.0 - 77.1]
Marital Status			
Not Married	165	130	78.8 [71.9 - 84.4]
Married	275	204	74.2 [68.7 - 79.0]
Employment status			
Not employed	17	15	88.2 [63.1 - 97.1]
Informal/Self-employment	39	27	69.2 [53.2 - 81.6]
Formal employment	384	292	76.0 [71.5 - 80.1]
Highest level of education			
Tertiary Education (College, Polytechnic)	14	11	78.6 [50.5 - 93.0]
University education (Bachelor's degree)	426	323	75.8 [71.5 - 79.7]
Household Monthly Expenditure			
Under 10,000	29	20	69.0 [50.2 - 83.0]
10,001 - 50,000	68	53	77.9 [66.5 - 86.3]
50,001 - 100,000	169	125	74.0 [66.8 - 80.0]
100,001 - 200,000	107	81	75.7 [66.7 - 82.9]
Over 200,000	67	55	82.1 [71.0 - 89.6]
Private Insurance Purchaser			
Self-purchase	11	11	100
Via employer	323	323	100
Whether you know the details of the private insurance products			
No	94	71	75.5 [65.8 - 83.2]
Yes	346	263	76.0 [71.2 - 80.2]
Whether you know the benefits of private insurance			
No	109	85	78.0 [69.2 - 84.8]
Yes	331	249	75.2 [70.3 - 79.6]
Private insurance fails to deliver in paying for healthcare			
No	126	94	74.6 [66.3 - 81.5]
Yes	314	240	76.4 [71.4 - 80.8]

4.3 Determinants of private health insurance ownership among social media users

Table 3 shows the results from both the bivariate and multivariable analyses for assessing the determinants of private health insurance coverage among social media users in Kenya. None of the factors was significantly associated with ownership of private health insurance in both bivariate and multivariable analyses.

However, findings from the multivariable analyses indicated that men had lesser odds of having private health insurance compared to women. Besides, the odds of private health insurance ownership appeared to reduce with age, for instance, compared to respondents aged 25-29 years, those aged 30-39 had 34% increased odds of owning private health insurance (AOR = 1.34; 95% CI 0.62-2.90, P-value=0.457). This however reduced to 14% increased odds among those aged 40-49 (1.14; 95% CI 0.43-2.99, P-value=0.793) with a further reduction among those aged 50-59 years.

Interestingly, even though insignificant, being married and employed was associated with reduced odds of having private health insurance among social media users in Kenya. However, as expected, individuals from households with higher monthly expenditures (a proxy for wealth status) had higher odds of having private health insurance compared to their counterparts from households with lower monthly expenses.

Table 3: Odds ratios (OR), adjusted odds ratios (AOR), 95% confidence intervals and P-values for determinants of private health insurance coverage among social media users in Kenya

	Bivariate analysis			Multivariable analysis		
	Odds Ratio [OR]	95% Confidence interval	P-value	Adjusted Odds Ratio [AOR]	95% Confidence interval	P-value
Gender (Reference Female)						
Male	0.72	0.46-1.11	0.14	0.65	0.41-1.02	0.064
Age category (Ref: 25-29 years)						
30-39	1.42	0.67-3.01	0.357	1.34	0.62-2.90	0.457
40-49	1.38	0.54-3.51	0.501	1.14	0.43-2.99	0.793
50-59	0.69	0.26-1.84	0.457	0.62	0.22-1.71	0.353
Marital Status (Reference Not Married)						
Married	0.77	0.49-1.23	0.275	0.78	0.49-1.26	0.317
Employment status (Reference Not employed)						
Informal/Self-employment	0.3	0.06-1.52	0.146	0.19	0.03-1.01	0.051
Formal employment	0.42	0.10-1.89	0.259	0.26	0.06-1.24	0.092
Highest level of education (Reference Tertiary Education (College, Polytechnique))						
University education (bachelor's degree)	0.86	0.23-3.12	0.813	0.92	0.24-3.45	0.898
Household Monthly Expenditure (Reference Under 10,000)						
10,001 - 50,000	1.59	0.60-4.21	0.35	1.87	0.68-5.11	0.223
50,001 - 100,000	1.28	0.54-3.02	0.575	1.45	0.60-3.52	0.415
100,001 - 200,000	1.4	0.57-3.46	0.463	1.51	0.59-3.86	0.391
Over 200,000	2.06	0.76-5.63	0.158	2.35	0.82-6.69	0.11
Whether you know the details of the private insurance products (Reference No)						
Yes	1.03	0.60-1.75	0.923	0.96	0.55-1.68	0.899
Whether you know the benefits of private insurance (Reference No)						
Yes	0.86	0.51-1.44	0.56	0.82	0.48-1.39	0.455
Private insurance fails to deliver in paying for healthcare (Reference No)						
Yes	1.1	0.68-1.78	0.685	1.09	0.66-1.77	0.745

4.4 Challenges social media users in Kenya face in accessing private medical insurance

4.4.1 Lack of adequate information

Social media users indicated inadequacy of information as the main barrier to accessing private medical insurance in Kenya. For instance, the respondents indicated a paucity of information detailing the requirements for joining, interpreting the clauses in the signed documents, continuous changing of terms and conditions that are not adequately communicated, elaboration of the benefits package in terms of the range of services included and what may not be included (case in point being COVID-19 where the services were not initially covered), and the legal jargon used in the contracts where users cannot fully understand the clauses included.

> *"We lack adequate information [about the schemes].....to be able to interpret the clauses included in the contracts."* Respondent 96 and 97

> *"The information is not available to majority of the population"* Respondent 29

> *"*[It is not clear] *how they work in terms of the conditions that one has to fulfil to qualify access to certain treatments of conditions, waiting periods for example some covers have a one year waiting period for maternity cover so once I pay for the first year I cannot use the maternity cover yet I have paid for it but can only use it on my second year of payment."* Respondent 30

> *"The details are usually scanty. What is not allowed usually not communicated upfront, one gets to know when they go asking for the service."* Respondent 62

4.4.2 High premiums

The premiums required for a member to join was also a key barrier for social media users taking up private medical insurance. For instance, respondents indicated that private health insurance providers charged exorbitant premium rates that were largely unaffordable to users. Besides the high premiums, respondents indicated that there were no benefits to them at all when they don't use any services for a year despite having paid. Furthermore, the social media users also indicated that they lack understanding of how the premiums are calculated by the insurance companies.

> *"It is not clear how the premiums are calculated and they are always very high compared to what you would pay to NHIF [National Hospital Insurance Fund]."* Respondent 46 and 60
>
> *"Why must the [private medical insurance] be so expensive?"* Respondent 31
>
> *"It is really expensive for the average citizen to subscribe to any of the private health insurance available in the country. And it is even more expensive when you want to add your dependents."* Respondent 288

4.4.3 Lack of Trust

Respondents also indicated not having a good level of trust with health insurance providers largely because of unclear communication, the fear that some information – although important – is always hidden in fine print where it is hard to see, the use of false information when marketing their products such as stating that some services are covered when they are not. Besides, respondents also indicated that the lack of

transparency in terms of premiums, profits and losses as well as perceived discrimination especially for individual members, members with existing chronic conditions also contributed to a lack of trust that hinders uptake of private medical insurance.

> *"The marketing gimmicks are contrary to what is documented in the policy document."* Respondent 19

> *"[Health insurance providers always have some] finer details being hidden in the fine print."* Respondent 57

> *"There is lack of transparency by the health insurance providers about the benefits, but also, some providers discriminate on potential members."* Respondent 112

4.4.4 Long and unclear claim process

The claim process was also highlighted as long and sometimes ambiguous. Particularly for conditions that required pre-authorization, this process often was suggested to be taking a very long time for many of the private health insurance providers within the Kenyan market.

> *"The other thing is about the claim process. This process often is very long and sometimes it can take days, yet you need the services urgently."* Respondent 321

> *"Even though some conditions are covered, you might go to the hospital and then before you get the service you are told that they need pre-authorization from the insurance. You can wait at the hospital for a long time before that test is approved."* Respondent 261

CHAPTER FIVE: DISCUSSION, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter explains the findings of this study, referencing existing local and international literature on the same. First, it describes the setting in Kenya and puts the UHC goal into perspective. Then, findings are summarised and discussed. Finally, the study highlights the limitations and makes conclusions and recommendations for adoption.

5.2 Summary of findings

Kenya has made a political commitment to reform the health system towards achieving Universal Health Coverage (UHC) by 2030 (Ministry of Health, 2018). While UHC calls for population-level universal access to all needed services while protecting them from experiencing financial hardship, Kenya still lags behind in attaining this goal with a UHC index of 51.55% in 2013 (Barasa et al., 2018) and only predicted to increase to 60% by 2030. Health insurance promises to remove financial barriers to access to care whilst protecting members from experiencing financial hardship at the point of accessing care. Private health insurance can augment and supplement the government's insurance cover offered through the National Health Insurance Fund (NHIF), however, there is a dearth of evidence on the uptake of private health insurance in Kenya. This study examined the level and determinants of private health insurance among social media users in Kenya. This study offers several key findings. First, ownership of private health insurance was high with 7 in 10 social media users indicating to have private health insurance cover. Second, a larger share of the percentage of respondents owning

private health insurance indicated that the cover was purchased by their employers. Third, insurance ownership peaked among those aged 30-39 years then dropped with age. Fourth, ownership of health insurance increased with a respondent's monthly household income. Fifth, several challenges hindered the uptake of private medical insurance among social media users. These were largely related to lack of adequate information, the premium rates and lack of trust. These findings can be discussed.

5.3 Discussion of the results

The primary aim of this study was to understand the factors influencing the uptake of private medical insurance among social media users in Kenya. This included examining demographic characteristics, economic factors, levels of awareness, and the challenges faced by these users. The findings offer valuable insights into the current landscape of private medical insurance in Kenya and suggest ways to enhance its uptake to contribute to the broader goal of achieving Universal Health Coverage (UHC).

5.3.1 Demographic Characteristics

The study revealed that private medical insurance coverage among social media users was relatively high, with 70% of respondents covered. This high coverage was primarily attributed to employer-provided insurance, suggesting that employment status played a critical role in insurance uptake. The data indicated that the highest insurance ownership was among those aged 30-39 years, with a subsequent decline in older age groups. This might have a number of reasons. First, a larger share of the respondents indicated that the cover was largely purchased by their employers. The decrease in coverage could be partly explained by the fact that over time exit the formal employment job market to the informal sector or for retirement. Over the study period, many Kenyans had just lost jobs due to the COVID-19 pandemic, which would account for the declining coverage with age. However, other studies have found that insurance coverage generally increases with age (Kazungu & Barasa, 2017; Odeyemi & Nixon, 2013; Shao et al., 2022).

This trend underscores the importance of targeting demographic segments based on age and employment status to increase coverage. Insurance companies could consider designing age-specific policies and promoting awareness among older age groups to bridge this gap.

Existing evidence suggests that often, it is challenging to achieve high insurance coverage, especially among the unemployed and those in the informal sector due to the challenges in mobilizing revenues/premiums from this sector, especially where the contributory mechanism is voluntary (Kazungu & Barasa, 2017). This is further highlighted by a study across 36 African countries which highlighted that the four countries that had substantial insurance coverage (at least 20%) were characterized by tax-funded systems as opposed to voluntary contributory mechanisms in the other 32 countries (Barasa et al., 2021). Furthermore, earlier evidence had also reinforced the challenges associated with the enrolment and collection of premiums from individuals in the informal sector (Lagomarsino et al., 2012; McIntyre et al., 2018).

5.3.2 Economic Factors

Economic factors were found to significantly influence the uptake of private medical insurance, with a positive association identified between monthly household income and insurance ownership, thus indicating that higher income levels correlate with higher likelihoods of having insurance. This finding aligns with neoclassical economic theory, which posits that individuals' purchase decisions are influenced by their financial capabilities.

Kenya has one of the highest poverty rates in Africa, with 32.4% of the population projected to be living below the poverty line in 2021 (World Bank, 2020). As contributory mechanisms highly depend on the available disposable income (Nosratnejad et al., 2016), high poverty rates reduce a population's available disposable income as households prioritise basic needs (food, shelter, and clothing) over the purchase of private health insurance. This finding is corroborated by the barrier on premiums indicated by the respondents. When premium rates are set a price too high above households' ability to pay then households cannot purchase private health insurance.

This aligns with existing literature from Kenya and other settings (Adjei-Mantey & Horioka, 2022; Kazungu & Barasa, 2017; Kimani et al., 2014; Wan et al., 2020). As private insurance is voluntary and either self-purchased or purchased by employers, the purchase of private health insurance heavily depended on having sufficient disposable income that could be used to purchase insurance. As predicted, disposable income tends to increase with a household's income level (Nosratnejad et al., 2016).

To increase insurance uptake, strategies such as flexible payment plans and affordable premiums tailored to lower-income households could be implemented. This would make insurance more accessible to a broader segment of the population, including those in the informal sector who might otherwise be excluded due to cost barriers.

5.3.3 Knowledge and Awareness

Awareness of private medical insurance among social media users was found to be a significant factor affecting its uptake. Despite the high coverage reported, there remains a substantial portion of the population that lacks adequate information about insurance products. This lack of awareness contributes to scepticism and low trust in insurance companies. Awareness has previously been identified as key factor for enrolment into voluntary health insurance schemes in Senegal (Bousmah et al., 2021) and in India (Panda et al., 2015), India was particularly interesting because the impact of awareness was studied via an intervention process, with the cohort that had awareness campaigns demonstrating a substantially higher understanding of insurance concepts than the control group, with this understanding being a positive determinant for enrolment. Effective communication strategies that leverage social media platforms could enhance awareness and trust. Educational campaigns and transparent communication about insurance benefits and processes can demystify insurance and encourage more people to enrol.

5.3.4 Challenges in Accessing Private Medical Insurance

The study identified several challenges that hinder the uptake of private medical insurance. Key among these are the high cost of premiums, lack of trust in insurance providers, and the complexity and opaqueness of the claims process. These challenges reflect broader systemic issues within the insurance industry that need to be addressed to foster greater adoption. Potential proposals for these challenges would be:

i. High Premiums - The cost of insurance remains a significant barrier. Reducing premium rates or offering subsidies could make insurance more affordable.
ii. Lack of Trust - Building trust requires consistent and transparent engagement. Insurers should focus on improving customer service and maintaining clear, honest communication.
iii. Claims Process - Simplifying and clarifying the claims process for clients or providers can reduce frustrations and enhance user experience. Ensuring that these claims are then processed quickly and efficiently will build confidence in the insurance system.

5.4 Study Limitations

While this study offers insights to the levels and determinants of private health insurance coverage in Kenya, its findings should be interpreted in light of several limitations. First, while coverage in this study was higher than reported in other similar studies, the study focused on social media users who represent the working class and the young adults in the country. As a result, this may be an overestimate of the private health insurance coverage in Kenya. Future studies that may aim to estimate a national or county-level estimate of private health insurance coverage in Kenya may benefit best by conducting household surveys as opposed to the use of social media as is the case in this study. Further, these findings may be skewed towards urban dwellers compared to the rural population due to the use of social media in Kenya (Wamuyu, 2020).

5.5 Conclusion and Recommendations

Against the backdrop of the findings, this study concludes as follows. First, private health insurance coverage is high among social media users in Kenya and largely purchased by employers than self-purchased. Although none of the factors were a significant determinant of private health insurance ownership, coverage by private health insurance was associated with a household's income level, employment status,

and age of the respondents. Consequently, it is critical to consider these factors to enhance private health insurance coverage among Kenyans. Future researchers should consider carrying out PHI research of this nature as a household survey or as a focused web survey targeting specific age-groups or other demographics via web scraping or other means.

Considering these findings, the study makes the following recommendations. First, private health insurance providers should review targeting mechanisms to particularly target social media users to enhance uptake. While coverage appeared high in this population, there remains gaps that need to be met. Adequate reach of the population through the social media is one such initiatives. Second, while private health insurance could play a vital complimentary role in the country's move towards achieving Universal Health Coverage (UHC), making substantial progress towards this goal will require different approaches other than voluntary contributory mechanisms as in the case with private health insurance. Suggested mechanisms may include the adoption of tax funded systems that guarantee universal coverage and create sufficient pools that permit income and risk-cross subsidization (McIntyre, 2007). This is in line with the recent recommendations by Yazbeck et al., for countries to move from voluntary contributory mechanisms to tax funded systems if they hope to achieve UHC (Yazbeck et al., 2023). For instance, out of the four countries that had substantial health insurance coverage in sub-Saharan Africa were characterised by funding from tax revenue as opposed to voluntary contributory mechanisms (Barasa et al., 2021). Revenues to the Ghana National Health Insurance scheme are from 2.5% of value-added tax and 2.5% of social security contributions (Mouelet et al., 2018) while Gabon runs a 10% tax on mobile phone company turnover and a compulsory levy called the Special Solidarity Contribution (Saleh et al., 2014).

Third, the government and private health insurances can, however, enhance mechanisms to reach individuals in the informal sector. Mechanisms such as targeting harvesting periods could boost uptake of private health insurance.

Fourth, private medical insurance providers can make steps to improve on their transparency and communication especially of benefits. Lack of transparency was attributed to reducing trust levels with providers and therefore this can be a low-hanging fruit for private insurance providers to build trust with the population. Adequate communication of benefits and responsiveness to user needs will dispel user perceptions whilst equipping them with information to make informed decisions.

Fifth, private medical insurance providers need to both reduce the premium rates needed and clarify how the rates are arrived at for users. The high rates and lack of clarity on how the rates are arrived at were highlighted as a major barrier to taking up private medical insurance.

Finally, private medical insurance providers should make policy documents clear for a lay user and make sure that nothing is hidden in fine print. This will boost users' morale and understanding hence the uptake of private medical insurance.

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APPENDICES

Appendix 1: Online Participant Information and Consent Form

Online questionnaire also available at https://forms.gle/69Z9f5FwjvusJVqK7

Study Title: Examining the factors influencing the uptake of private medical insurance among social media users in Kenya: a cross-sectional survey

Introduction

Dear Respondent,

I am a Masters of Business Administration student at Strathmore Business School (registration number MBA/99725/17), and I would like to invite you to participate in this non-interventional study, that aims to understand the level of private health insurance uptake and its related factors among social media users in Kenya. This study is being conducted as part of the fulfilment requirements for my academic degree as per the requirements of Strathmore Business School requirements.

In order to allow you to make an informed decision as to whether or not you want to take part in this study, this document describes the purpose of the study and the data that will be collected in the study. Please take your time to read the following information carefully.

Thank you in advance.

Okaka Dennis (MBA/99725/17)

Participant Information Sheet

Why have you been selected?

You were selected because you are over 18 years and could purchase private health insurance.

This research which will involve you answering questions about your age, sex, marital status and other factors including whether you are covered by any private health insurance in a self-administered questionnaire. The whole process of completing the questionnaire should take approximately 15 minutes.

What is the purpose of this study?

This study seeks to understand the various factors that influence the uptake of private medical insurance with the aim of providing context-specific evidence on strategies that can be tailored to increase the uptake of private medical insurance in Kenya.

The knowledge garnered from this study can then be used to influence strategies that can help private medical insurers in designing insurance products that are more beneficial to users.

What are my obligations if I take part in this study?

Taking part in this study is entirely optional and the decision rests only with you. If you decide to take part, you will be asked to complete an online questionnaire to get information on the factors as asked.

If you are satisfied that you fully understand the goals behind this study, you will be asked to click yes or no on the start page which will be taken to assume that you have either consented or not consented to filling the questionnaire

You are free to decline to take part in the study from this study at any time without giving any reasons

Will my data be kept private?

The information in the questionnaire will be treated with confidentiality, and no personal identifying features such as your name will be collected, mentioned or published in this research. Your email address will not be collected.

How will my Information be used and shared?

The information you will give will be used purely for academic purposes and for fulfilling the study objective of examining the uptake of private medical insurance and the factors affecting this uptake.

The information collected will be securely stored on a Strathmore Business School served, with password-only access and 2-factor authentication for the same. Only the people who are closely concerned with this study will have access to your information. All your information will be kept confidential

A copy of the final report can be made available to you on request.

Who can I contact in case I have further questions?

You can contact me, Dennis Okaka, via e-mail dennis.okaka@strathmore.edu

You can also contact my supervisor, Dr. Joseph Onyango, at the Strathmore Business School, Nairobi, by e-mail joseph.onyango@strathmore.edu

If you want to ask someone independent anything about this research, please contact:

The Secretary–Strathmore University Institutional Ethics Review Board, P. O. BOX 59857, 00200, Nairobi, email ethicsreview@strathmore.edu Tel number: +254 703 034 375

I have read the study introduction and explanation and I have understood all that is expected of me and have had any questions I may have had answered satisfactorily.

I understand that I can change my mind when filling the questionnaire.

Please circle the options that apply to you

Participation in the research study

☐ I AGREE to take part in this research

☐ I DO NOT AGREE to take part in this research

Storage of information on the completed questionnaire

☐ I AGREE to have my completed questionnaire stored for future data analysis

☐ I DO NOT AGREE to have my completed questionnaire stored for future data analysis

Appendix 2 : Questionnaire

Data Collection Tool

Study Title: Examining the factors influencing the uptake of private medical insurance among social media users in Kenya: a cross-sectional survey

SECTION A: DEMOGRAPHIC CHARACTERISTICS AND PRIVATE INSURANCE OWNERSHIP			
1.	Gender	Male	
		Female	
2.	What is your current age?	18 – 24 years	
		25 – 29 years	
		30 – 39 years	
		40 – 49 years	
		50 – 59 years	
		60 years and over	
3.	Marital Status	Single	
		Married	
		Separated	
		Widowed	
4.	Are you covered by any private health insurance scheme?	Yes	
		No	
5.	Which private health insurer are you insured with?	Jubilee	

		APA	
		CIC Group	
		AAR	
		First Assurance company Limited	
		Britam	
		Heritage Insurance	
		G.A Insurance	
		Other	
SECTION B: ECONOMIC DATA			
6.	Employment Status:	Employed	
		Self-employed	
		Student	
		Not working	
		Retired	
7.	What is your estimated current overall monthly household expense in Kenyan shillings?	Under 5,000	
		5001 – 10,000	
		10,001 – 20,000	
		20,001 – 50,000	
		50,001 – 100,000	
		Over 100,000	
8.	Where do you live?	a. County _____ b. Sub-county _____	

SECTION C: LEVEL OF EDUCATION			
9.	What is the highest level of education you have attained?	No schooling	
		Primary school	
		Secondary school	
		Tertiary education (college, polytechnic, vocational training etc.)	
		University education (Bachelor's degree, Master's Education, PhD)	

	SECTION D: LEVEL OF AWARENESS Kindly answer the following questions to the best of your knowledge, based on the instructions given, using the scale provided. Please mark "(✓)" in the box that corresponds best to your answer. **Statement: On a scale of 1-5 where 1= strongly disagree, 2=Disagree, 3= Agree, 4= Strongly Agree, 5= N/A (Not Applicable) please rate the following statements regarding the insurance uptake in Kenya**

	Awareness	**1**	**2**	**3**	**4**	**5**
10.	I know the details of private medical insurance products					
11.	I know the benefits of having a private medical insurance					
12.	Private medical insurance schemes are restrictive in terms of the offerings e.g. hospital coverage, disease coverage etc					
13.	The enrolment requirements for private medical insurers are too strict					
14.	I know how private medical insurance companies operate their businesses					
15.	I believe that having a private medical insurance has more benefits than disadvantages					
16.	I would take a private medical insurance scheme if advised to do so by a close friend or family members					
17.	I would take a private medical insurance scheme if advised to do so by a leader or esteemed person in society					
18.	Insurance agents sell heaven, but the schemes usually fail to deliver and make payments for one to access the healthcare services					
Economic Factors						

19.	The formal education I have helps me in making decisions regarding the purchase of medical insurance for healthcare services					
20.	I can afford the premium packages offered by private medical insurances on my own					
21.	Private medical schemes are so expensive that one would rather pay for healthcare on their own					
Education factors						
22.	The knowledge I have on private medical insurance is due to my education					
23.	Being literate has greatly impacted my decision on whether to take an insurance policy					
24.	Buying an insurance scheme might lead to bad luck and illness					
25.	Health is a matter of fate (in the hands of God) and insurance cannot help me deal with its consequences					
26.	I can pay premiums continuously and never fall sick thus insurance does not make sense					
27.	Having a public health insurance scheme is adequate and the private ones offer no extra benefit					

28. Have you heard of private medical insurance?

a. Heard of it and I know what it means _____

b. Heard of insurance but I don't know what it means _____

c. Never heard of insurance _____

29. Do you have private medical insurance? (Skip next two questions if answer is yes)

30. How have you purchased the insurance scheme?

a. Employer _____

b. Self _____

31. What hinders you from purchasing private medical insurance?

32. Do you have your insurance policy document?

33. Have you read the document? Do you understand it?

34. What are your sources of information on private medical insurance?

35. What gaps do you have in the information regarding private medical insurance?

36. Rate your previous experience with private medical insurance on a scale from 1 to 10

37. Could you suggest on how to increase access to private medical insurance?

Appendix 3: List of Licensed Private Health Insurance Companies in Kenya (2019)

1) GA Insurance Limited
2) Saham Assurance Company Limited
3) Pacis Insurance Company Limited
4) Madison Insurance Company Kenya Ltd
5) UAP Insurance Company Limited
6) The Co-operative Insurance Co. Of Kenya Ltd
7) Kenindia Assurance Company Limited
8) British-American Insurance Co. (K) Ltd
9) The Jubilee Insurance Company of Kenya Limited
10) APA Insurance Limited
11) Trident Insurance Company Ltd
12) Real Insurance Company Ltd
13) Heritage Insurance Company Ltd
14) Gateway Insurance Company
15) First Assurance Company Ltd
16) AAR Insurance Kenya
17) Resolution Insurance Kenya

Appendix 4: Time Frame

TIME FRAME	Week 1	Week 2	Week 3	Week 4	Week 5
Data Collection					
Data Entry and Analysis					
Write Up					

Appendix 5: SU-IERC Approval

Strathmore UNIVERSITY

17th March 2020

Mr Okaka, Dennis
dennis.okaka@strathmore.edu

Dear Mr Okaka,

RE: Examining the Factors Influencing the Uptake of Private Medical Insurance Among Individuals Attending Private Hospitals in Nairobi, Kenya: A Cross-Sectional Survey

This is to inform you that the SU-IERC has reviewed and **approved** your above research proposal. Your application approval number is **SU-IERC0658/20.** The approval period is **17th March, 2020 to 16th March, 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 SU-IERC.
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 SU-IERC 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 SU-IERC 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 SU-IERC.

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,

for: Dr Virginia Gichuru,
Secretary; SU-IERC

STRATHMORE UNIVERSITY INSTITUTIONAL ETHICS REVIEW COMMITTEE (SU-IERC)
17 MAR 2020
TEL: +254 (0)703 034 000
P. O. Box 59857 - 00200
NAIROBI - KENYA

Cc: Prof Fred Were,
Chairperson; SU-IERC

Strathmore University Institutional Scientific and Ethical Review Committee (SU-ISERC)

Final Decision

This is to certify that the application for ethics clearance submitted by:
Principal Investigator: Dr. Okaka, Dennis
Reference number: SU-IERC0999/21
For Study: "EXAMINING THE FACTORS INFLUENCING THE UPTAKE OF PRIVATE MEDICAL INSURANCE AMONG INDIVIDUALS ATTENDING PRIVATE HOSPITALS IN NAIROBI, KENYA: A CROSS-SECTIONAL SURVEY"
Was reviewed and received the following status: "approved"
Reviewer Comments

Reviewer #1:
'Well written. Minor issues: (1) some language editing needed in a few areas, (2) referencing style within text also not to standard and not consistent e.g., in some areas you have both author names and date, in others the placement of the brackets/parentheses is wrong, and (3) please note that research quality denotes issues of validity and reliability - it is not a separate concept as you have treated it in your document. moreover, both validity and reliability have several dimensions e.g. internal and external validity, construct validity, test-retest reliability etc. threats to each of these aspects of validity and reliability need to be considered and mitigating factors put in place'

The SU-ISERC wishes you all the best with this research undertaking.
08 April 2023 20:40:47

Appendix 6: NACOSTI Permit

REPUBLIC OF KENYA

NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

Ref No: **547910**

Date of Issue: **09/April/2020**

RESEARCH LICENSE

This is to Certify that Dr.. Dennis Ochieng Okaka of Strathmore University, has been licensed to conduct research in Nairobi on the topic: EXAMINING THE FACTORS INFLUENCING THE UPTAKE OF PRIVATE MEDICAL INSURANCE AMONG INDIVIDUALS ATTENDING PRIVATE HOSPITALS IN NAIROBI, KENYA: A CROSS-SECTIONAL SURVEY for the period ending : 09/April/2021.

License No: **NACOSTI/P/20/4689**

547910

Applicant Identification Number

Director General
NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

Verification QR Code

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