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Drivers of Health Insurance Coverage in Low Income Settlements: A Case of Kibera Informal Settlement, Nairobi County, Kenya

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Doi: 10.19044/esipreprint.4.2023.p262

Approved: 18 April 2023
Posted: 20 April 2023

Cite As:
Ng'ang'a E.W. & Odhiambo M.O. (2023). *Drivers of Health Insurance Coverage in Low Income Settlements: A Case of Kibera Informal Settlement, Nairobi County, Kenya*. ESI Preprints. https://doi.org/10.19044/esipreprint.4.2023.p262

Abstract

Insurance is critical for any country's economic growth and development to be sustainable. In rural areas of Kenya, among the illiterate, unemployed, poor, and vulnerable in society, health insurance adoption is extremely low. The purpose of this study was to determine the factors that influence health insurance uptake among low-income populations in Kibera, Nairobi County. Data was collected through semi structured questionnaires administered to households located in Kibera. Simple random sampling was adopted in selecting 399 respondents. In estimation, the study employed binary Probit regression model where health insurance ownership was used as the dependent variable while age, gender, marital status, household size, school attainment, occupation, income levels, religion, cultural beliefs, frequency of hospital visits, cost of premiums and also pre-existing illness were used as the independent variables. Results showed that only 27.6 percent of the respondents had health insurance coverage. Following model estimation, the findings revealed that occupation, income levels, and religion significantly influence health insurance ownership among low-income populations in Kibera, Nairobi. Public health insurance cover was the most owned type of health insurance scheme. Recommendations were for the ministry of health and other relevant stakeholders to raise knowledge on the

various health insurance options available and improve flexibility of the products in order to drive insurance uptake. In addition, national and county governments need to develop programmes and policies that could empower households in the informal settlements. Further, it is necessary for the government to subsidize the cost of acquiring public health insurance covers since this would encourage uptake among low-income families. Lastly, the ministry of health should work in conjunction with various religious denominations to campaign for uptake of health insurance among the poor.

Keywords: Health insurance, Low-income populations, Kibera, Informal settlements, Kenya

Introduction

Universal health coverage (UHC) is a critical pillar of the Sustainable Development Goals (SDGs), which aims to promote delivery of quality health services (WHO, 2020). Barasa, Nguhiu, and McIntyre (2018) note that every state's citizen should be in a position where they can access services from hospitals that they require without financial impoverishment or any risk. Insurance is a risk mitigation mechanism where clients receive protection against losses in exchange for payment of a premium and payment is always due before the contingent claim is serviced by the insurer (Gitau, 2016).

Globally, on average, 150 million people are lacking a concrete health plan. In Africa, the effects of catastrophic healthcare expenditure are intense, given the overwhelming bulk of empirical proof pointing to the low penetration of health insurance (Barasa, Mwaura, Rogo, & Andrawes, 2017). In Africa, Statista (2019) noted that despite the continent being home to 17% of the global population, only less than 1% of the households have health insurance. Lack of policy uptake in Africa is due to poor income and domination of non-life insurance products across different firms. In Kenya, health insurance adoption is very low within the rural areas, among the illiterate, individuals in the informal sectors and more so among the poor and most vulnerable populations (Barasa, Mwaura, Rogo & Andrawes, 2017). Most of the households pay for healthcare through out of pocket (OOP), and the rest have NHIF and other private insurance (KDHS, 2022). According to Jattani and Ochieng (2021) about 20-30% of Kenyans are in a health insurance scheme while the rest of the population rely fully on out-of-pocket payments as a result of Covid 19 pandemic. This poses a huge financial burden to the rest of the population, with 43% of the population surviving on little over a dollar per day (World Health Organization, 2016). Maina, Kithuka and Tororei (2016) note that the insured population is mostly insured due to requirement from their employers.

The healthcare services model developed by Andersen aimed at explaining determinants of effective use of health services at a given time or all time (Andersen, 1968). There is various usage of health services demonstrated by the model such as inpatient care services, outpatient care services, and dental care service among others. The model explains that the majority of the time, these health care services are determined by a number of critical factors, including predisposing factors, enabling factors, and the need factor (Andersen & Newman, 1973).

Predisposing factors as indicated by Andersen (1968), compose of race, age and health beliefs of the patient or people. By providing an example, people who believe in traditional medicines are unlikely to seek medical attention from urban health centres. Enabling factors look at the family support that one is having when they are ill or sick, access to health insurance among people, and one's community at large (Andersen & Newman, 1973). The theory further explains that family support is critical in explaining health utilization. Even though need for better health services have left many families poor due to high cost of treatment, it has continued to remain a critical factor in determining health utilization (Andersen, 1995). Medical accessibility can thus be viewed from presence of enabling resources, encouraging people to seek for medication (Andersen & Newman, 1973). This theory gives a variety of reasons that may contribute to the uptake of the health policies that can foster access medical care.

Empirical literature has been conducted globally and several factors have been associated with uptake of health insurance. In Pakistan, Jahangee and Huq (2015) revealed that households headed by a male, with children and elderly dependents expressed a tendency to register with health insurance companies. In Cambodia, size of household, level of education and the number of dependents had a positive effect on the health insurance enrolment rate (Ozawa, Grewal, & Bridges, 2016). In their review, Fadlallah, et al. (2018) reported a strong influence of socio-demographic factors on health insurance uptake. Older, married couples were more inclined to make regular insurance payments, while single, younger individuals were less inclined to partake in health insurance.

In Gabon, Yaya (2020) revealed that the age of an individual was a vital factor of enrolment in health insurance scheme. In another study in Nepal, Ghimire, Sapkota and Poudyal (2019) revealed that age, the family size, and number of dependants in a household significantly impacts the family's decision to apply for insurance services. According to Dayour, Adongo and Kimbu (2020) lack of awareness as well as inadequate social infrastructure, poorly established administrative policies and high cost of insurance serve as deterrents to insurance uptake in Ghana.

The low insurance penetration rate in Kenya has been attributed to a number of factors including: restrictive regulatory environment, poor awareness by public members about insurance services and products, lack of supportive insurance culture, lack of disposable income, weak marketing channels, and inefficient claims settling and pricing (Barasa, 2016). Gitau (2016) reported a strong link between culture, religion and insurance attitude. Nguru (2018) and Omollo (2016) assert high insurance uptake among individuals older than 38, while Ndung'u (2015) found gender and marital status to be determinants. However, fraud cases, lack of accountability and mismanagement have contributed to the low uptake of insurance cover in the country. Masengeli, Mwaura-Tenambergen, Mutai and Simiyu (2017) in a research study reported that age, gender, and marital status all significantly influence insurance purchase decisions. On the other hand, Nyorera and Okibo (2015) reported poor understanding of insurance products, long and cumbersome registration process and traditional sentiments served to deter enrolment into the country's insurance fund (NHIF). The current study reviewed the effect of socio-demographic factors, level of awareness and perception on health insurance uptake.

The World Health Organization (2016) reports that 43% of Kenyans cannot afford insurance since their daily spend often rarely exceeds one dollar. To date, the current health insurance uptake in the country still lags behind most other developing countries. Moreso, the available data indicates that health insurance uptake has only been limited to the middle-class and upper-class citizens within the country (Maina, Kithuka, & Tororei, 2016). Niyinyumva (2019) contends that with more than 56% of Kenyans living below the poverty lines the uptake of health insurance has become a luxury to many and the low uptake of insurance has resulted in limited access to healthcare. Gichuru, Muturi and Wawire (2015) pointed out that with less than 12% of low-income households accessing health insurance, overliance on OOP means of financing is becoming unsustainable, and is limiting their ability to access quality healthcare as stipulated in the consitution. From the foregoing, understanding drivers of insurance uptake among low income families in essential since it presents a major health policy challenge. This study seeks to expand available knowledge by examining determinants of health insurance subscription within low-income populations in Kenya.

Other scholars have sought after factors determining health insurance uptake in Kenyan households. Maina, Kithuka and Tororei (2016) focussed on maternal insurance uptake and found out that marital status and benefits of the policy influenced insurance uptake while income and household size did not influence uptake of insurance. In addition, Ndungu (2015) examined drivers of national health insurance uptake and revealed that demographic factors, academic position, socio-economic influences and information

accessibility significantly influence insurance subscription. In a similar study Namuhisa (2014) concluded that income, level of awareness, benefits and proximity to NHIF offices significantly influenced participation in health insurance. On the other hand, Mohamed (2019) analyzed the uptake of NHIF and found out that financial capability, awareness level, gender and education level determined the uptake. Further, Njogu (2019) examined health insurance uptake in rural households in Nyeri and concluded that marital status, age, income, education, financial literacy and distribution channels predict insurance uptake.

Despite the myriad of studies focusing on insurance uptake, and the government's efforts to reform the NHIF to cater for both the formal and informal sectors, for both inpatients and outpatients, there are still persistent concerns when it comes to health insurance uptake in low income households. The above studies have not exhaustively solved the problem with insurance uptake in low income households in Kenya hence a need to expand the available empirical evidence. The purpose of this study therefore is to examine the factors determining health insurance uptake among low-income populations in Kibera, Nairobi County. The conceptual framework (figure 1) presents the conceptualization of the drivers of health insurance coverage among low-income populations in Kibera informal settlements, Nairobi County.

Independent Variables
Dependent Variable

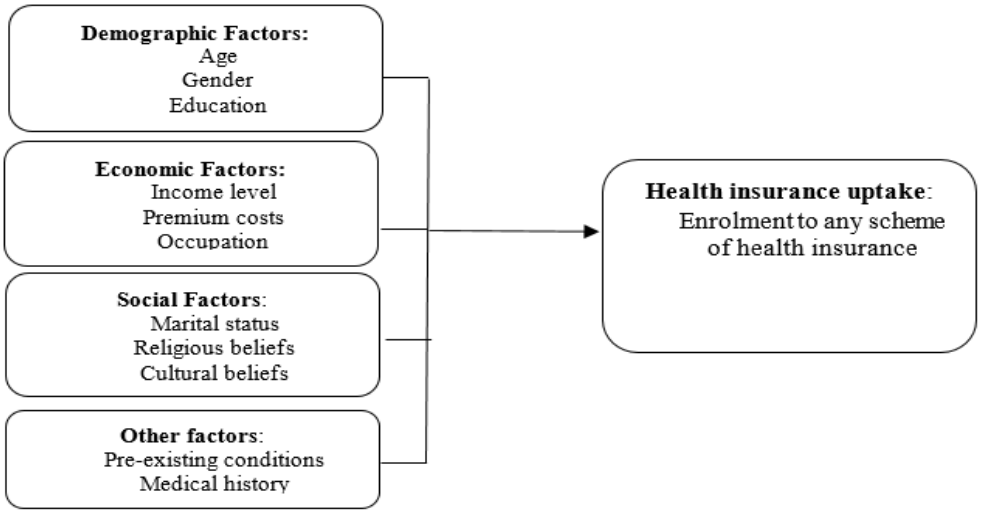


Figure 1. Conceptual Framework
Source: Researchers (2023)

Methods and Data

The study adopted descriptive research design. The target population involved the residents/dwellers within Kibera Informal Settlement Scheme in Kibra Constituency, Kenya. The Kenya National Bureau of Statistics (2019) identified 149,662 residents within the locale with 77,330 males, 72,324 females and 8 intesex residents. The population of the area formed the current study's unit of observation. This was representative of the study scope as only the residents dwelling within the informal settlement scheme was considered within the study.

This study adopted a simple random sampling technique since it promotes equal likelihood of representation from the population. The Yamane (1967) formula below was adopted in selection of the sample size where; n = Size of the sample, N = population and e = precision level.

$$n = \frac{N}{1 + N(e)^2} \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots (1)$$

$$\frac{149{,}662}{1 + 149{,}662\ (0.05)^2} = 399 \dots\dots\dots\dots\dots\dots\dots\dots\dots (2)$$

Hence 399 respondents from Kibera Informal settlement scheme were then selected.

For data collection, questionnaires were used. The questionnaire's content was developed in accordance with the study's objectives. Collection procedures indicated how the pilot study was carried out, the results of the reliability and validity tests from the pilot study, how the research instrument was administered, and the ethical considerations made by the researcher (Shajahan, 2009). The pilot study involved 10% (n=39) of the sample respondents; these responses were excluded from the final analysis. It involved residents of the Mathare informal settlement. Pilot was used to ascertain the questionnaire's reliability and validity. Reliability and validity tests were carried out to determine the research instrument's consistency and reliability. It measured the accurateness of the information in the research instrument in measuring its intended purpose.

The theoretical model conceptualized that demand of non-durables such as health insurance can be determined as a function of various factors. The study empirical modelling assumed that participants within the informal sector are faced by challenges that impact their ability to subscribe to health insurance such as the price of closely related products and the high cost of living. Further, in the presence of pre-existing health conditions that require constant care, the individual had the choice between foregoing basic needs and buying insurance.

The research used a Probit regression model to ascertain the primary factors influencing health insurance subscription in Kenya. The research

presupposed a linear relationship between the dependent and explanatory variables. The dependent variable was quantified using a binary option indicating whether the participant had health insurance or not.

$$Y = X_i\beta + \varepsilon \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \quad (3)$$

Where Y - the dependent variable (health insurance coverage)

X_i - explanatory variables

β - parameters to be estimated

ε - error term

The study assumed that health insurance uptake in Kenya is a function of several determinants;

$$UHI = f\,(DF, EF, SCF, OF) \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (4)$$

Where UHI = uptake of health insurance; DF= are the demographic factors (age, household size, marital status, gender, education level); EF= are the economic factors (employment status, level of income); SF= are the social-cultural factors (religion, cultural beliefs), and OF = other factors (frequency of accessing healthcare facilities, awareness of insurance information, pre-existing conditions, premium costs). The specified model is as follows;

$$UHIt = \beta 0 + \beta 1AGt + \beta 2GNt + \beta 3MSt + \beta 4HSt + \beta 5EDt + \beta 6ESt + \beta 7LIt + \beta 8RBt + \beta 9CBt + \beta 10CPt + \beta 11AWt + \beta 12FQt + \beta 13PECt + \mu t \ldots\ldots\ldots\ldots (5)$$

Where;

UHIt is the rate at which the low-income population consume health insurance

$\beta 0$ represents the model constant

A G t represents the age; G N t represents the gender; M S t represents the marital status; H S t represents the household size; E D represents the education level; E S t represents the employment status; LIt represents the level of income; RBt represents the religious beliefs; CBt represents the cultural beliefs; CPt represents the costs of premiums; AWt represents the awareness level/access to insurance information; FQt represents the frequency of accessing healthcare services; PECt represents the Pre-existing conditions; μt represents the stochastic error term.

Both descriptive and inferential statistics were applied. Diagnostic tests also aided in ensuring fit between the constructs of the research by testing of the association between the study variables (Creswell, 2014). The study summarized the responses from the research respondents using frequencies, means, and standard deviations. The research further employed

probit regression analysis in determination of how predictor variables impact health insurance uptake in Kenya.

Table 1. Measurement of Variables

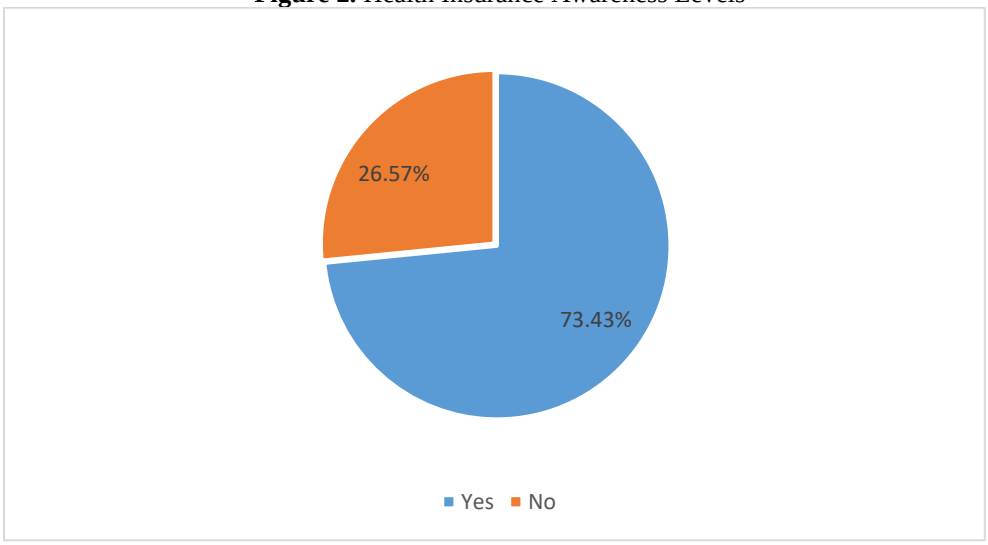
Variable	Variable Definition	Measurement
Dependent Variable		
Health insurance uptake	Uptake of health insurance	Yes – 1; No – 0
Independent Variables		
Demographic variables		
Age	Age of the participant at the time of the survey	Years
Gender	Gender of the participant	Male = 0; Female = 1
Marital status	Current marital status of the participant	Single = 0; Married = 1; Widowed = 2; Divorced = 3
Household size	Number of people in a household	Number
Education level	Number of years spent in school	Years
Economic Variables		
Employment status	Employment status at the time of survey	Unemployed = 0; Formal employment = 1; Informal; employment = 2
Level of income	Average monthly income	Number
Social- cultural variables		
Religion	Participant's religious affiliation	No religion =0; Catholic =1; Protestant=2; Muslim=3; Others=4
Cultural beliefs	Participants' beliefs that may hinder insurance uptake	None = 0; Traditional = 1; Modern = 2
Other Variables		
Frequency of accessing healthcare facilities	The number of times the participant or dependant visited a health facility in the last 12 months	Number
Awareness (Access to insurance information)	Whether the participant is aware of health insurance	Yes = 1; No = 0
Presence of pre-existing health conditions	Participant having pre-existing health conditions like chronic illnesses that require constant care or hospitalisation	Yes = 1; No = 0
Cost of premium	How much the participant needs to spend on an insurance premium in a month	Value in kshs

Source: Researchers (2023)

Results and Discussion

The study explored awareness levels on health insurance by low-income population in Kibera Nairobi County. The extent to which health insurance awareness exists in Kibera is depicted in Figure 2. It was discovered that approximately 73% of respondents were aware of a particular type of health insurance, while only 27% were unaware.

Figure 2. Health Insurance Awareness Levels



Source: Primary data (2023)

The study sought after profile of health insurance schemes in Kibera slums. Table 2 presents the results.

Table 2. Health Insurance Uptake among low-income population in Kibera, Nairobi

Health Insurance Type Owned	**Frequency**	**Percentage**
No	289	72.43
Private	1	0.25
Public	100	25.06
Community	2	0.50
Private and Public	7	1.75
Total	399	100.00

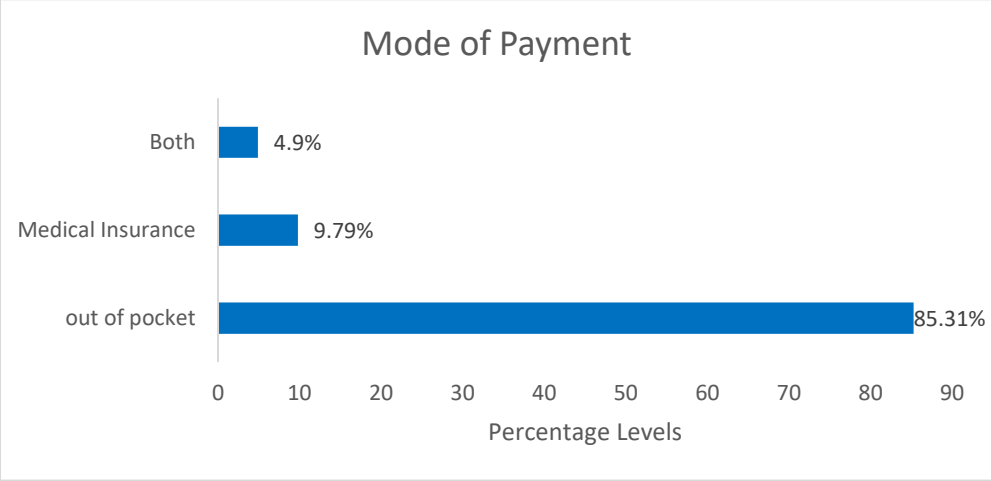
Source: Primary data (2023)

The results showed that only 110 respondents (27.6 percent) had subscribed to health insurance, with the majority, 289 (72.4 percent) not owning any form of health insurance. Of these, 25.1 percent subscribed to the National Hospital Insurance Fund, while 1.75 percent had both private and public health insurance covers. Private and community health insurance plans had the least coerage at 1 percent and 2 percent respectively. According to KNBS (2013) most of the households pay for healthcare through out of pocket (OOP), and the rest through NHIF and private insurers. From the literature, only around 20-30% of Kenyans have access to health

insurance coverage (Zollmann & Ravishankar, 2016; Jattani & Ochieng, 2021).

On mode of payment, the study evaluated whether the respondents used out of pocket, medical insurance or both out of pocket and medical insurance. Figure 3 showed 85 percent of respondents paying for medical services out of their pockets, whereas those who paid via medical insurance were 9.79 percent.

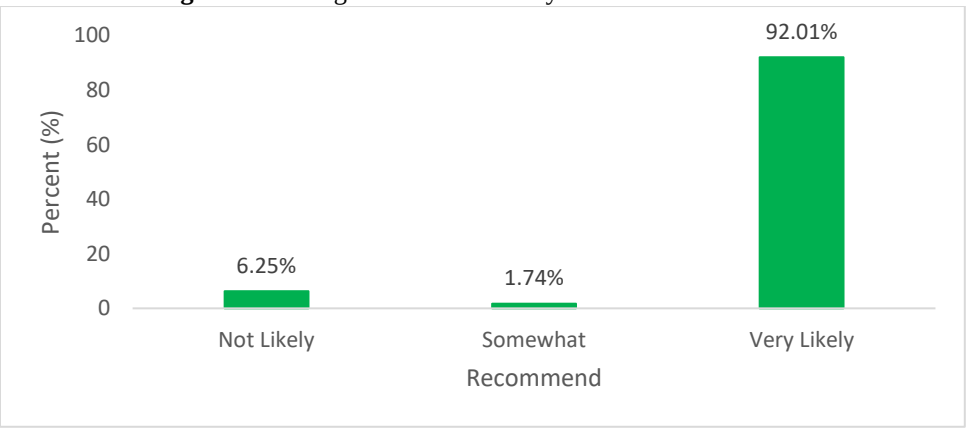
Figure 3. Mode of Payment for Healthcare Services



Source: Primary data (2023)

The respondents were asked if they intended to enrol in any health insurance plans. Figure 4 shows that approximately 92 percent open to participating. Only 8 percent were undecided.

Figure 4. Willingness to Enrol in any Health Insurance Scheme



Source: Primary data (2022)

The main goal of the study was to establish the determinants of health insurance coverage among low-income populations in Kibera, Nairobi

Kenya. Probit model was applied in the study to estimate the influence of various demographic, socio-cultural and other factors on health insurance uptake. Findings are tabulated in Table 3. The study found an overall ipivalue ofi0.0001 which wasilessithani0.05iwith theilogilikelihood ratio of -83.486084 implying that the factors considered fitted the model well and thus, variables used in the model were collectively significant in health insurance uptake. The estimated model revealed that occupation, income and religion were significant determinants of health insurance. It was also found that age, gender, household size, education attainment, frequency of hospital visit, cost of premium and pre-existing illness were not elevated drivers of health insurance uptake.

Further, only age, gender, religion, frequency of hospital visit, cost of premium and pre-existing were found to negatively impact health insurance uptake within Nairobi's poor household. The latter however had non-significant effect on health insurance uptake. Table 3 shows detailed marginal effects of the Probit model of various factors.

Table 3. Marginal Effects of the Probit Model for Health Insurance

Probit regression				Number of obs = 149		
				Wald chi2(11) = 37.44		
				Prob > chi2 = 0.0001		
Log pseudolikelihood = -83.486084				Pseudo R2 = 0.1904		
Health Insurance Uptake	**Marginal Effects**	**Std. Err**	**t**	**p>t**	**95% Conf. Interval**	
Age	-0.0048	0.0047	-1.02	0.307	-0.0140	0.0044
Gender (male=1)	-0.0652	0.0755	-0.86	0.388	-0.2131	0.0827
Marital status (Married=1)	0.0040	0.0973	0.04	0.967	-0.1867	0.1947
Household size	0.0555	0.0289	1.92	0.055	-0.0011	0.1120
School attainment	0.0166	0.0135	1.23	0.219	-0.0099	0.0430
Occupation	0.1500**	0.0731	2.05	0.040	0.0067	0.2933
Ln income	0.2201**	0.0505	4.36	0.000	0.1211	0.3191
Religion	-0.6548**	0.2124	-3.08	0.002	-1.0711	-0.2385
Cultural beliefs	0	(omitted)				
Frequency of hospital visits	-0.0062	0.0189	-0.33	0.745	-0.0433	0.0310
Ln cost of premiums	-0.1708	0.1017	-1.68	0.093	-0.3701	0.0285
Pre-existing illness	0.1102	0.1158	0.95	0.341	-0.1168	0.3372

**Significant at 5%. *Ln=Natural logarithm*

Source: Primary data (2023)

This study presents discussions on two parts, first; significant factors and second, non-significant determinants. Apart from religion variable, other two significant factors (occupation and natural logarithm of income) had a positive effect. The other factors were not significant. The discussion is done systematically.

Based on the estimation result, age was not a significant determinant of health insurance uptake (β=-0.0048, t=-1.02, p>0.05). An additional year to an individual age led to 0.48 percent insignificant reduction in the probability of partaking health insurance products in Nairobi County, holding other factors constant. This implies that as respondents advance in age, they get to have more needs and thus treating the health insurance ownership as luxury good. This coefficient was however too small. The findings were confirmed by the findings of Saiti, Yitambe and Korir (2020) in their investigation on drivers of health insurance cover among Kenyan elderly. The study revealed that age had an insignificant effect on health insurance demand.

The study established that gender of the respondent was not a significant determinant of health insurance uptake (β=-0.0652, t=-0.388, p>0.05). Being male led to 6.52 percent insignificant reduction in the intention to purchase insurance cover, holding other factors constant. This implies that male respondents had lower probability of acquiring the health insurance compared to their female counterparts. The findings were supported with the results of Saiti, Yitambe and Korir (2020) who investigated health insurance uptake among Kenyan elderly. The study revealed that gender had an insignificant effect on health insurance demand.

The study revealed that the respondents' marital status was not a significant determinant of health insurance uptake (β=0.004, t=0.04, p>0.05). Being married led to 0.4 percent insignificant increase in health insurance uptake, holding other factors constant. Implying a marginal increase in intention of married couples to acquire health insurance. The findings were confirmed by the results of Saiti, Yitambe and Korir's (2020) study on health insurance uptake among the elderly. The study revealed that marital status had an insignificant effect on demand for health insurance. In addition, Dror, et al (2016), in an assessment of drivers of participation in community-based health insurance schemes reported an increased association between marriage and insurance cover uptake.

The study indicated that household size was not a significant determinant of health insurance uptake (β=0.0555, t=1.92, p>0.05). An additional member to the household led to 5.55 percent insignificant increase in the probability of purchasing health insurance among low-income populations in Kenya, holding other factors constant. This implies that as household size increase, so does the risk of sickness, thus they are forced to have a cover to cushion them from high out of pocket expenditures. The findings were supported by the findings of Dror, et al (2016) who investigated uptake factors in community-based health insurance schemes. The findings indicated that household size, and household significantly impact participation in insurance covers.

Considering the levels of education, the study revealed non-significant effect of school attainment on health insurance ownership (β=0.0166, t=1.23, p>0.05). The study showed that; as an individual spends an addition year in school, the likelihood of health insurance uptake increases insignificantly by 1.66 percent among low-income populations in Kibera, Nairobi County holding other factors constant. This implies that clients who are on higher education level have the capacity of comprehending the impact of owning health insurance. However, the impact in our case was not statistically significant. The study findings were contrary to the results obtained by Nguru, Kodhiambo and Yitambe (2018) who investigated drivers of insurance uptake among patients in Embu County, Kenya and showed that higher education levels translate to increased intention to purchase health insurance.

From the results, occupation also significantly impacts uptake of health insurance covers (β=0.1500, t=2.05, p<0.05). Being in informal employment led to 15 percent significant increase in the probability of health insurance uptake among low-income populations in Kibera, Nairobi County. This implies that as an individual gets formal employment, they may be forced to own either a private or public health insurance cover which is paid for by the employer compared to those who are not employed. The findings were supported with the findings of Dror, et al (2016) who found that occupation influenced the uptake levels. Nguru, Kodhiambo and Yitambe (2018) reported similar observations in Embu, noting that education, gender, employment and awareness level all have a significant impact on uptake of health insurance.

Considering the income levels, the study revealed a significant effect of income on health insurance ownership (β=0.2201, t=4.36, p<0.05). The study showed that; as an individual earns an extra shilling, the likelihood of health insurance uptake increases significantly by 22.01 percent among low-income populations in Kibera, Nairobi County holding other factors constant. The extra income earned is used to purchase or access health insurance. This finding agreed with the results obtained by Dror, et al (2016) who reported that income level influenced the uptake levels. Similarly, Kituku and Amata (2016) who conducted a study on factors driving uptake of NHIF among informal sector workers in Murang' a. Their results indicated that the main determinants of insurance uptake include the level of income.

Religion was also a strong determinant of uptake of health insurance (β=-0.6548, t=-3.08, p<0.05). It was found that being in any specific religion reduced the probability of obtaining health insurance significantly by 22.01 percent among low-income populations in Kibera, Nairobi County, implying that religious affiliation is a significant deterrent to uptake of insurance

products. The finding was supported by Gitau (2016) who established a strong association between cultural and religious beliefs and insurance uptake. Hassan, Mwaura-Tenambergen and Eunice (2017) reported religious beliefs as contributors of low insurance uptake among Muslim communities.

On frequency of hospital visits, the study established that hospital visits had non-significant effect on health insurance ownership (β=-0.0062, t=-0.33, p>0.05). The study showed that; as an individual increases or visits hospitals several times, the probability of an extra hospital visit led to a reduced likelihood of health insurance uptake insignificantly by 0.62 percent among low-income populations in Kibera, Nairobi County holding other factors constant. More hospital visits drain income used to purchase health insurance which requires consistent servicing. Similarly, Saiti, Yitambe and Korir (2020) reported that the frequency of hospital visits had no influence on people's subscription to insurance services.

Further, the study analysed the effect of the cost of premium on health insurance acquisition and a non-significant effect was established (β=-0.1708, t=-1.68, p>0.05). Analysis showed that increasing just one percent of premium insurance costs results in a 17.08 percent reduction in intention to purchase insurance among low-income populations in Kibera, Nairobi County holding other factors constant. Additional cost to the premium of health insurance may discourage potential users since most will prioritize basic needs given their meagre incomes. Since health insurance alone may not cater for healthcare services, the amount meant for co-payment may be more leading to abandonment of the insurance cover. This finding agreed with the results obtained by Kituku and Amata (2016) who examined factors driving uptake of NHIF in Murang'a's informal sector associated high cost of insurance covers with lack of interest in purchasing insurance from the workers.

Lastly, the study found that pre-existing illness or health condition was associated with insignificant effect on health insurance ownership (β=0.1102, t=0.95, p>0.05). It was found that having a pre-existing illness led to an increased probability of obtaining health insurance by 11.02 percent among low-income populations in Kibera, Nairobi County holding other factors constant. The effect was however not statistically significant. This implies that compared to those who do not have pre-existing illness, individuals with illness or a health condition would tend to cushion themselves from too much expenditures associated with seeking for healthcare services via obtaining s health insurance plan. The findings were supported by study results obtained by Nguru, Kodhiambo and Yitambe (2018) who investigated drivers of insurance uptake among patients in Embu County. The study indicated a significant association between pre-existing health conditions and awareness level with uptake of health insurance.

Conclusion

With more than 56% of Kenyans living below the poverty lines, the uptake of health insurance has become a luxury to many and the low uptake of insurance has resulted in limited access to healthcare. There is thus a need to understand drivers of insurance uptake especially among low-income populations. Following the findings, the study concludes as follows; first, health insurance uptake among the low-income population in Kibera is approximately 28 percent. Similarly, public health insurance cover is the most owned type of health insurance scheme. Second, it was ascertained that religion and cultural values played a key part in forming subscriber's perception of insurance, hence, determine health insurance uptake significantly. Occupation and income were also influential factors since high cost of insurance was a deterrent for poorer citizens.

Policy Implications

Insurance penetration in Kenya is low despite the introduction of various public, private and community-based health insurance schemes. High cost of insurance covers is the main variables impacting insurance uptake, especially in Kenya where the people in informal settlements live on less than a $1 a day. Financial constraints affect 43% of the world's population, making insurance virtually unaffordable. To counter this, the study suggests the following; First, the ministry of health and the other relevant stakeholders need to raise the knowledge on the various health insurance options available and improve flexibility of the products in order to drive insurance uptake. This is because the findings revealed that the uptake levels were very low among the low-income population. Second, national and county governments need to develop programmes and policies that could empower households in the informal settlements since it was established that occupation had significant effect on health insurance uptake level among low-income populations. Literature in health economics also supports this suggestion as employment is associated with higher utilization compared to unemployed population. Third, there is a necessity of the government subsidizing the cost of purchasing public health insurance cover to promote uptake of health insurance cover. This suggestion is based on the fact that income levels were significantly associated with increase in health insurance uptake among low-income populations. Lastly, there is need for the ministry of health together with county departments of health to work closely with various religious denominations to campaign for uptake of health insurance among low-income populations. This is because the findings revealed that respondents who were associated with religious inclinations had significantly lower likelihood of purchasing insurance products.

Acknowledgement

We would like to acknowledge the support of inhabitants of Kibera informal settlements for availing time to provide us with data that aided in establishing the hypothesized relationship. In particular, we thank the county government of Nairobi city and the leadership of the villages in the Kibera informal settlements for not only allowing the study to be undertaken, but also supporting in the identification of the respondents. We also thank the administration of the University of Nairobi, Department of Economics, Population and Development Studies for the guidance provided. Furthermore, we would like to express our appreciation to Juliet Nduta (research assistant) and Mr. Joseph Abuga Orayo (data analyst) for their support in the research process (data collection and data analysis respectively). Their input, was insurmountable.

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