

Uptake of Healthcare Insurance and Its Associated Factors among Patients Seeking Care at Moi Teaching and Referral Hospital, Eldoret

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Abstract

Arising from the global practice and WHO recommendations, extending access to health care to all segments of the population, including the poor is an important objective of the Kenyan Government's National Health-Sector Strategic Plan and National Development Agenda as outlined in the Kenya Vision 2030 policy framework (Ministry of Health, 2015). Health insurance is deemed as a means of protecting individuals from incurring high costs at times of illness. It is a potential mechanism for overcoming existing health inequities with consequent effort to promote uptake among the citizens as a way of promoting healthcare. This study examined the factors associated with uptake of healthcare insurance among patients seeking care at Moi Teaching and Referral Hospital, Eldoret, Kenya. A descriptive cross sectional-survey design was adopted involving 234 in-patients and out-patients seeking care at Moi Teaching and Referral Hospital. Stratified and Systematic sampling techniques were applied. Data was collected using structured questionnaires, coded, cleaned and entered into STATA (version 13) for analysis. Descriptive statistics were generated and bivariate analysis to determine factors associated with healthcare insurance uptake were carried out using OR and the Chi-square test. A multiple-logistic model was fitted to adjust for relationships. The study found out that uptake of healthcare insurance cover was significantly associated with education level, marital status, income of the patients and level of awareness. Uptake of healthcare insurance cover was high among the old (Median = 35, IQR 29, 42) compared to the young (Median = 32, IQR 24, 40), $p=0.013$. Awareness about of healthcare insurance was associated with, $p<0.001$, while gender disparity did not show any differentials in uptake, $p=0.163$. The study concluded that males and the elderly were more likely to be enrolled in healthcare insurance schemes than females and the young. In addition, marital status and education level of an individual positively influenced uptake of healthcare insurance. However, the association between gender and healthcare insurance was not significant. The study further concluded that respondents with higher incomes had a higher likelihood of enrolling in a healthcare insurance scheme as compared to individuals with low income. Awareness about healthcare insurance schemes increased uptake of healthcare insurance. The study recommends the need to encourage women, the unmarried and the young to enroll in healthcare insurance schemes. In addition, insurance agents need to target people with low education levels to scale up uptake and further, healthcare insurance providers to tailor affordable products consistent with income differentials.

Keywords: Healthcare Insurance, Income levels, Uptake and Awareness

INTRODUCTION

The overarching goals of the health system as considered by WHO are health status, health equality, responsiveness of the health systems to the individual's medical and non-medical expectations and fairness in financial contribution (Carrin, Community based Health Insurance Schemes in Developing Countries: facts, problems and perspectives, 2003). Fairness in financial contribution for health occurs when healthcare expenditures of households are distributed in accordance with the ability to pay rather than the cost incurred as a result of illness. Therefore, a national health system should raise funds for healthcare in ways that ensure people can use the needed healthcare services and are protected from impoverishment arising from having to pay for such services (Carrin, Mathauer, Ke, & Evans, 2010). According to WHO, medical fees is a significant obstacle to health care coverage and utilization, and encourages risk-pooling to reduce reliance on direct payments (Carrin, Mathauer, Ke, & Evans, 2010). Social protection schemes such as Social Health Insurance are emerging as a global solution for breaking the cycle of poverty and vulnerability to ill health (WHO, 2010) as they enable access to health services based on the need and not ability to pay.

An important objective of the Kenyan Government's National Health-Sector Strategic Plan and National Development Agenda as outlined in the Kenya Vision 2030 policy framework (Ministry of Health, 2015) is to extend access to health care to all segments of the population, including the poor. Health insurance is a means of achieving this goal particularly in settings where the government subsidizes premiums for the poor population. It is a potential mechanism for overcoming existing health inequities with consequent effort to promote uptake of healthcare insurance among the citizens as a way of healthcare promotion. Many countries including Kenya have been seeking for ways on how their health financing systems can provide sufficient financial risk protection to all of the population against the costs of healthcare irrespective of their diversity and social status. Proper health care financing ensures that the population not only has access to health care but also use the health services when in need. Lack of access to health insurance has profound negative impact on health indicators. This is more critical in developing countries like Kenya where the health sector is underfunded by approximately sixty to seventy percent (Munge & Harvey, 2014) and as a result many people incur significant out of pocket payment for health services. In Kenya, households' bear up to 40% of the healthcare costs through out of pocket cash payment whenever sickness in the family occurs (Isaac & Clement, 2011 and Munge & Harvey, 2014). It is therefore necessary for the County and National governments to promote use of healthcare insurance covers among its citizens. Health insurers have not been able to effectively reach out to majority of Kenyans, especially the poor, those in the informal sector and those with strong religious beliefs against conventional insurance (Mathauer, Schmidt, & Wenyaa, 2008) undermining the level of uptake of health care insurance schemes despite the initiatives rolled out by the government and other medical stakeholders in promoting healthcare insurance. Universal health coverage (UHC) is a major goal under the Sustainable Development Goals (SDGs) that seeks to ensure people obtain the health services whenever they need and devoid of catastrophic health spending (Liaropoulos & Goranitis, 2016). Most nations, especially developing countries have moved towards a health insurance model in attempts to achieve universal health coverage and access (Kusi, Enemark, Hansen, & Asante, 2015). This however has been undermined by the fact that many low-income and middle-income countries (LMICs) are faced with the challenge of raising sufficient funds to finance health

services in an equitable way (Mills, Ataguba, Akazili, Garshong, & Makawia, 2012). Although it is expected that governments should play a leading role in this regard, most governments in these countries are constrained by the high proportion of informal workers. Other economic contexts such as high public debt and high population growth rate coupled with high burden of disease in most of these countries have made it difficult to increase government spending on health (McIntyre, 2007). In Kenya, total health spending stands at about 6% of GDP. This is way below the African countries' commitment of 15% as per the Abuja Declaration (Chuma & Okungu, Viewing the Kenyan Health System through and Equity Lens: Implications for Universal Coverage, 2011). This has resulted in 36% of total health expenditure sourced directly from households, disadvantaging the poor and pushing an estimated 450,000 below the poverty line (Barasa, Maina, & Ravishankar, 2017). In Kenya, health insurance can be accessed through public National Hospital Insurance Fund (NHIF), private insurance companies and some few community-based health insurances. The government of Kenya has been advancing NHIF as a Universal Health Insurance Scheme key pillar in the attainment of Kenya's Vision 2030 and reduce catastrophic health spending incidents (Buigut, Ettarh, & Amendah, 2015), (Mulupi, Kiriga, & Chuma, 2013). However, uptake of health insurance is low with only 19.5% of Kenyans owning a health insurance out of which 88.4% are covered by the NHIF, while 11.6% by private insurers (Kazungu & Barasa, 2017). Ownership of health insurance is even lower in rural Kenya with Bungoma County recording 11% (Ministry of Health, 2014). In addition, non-renewal of membership is also high. The low ownership of health insurance and non-renewal of membership could be the reason for upsurge in self-medication, delay in seeking care as well as increase in cases of Kenyans not seeking care despite reporting being sick (Bonfrer & Gustafsson-Wright, 2015), (Buigut, Ettarh, & Amendah, 2015). Despite the presence of several health care insurance schemes in Kenya, uptake is low notwithstanding the benefits associated with the schemes.

METHODOLOGY

Study Area and Population

This study was carried out at Moi Teaching and Referral Hospital, Eldoret, Kenya situated in the Western Region of Kenya 300Km away from the country's capital Nairobi. The hospital is the second largest referral hospital in Kenya serving mostly referrals from counties in North Rift Region, South Rift Region, the Nyanza Region and Western Kenya Region including parts of Uganda. It is situated along Nandi Road in Eldoret, Uasin-Gishu County. The hospital has a bed capacity of 954 with a target population of 7,024 patients that sought healthcare during the period of the study.

Study Design

A descriptive cross-sectional study design was adopted in this study where 234 participants were enrolled from the in-patient and out-patient clinics.

Sampling and Sample Size

The sampling frame consisted of all patients, both outpatient and inpatient, at the point of exit. The Krejcie and Morgan formula (1970),

$$n = \frac{X^2 * N * P(1-P)}{(ME^2 * (N-1)) + (X^2 * P * (1-P))},$$

was used to determine the

sample size with parameters, $\chi^2_1=3.841$, ME = 0.05, N=7,024, p=0.195, N₁= 6,118 (Outpatient), N₂=808 (Inpatient), n₁=119 (sampled outpatient) and n₂=115 (sampled outpatient) (Kazungu & Barasa, 2017). Stratified and Systematic Sampling Techniques were applied. Patients were sampled from Outpatient and Inpatient stratum assigned equal weights. In each of the strata, study participants were enrolled by systematic sampling in which every 52nd patient in outpatient clinic and 7th patient discharged from inpatient wards were selected.

Data Collection Methods

A researcher administered structured questionnaire was used to collect information on demographics and Socio-economic characteristics of participants. Information on awareness about healthcare insurance was also collected. The instrument was tested for structural validity and reliability consistency.

Data Management and Analysis

Raw data was cross checked, coded, cleaned and entered into STATA version 13 for analysis. Mean, median, IR, SD and frequency measures were used to summaries data. Tables and charts were used to display summaries. Association between patients' demographic factors, economic factors, level of awareness and healthcare insurance uptake was assessed using the chi-square test and odds ratios. A multiple-logistic model was fitted to adjust for association between health Insurance uptake and factors.

Ethical Considerations

Permission to carry out this study was sought from MTRH and the Institutional Research and Ethics Committee (IREC). Informed written consent was obtained from participants before enrolment into the study. Participation was voluntary and participants were given opportunity to withdraw willingly from the study. Confidentiality and privacy of the sought information was guaranteed.

RESULTS

Table 1: Demographic characteristics

Variable	Category	Frequency	Percentage
Age	Median(IQR), min-max	33.5(IQR 28, 42)	18 – 83
Sex	Male	108	40.60
	Female	158	59.40
Education level	None	9	3.38
	Primary school	55	20.68
	Secondary school	79	29.70
	Certificate/Diploma	66	24.81
	Degree & above	57	21.43
Marital status	Single	55	20.68
	Married	196	73.68
	Separated	8	3.01
	Divorced	2	0.75
	Widowed	5	1.88

Table1 is a summary of demographic characteristics of the respondents in this study. The ratio of female to male was 3:2 and their age ranged from 18 to 83 years old with a mean of 35.7 (SD 11.6) years with 50% of the patients had a mean age

of 33.5 (IQR 28, 42) years. Males were significantly older with mean age of 38 (IQR 31, 43) compared to females mean age of 31 (IQR 26, 39) ($p < 0.001$). In this population, very few patients 3.38% had no formal education while 21.4% had Bachelor's degrees and above. A majority 73.7% of the respondents were married.

Table 2: Association between demographics and health insurance uptake

Variable	Category	Health insurance		p-value
		No	Yes	
Gender	Male	34	74	0.163
	Female	63	95	
Education	None/primary	37	27	<0.001
	Secondary	34	45	
	Certificate/diploma	17	49	
	Degree & above	9	48	
Age	Median(IQR)	32(24, 40)	35(29, 42)	0.013
Marital status	Single	34	21	<0.001
	Married	58	138	
	Separated/divorced	5	10	

There was a significant association between education level of the patients and uptake of healthcare insurance cover $p < 0.001$ with uptake increasing with increase in education levels (Table2). On average those who had health insurance cover were significantly older (Median = 35, IQR 29, 42) compared to those who did not have insurance cover (Median = 32, IQR 24, 40), $p = 0.013$. The association between marital status and healthcare insurance was statistically significant, $p < 0.001$. On the other hand healthcare insurance uptake remained invariant across gender $p = 0.163$

Table 3: Association between economic characteristics and health insurance uptake

Variable	Category	Health insurance		p-value		
		No	Yes			
Monthly earning	<20,000	72	77	<0.001		
	20,000 – 40,000	10	34			
	40,000 – 60,000	4	20			
	60,000 – 100,000	2	22			
	100,000 – >100,000	1	12			
	Monthly expenditure	<20,000	85		141	0.246*
		20,000 – 40,000	7		16	
40,000 – >40,000		2	11			
>40,000		2	11			

*Fisher's Exact test

Table 4: Association between awareness and health insurance uptake

Variable	Category	Health insurance		p-value
		No (n=97)	Yes (n=169)	
Ever heard of healthcare insurance	No	34	1	<0.001
	Yes	63	168	
Source of information	Relative	30	54	0.863
	Insurance agent	9	48	<0.001
	Employer	3	55	<0.001
	Advocacy	9	22	0.360
	Media	32	70	0.173
Benefits of having a Cover	Ability to pay	47	122	<0.001
	Increased Access	21	95	<0.001
	Risk Protection	23	69	0.005
	Shared risk	16	50	0.017

From this study we established a significant relationship between being aware of healthcare insurance and uptake of healthcare insurance, $p < 0.001$, where 72.7% of those who said they were aware had insurance cover compared to only 2.9% among those who said they are not aware of healthcare insurance. Insurance agents and employer as sources of information for healthcare insurance awareness resulted in increased uptake healthcare insurance uptake, $p < 0.001$. Being aware of the benefits of having a cover increased the uptake of healthcare insurance cover.

Table 5: Association between medical history and health insurance uptake

Variable	Category	Health insurance		p-value
		No(n=97)	Yes (n=169)	
Previous admission/visit	No	51	59	0.005
	Yes	46	110	
No. of previous visits	Median(IQR)	2(1, 3)	2(1, 3)	0.701†
Nature of visit	Outpatient	44	73	0.732
	Inpatient	53	96	
Current bill	Median (IQR)	3,800 (700, 29,000)	15,494 (2,600, 46,491)	0.005†

† Mann Whitney U test

From Table 5, we see a significant association between previous visits/admission to the hospital and the uptake of healthcare insurance, $p = 0.005$. The odd of uptake is two-fold among those with previous admission history compared to those without. Among those who had previous visits, 70.5% had insurance covers compared to 53.6% among those who had no previous hospital visits. On average the number of previous visits among those with insurance cover and those without was not significantly different, $p = 0.701$. However, those with health insurance cover were associated with large amount of bills (Median = 15,494, IQR=2,600–46,491) compared to those without (Median = 38,000, IQR=700–29,000), $p = 0.005$. Outpatient and inpatient clients were homogeneous in respect of uptake, $p = 0.732$

Regression Analysis

The Model:

Having or not having healthcare insurance cover (outcome) was modeled as;

$$Y = \begin{cases} 1 & \text{if insured} \\ 0 & \text{if not insured} \end{cases}$$

and the probability that an individual has a cover is $P(Y = 1) = p$

The multiple-logistic model fitted is of the form:

$$\ln\left(\frac{p}{1-p}\right) = \beta_0 + \beta_1 X_1 + \dots + \beta_{12} X_{12}$$

Upon fitting the model, benefit shared, previous admissions and current hospital bill have no effect on uptake, controlling the effect of other factors. The marital status of respondents is an influencing factor after taking control of all other influencing factors.

Table 6: Multiple logistic regression

Factor	Category	β	OR	P-value	95% CI
Education	None/primary(Ref)		1	0.001	
	Secondary	0.438	1.55	0.047	1.619 - 3.895
	Certificate/diploma	0.536	1.71	0.022	1.914 - 8.053
	Bachelors & above	0.850	2.34	0.026	1.257 - 7.015
Age	Age	0.191	1.21	0.013	1.12 - 1.228
Marital	Single(Ref)		1	0.001	
	Married	1.905	6.72	<0.011	2.463 - 18.374
	Separated/divorced /widowed	2.233	9.33	0.039	1.114 - 78.190
Monthly income	Less than 20,000(Ref)		1	0.032	
	20,000 -40,0000	0.182	1.20	0.052	1.382 - 3.782
	40,001-60,000	0.982	2.67	0.030	3.416 - 17.137
	60,001-100,000	1.656	5.24	0.014	6.578 - 47.578
	Over 100000	0.148	1.16	0.013	2.098 - 13.771
Source Agents	No(Ref)		1		
	Yes	1.351	3.86	0.021	1.226 - 12.146
Source Employer	No(Ref)		1		
	Yes	1.890	6.62	0.017	1.403 - 31.318
Benefits Ability	No(Ref)		1		
	Yes	1.004	2.73	0.010	1.267 - 5.918
Benefits Access	No(Ref)		1		
	Yes	1.105	3.02	0.010	1.306 - 7.012
Benefits Protection	No(Ref)		1		
	Yes	0.884	2.42	0.042	1.033 - 5.712
Benefits Shared	No(Ref)		1		
	Yes	-0.868	0.42	0.128	0.144 - 1.273
Admission	No(Ref)		1		
	Yes	0.372	1.45	0.327	0.689 - 3.058
Bill	Bill		1.00	0.107	0.999 - 1.000

Data supported the fact that source of information about awareness about healthcare insurance cover played a critical role on uptake. Controlling for the influence of other factors, the log odds of uptake among those who heard about health insurance cover from agent was 3.86 times higher compared to those who

heard from other sources and 6.62 times higher for those who heard from their employer. Similarly, knowledge on the benefits associated a health insurance cover played a significant role on uptake. Controlling for other factors, those who believed that the insurance cover conferred the benefits of; ability-to-pay for healthcare, increases the opportunities for access of healthcare, and health insurance provides financial risk protection had log odds of uptake 2.73, 3.02, and 2.42 higher compared to those who did not

DISCUSSIONS

The study found out that 68.5% of males were enrolled in healthcare insurance policies in comparison to 60.1% of females. Though this study found out a higher male enrollment rate as opposed to females, no association was found between gender and healthcare insurance uptake, $p=0.163$. The study findings are similar to those conducted by Sabine in India who found out that that male members' enrolment was at 60% compared to 40% women (Sabine C. , 2012). The low enrolment was attributed to the disadvantaged position of women since it was husbands, as heads of households who made decisions in enrollment. However, Boateng and Awunyor-victor, (2013) found gender to be a significant determinant of enrollment into Ghana's National Health Insurance Services with females being more likely to renew their health insurance compared to the males. The study found out age as a determinant of uptake, $OR=1.2$, $p=0.013$. This may point to the fact that most people tend to develop complications as they grow older resulting in frequent hospitalization triggering an increased propensity for healthcare cover. In some studies age has been found to have a positive effect on uptake of healthcare insurance and a negative effect in others Invalid source specified. The findings in this study were consistent with those of Bhat and Jain (2006) who found out that age was one of the key demographic factors influencing demand for health insurance. Higher probabilities of purchasing a cover were associated with increase in age. Further, Edward (2009) pointed out that women aged over 40 years were found to be more likely to enroll compared to those in lower age ranges. Mhere F. , 2013, found out that in Zimbabwe age was a significant determinant of enrollment in health care insurance policies and pointed out that as people aged, they had a better sense of responsibility, had more knowledge and may also have acquired earthly treasures and wealth that may trigger responsibility which may include the need to take care of their health needs. In addition, marital status was found a significant factor to uptake, $p=0.001$, agreeing with findings by Maina et al. (2016) that showed being married was associated with an increase in uptake of healthcare insurance. High education levels was associated with increased likelihood of uptake of healthcare cover, $p=0.001$. Enhanced enrolment in healthcare insurance policies is dependent on the education level of an individual. This agrees with the findings of (Omondi, 2009) who noted in his research in Uganda that education is a factor that improves the health seeking behavior and hence insurance uptake. Similar findings have also been reported in Sri-Lanka where it was found out that household heads who had no formal primary or secondary education were less likely to participate in health insurance (Bending et al., 2011). Additionally, Feinstein *et al.*, (2006) noted that education is important to health and its determinants including health behaviors use of preventive services and general attitudes to risks. In this study 51.7% of individuals earning less than Kshs 20,000 had been enrolled in healthcare insurance schemes, 44.8% of those earning between Kshs 20,000 and Ksh 40,000 had enrolled into the scheme while 92.3% of those earning more than Kshs 100,000 had been enrolled into the scheme and further that monthly earning was associated with uptake of healthcare insurance, $p<0.032$.

These findings concur with those of Bourne (2010) who found that enrollment in health insurance in Jamaica was influenced by income among other factors. Additionally, Fang *et al* in their study on health Insurance coverage and medical expenditure in Taiwan observed that households with higher incomes were more likely to have higher coverage in both public and private health insurance schemes (Fang, 2012). In a similar study in South Africa, Kirigia *et al* (2005) examined the relationship between health insurance enrollment and the economic characteristics among women and found that the proportion of individuals who had health insurance rose as household income increased with coverage of those earning 1-950rand being at 6.3% coverage while those earning above 7600rand per month having a coverage of 90.8%. The higher enrollment of individuals in higher income group is consistent with consumer theory that considers health insurance as a normal good with positive elasticity of demand as pointed by Dalaba *et al* (2012). The study found out that there was an association, $p < 0.001$, between being aware of healthcare insurance and uptake of healthcare insurance where 72.7% of those who said they were aware of healthcare insurance had insurance cover compared to only 2.9% among those who said they were not aware of healthcare insurance. When an individual is knowledgeable on the concept of health insurance policies, there is a higher likelihood of enrolling in a policy. This finding concurs with those of Gina and Sapna who reported in their study that informal sector populations are generally unfamiliar with the concept of health insurance resulting to low enrolment in insurance schemes Gina & Sapna (2008). Additionally, other scholars (Jangati, 2012) have reported that high rates of unawareness about healthcare insurance leads to low rates of enrolment in medical insurance schemes. One can only take an insurance policy if they are aware of its existence and the importance associated with the scheme. The study found 2.9% of the respondents who said that they were not aware of healthcare insurance having taken the cover. This is consistent with the assertion by Hoerl *et al* (2017) who pointed out that people with low health insurance literacy tended to lack experience with the health care system and were more likely to be uninsured even after the implementation of the health insurance marketplaces. The findings are also consistent with those of Mathauer *et al* (2008) who did an assessment on the factors affecting the demand for health insurance, focusing on enrolment into NHIF and found out that lack of knowledge about enrolment procedures and the basic principles of insurance was a major barrier to enrolment. Many of the participants had not heard of the health insurance and appeared to expect to be paid back the premiums if they had not fallen sick for a long period, reflecting their poor understanding of the pooling principle risk sharing in health insurance (Mathauer, Schmidt J, & Wenyaa, 2008), hence translating into poor uptake of insurance.

CONCLUSION AND RECOMMENDATIONS

Uptake of healthcare insurance in this study was found to be 63.5%. Male enrollment in healthcare insurance policies was higher than female and similarly, the elderly had a higher enrollment in healthcare insurance policies than the young. In addition, marital status positively influenced uptake of healthcare insurance where the married people had a more likelihood of being enrolled in a healthcare insurance provider in comparison to single or never married people. Moreover, increase in education level leads to increase in uptake of healthcare insurance policies. Health Insurance providers need to enhance advocacy targeting women, the unmarried and the younger population in order to scale up enrollment in healthcare insurance schemes. Education on the principle behind health insurance together with elaborate understanding of the benefits accruing in health insurance is

key to up-scaling uptake. The healthcare insurance providers need to give consideration to the labor market and provide affordable products responsive to income trends.

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