



Determinants of Uptake of Health Insurance Cover Among Adult Patients Attending Bungoma County Referral Hospital

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Abstract: Health insurance is currently being considered as a mechanism for promoting progress to Universal health Coverage and reducing out-of-pocket payments in many African countries including Kenya which is prompting the use of NHIF. In Kenya, penetration of health insurance is 20% and 11% in Bungoma County. The main objective of the study was to establish the scheme-related factors influencing uptake of health insurance cover among patients attending Bungoma County Referral hospital. The study adopted across sectional descriptive survey of 300 systematically sampled patients, 4 purposively sampled departmental heads in Bungoma County Referral Hospital and all the 5 insurance company branch managers. Data was collected using questionnaires administered and Key Informant Interview schedule. Crude odds ratio was used to establish association between ownership of health insurance and scheme-related factors. Findings showed that 37% of patients owned health insurance covers mostly public health insurance cover (NHIF). Ownership of health insurance covers increased with age, household income, education levels, awareness of insurance benefits and concepts. Covers were also more prevalent among married patients. Ownership of health insurance covers increased 12.5 times with affordability of covers premiums. Stock-out of essential drugs and supplies and longer waiting time in covered health facilities discouraged enrollment to schemes.

Keywords: Health Insurance Cover, Patient-Factors, Cover Benefits, Cover Accessibility, Perceived Cover Quality

1. Introduction

Universal health coverage, a major goal in under Sustainable Development Goals, seeks to ensure people obtain the health services whenever they need and devoid of risk catastrophic health spending [1, 2, 3]. Most countries around the world, especially developing countries have recently switched towards a health insurance model in attempts to achieve universal health coverage and access [4, 5]. Kenya's health system is grossly underfunded with total health spending standing at about 6% of Gross Domestic Product [6] far from the African countries commitment of

15%. As a result, 36% of total health expenditure are sourced directly from households which disproportionately affects the poor of whom an estimated 450, 000 are annually pushed to below poverty line due to catastrophic health spending [7, 8, 9]. Health insurance in Kenya can be accessed through public National Health Insurance Fund (NHIF), private insurance companies and some few community-based health insurance. 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 [10, 11]

According to the conventional theory of demand for health insurance, people are by nature risk averse and thus willing to make small payments to avoid risks of paying large sums of medical bills when they fall sick [12]. In this case, the risk emanates from unpredictability of falling sick and resultant costs associated when seeking treatment which at times can be of catastrophic. This risk is one of the critical components determining uptake of health insurance, however, not entirely. Contrastingly, as an expected utility model, people at times enroll in health insurance as a form of income transfer which they stand to benefit whenever they fall sick from risk pool. Health insurance as a moral hazard tend to induce people to over-utilize health services to reap maximum benefits from premiums they pay, which explains increased hospital visits among insured persons. Also, health insurance uptake seems to suffer from adverse selection where uptake is more skewed to persons likely to fall sick and thus stand high chance utilizing risk pool yet insurance companies ought to make profits from coordinating risk pooling. As a result persons who are at risk of falling to poverty levels due to unpredictable income might have higher probability of enrolling for an health insurance coverage [13]. Subsidized health insurance cover costs can stimulate uptake of health insurance covers due to price elasticity as the people might perceive it to be more affordable after introduction of government subsidies.

Uptake of health insurance in Kenya is low with only 19.9% of Kenyans owning a health insurance [14]. Ownership of health insurance is even lower in rural Kenya especially in Bungoma County (11%) [15]. In addition non-renewal of membership is also uptake. 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 [11, 15, 16]. This study therefore sought to explore insurance-cover related factors that influence uptake of health insurance in Bungoma County. Specifically the study sought to establish influence of individual characteristics, cover awareness, cover accessibility and scheme related factors on the uptake of health insurance cover among adult patients attending Bungoma County Referral Hospital.

2. Materials and Methods

2.1. Design, Setting and Study Population

This was a cross-sectional descriptive study. It presents a snapshot of uptake of health insurance at a specific time. Adult patients seeking care in public health facilities were the target population in this study. The study was conducted among adult patients seeking health services at Bungoma County Referral Hospital, Bungoma, Kenya. The hospital is the apex public hospital in the County. According to hospital records, an average of 12,000 patients were received per month in the hospital. Data was collected from adult patients

attending the hospital during the months of April-May 2016. Additional information was sought from hospital managers, and managers of health insurance companies.

2.2. Sampling Procedure

A sample of 300 adult patients seeking care at Bungoma County Referral Hospital were involved in this study. On average 8 patients were sampled per day with systematic sampling of every 50th patient daily being recruited to the study. Patients were recruited and interviewed consecutively on weekdays throughout the study period. In addition, 4 departmental heads in Bungoma County Referral Hospital were purposively sampled and all the 5 insurance company branch managers were included in the study.

2.3. Data Collection Procedures

Data was collected using researcher-administered structured questionnaires for the patients and Key Informant Interview guide for hospital and insurance branch managers. Socio-economic factors were assessed using categorical and Likert scale while awareness on insurance including concepts and benefits were based on self-rating of awareness on Likert scale. Ownership of health insurance was based on self-report on whether they owned any health insurance at the time of the survey. Accessibility of health insurance covers was assessed as a multi component score consisting of geographical accessibility, financial affordability and acceptability. Other factors considered included length of waiting time in covered facilities, perceived quality of services covered and availability of drugs in covered facilities. To determine geographical accessibility, patients were asked of the fares they spent to the nearest insurance covered facilities and nearest town with insurance facilities. Financial affordability was measured as perceived constraints a household might bear should it pay the minimal costs of NHIF for non-employed patients and perceived burden of NHIF deductions from monthly salaries for employed patients. Acceptability of health insurance covers was assessed by asking patients if they accepted provisions of limited scope of covered services and facilities in health covers. Key informants were asked to rate on a Likert scale the extent to which length of waiting time in covered facilities, perceived quality of services covered and availability of drugs in covered facilities affected enrollment to and non-renewal of health insurance covers. Prior to data collection, approval from Research and Ethics Committee of Kenya Methodist University was sought. Data collection clearance sought from Bungoma county health department and data collection permission was also sought from hospital authorities. Respondents' consent was sought prior to recruitment and collecting data.

2.4. Data Management and Analysis

SPSS version 21 was used for analysis. Descriptive statistics (frequencies, means and standard deviation) were used to summarize the data. Crude Odds Ratio (OR) was

used to determine relationship between cover accessibility and uptake of health insurance covers. Health insurance benefits and awareness on health insurance concepts were compared using t-test. Qualitative data was analyzed using content and thematic analysis.

3. Results and Discussion

3.1. Ownership of Health Insurance Covers

The study targeted 300 adult patients seeking health services at Bungoma County Referral Hospital and there was

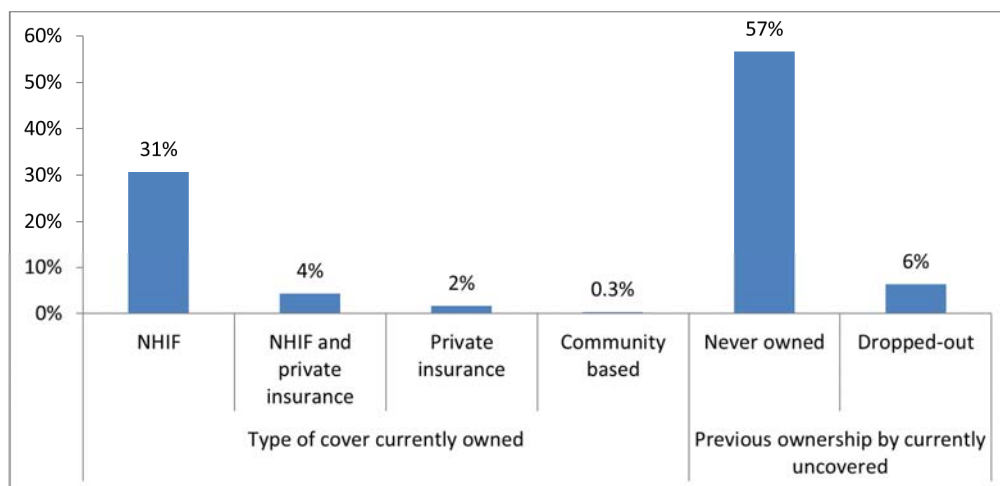


Figure 1. Ownership of Health Insurance Covers.

The ownership of health insurance found in this study was much higher than the national average estimated at 20% [14] as well as the Bungoma County average estimated at 11% [15]. Much lower health insurance covers prevalence (2.3%) was recorded among pastoralist communities in Kajiado County [17]. The difference in prevalence observed in this study could be linked to the fact that the former studies were population-based while this study was hospital-based. Additionally ownership of health insurance is likely to enhance utilization of healthcare services as a moral hazard [18]. Prevalence community-based health insurance (1%) covers was however similar to other local studies [19, 20]. The prevalence of health insurance cover in this study was significantly lower than the observed proportion (62%) among patients attending antenatal clinics in Embu Level Five Hospitals [20]. The drop-out health insurance cover

100% response rate. Over one-thirds (37%) owned a health insurance cover while 63% did not own any health insurance cover. Most (31%) of those who owned a health insurance cover, owned public (NHIF) health insurance cover only while 4.5% owned both private and public health insurance cover (See Figure 1). There were notable (6%) cases of non-renewal of insurance covers which affected mostly those who previously owned an NHIF covers who mostly blamed unreliability of income for failure to renew their monthly subscriptions.

ownership was however lower compared to a study in Central Kenya which found a drop-out of 15% [10]. The reasons for drop-out were different from a study in Ghana which documented poor quality of health services offered by covered facilities [21].

3.2. Individual Characteristics and Ownership of Health Insurance Covers

The study found that ownership of health insurance covers was positively correlated with age of the patient, being married, higher education level, being employed and having average household sizes. There was no significant difference in ownership of health insurance covers among male and female patients as well as previous history of being admitted in hospital as shown in Table 1.

Table 1. Individual Characteristics and Ownership of Health Insurance Covers.

Characteristic	Health insurance Ownership			Crude OR		
	Own (%)	Don't own (%)	N	OR	P-value	
Age	18 – 24	9.5	90.5	42		
	25 – 34	35.8	64.2	120	5.3	0.003
	35 – 44	47.2	52.8	72	8.5	0.000
	45 – 54	54.5	45.5	33	11.4	0.000
	55 +	36.4	63.6	33	5.4	0.008
Gender	Male	37.9	62.1	124		
	Female	36	64	175	0.9	0.737
	Married	41.8	58.2	244		
Marital Status	Divorced/separated/widowed	33.3	66.7	21	0.9	0.809
	Single	5.7	94.3	35	0.1	0.001

Characteristic	Health insurance Ownership			Crude OR		
	Own (%)	Don't own (%)	N	OR	P-value	
Highest Level of Education	University or College	57.5	42.5	127		
	Secondary	23.2	76.8	82	0.2	0.000
	Primary	21.1	78.9	90	0.2	0.000
Occupation	Unemployed or student	14.4	85.6	104		
	Self-employed or casual laborer	25.6	74.4	121	2.0	0.040
	Employed	86.7	13.3	75	38.6	0.000
Monthly household income (Kshs)	< 10000	15.6	84.4	147		
	10000 – 20000	26.4	73.6	72	1.9	0.060
	20001 – 30000	76.9	23.1	39	18.0	0.000
	30001 – 40000	93.1	6.9	29	72.8	0.000
Household size	> 40000	92.3	7.7	13	64.7	0.000
	< 3	26.8	73.2	123		
	3 – 5	46.2	53.8	106	2.3	0.002
	6 – 8	40	60	50	1.8	0.091
Family member	> 8	42.9	57.1	21	2.0	0.141
	Admitted	37.3	62.7	118		
	Not admitted	36.8	63.2	182	0.8	0.416

Except among respondents aged more than 55 years, ownership of health insurance cover increased with age. Patients aged below 25 years were more than 5 times less likely to have a health insurance cover as compared to those aged 25 years. The increase in insurance coverage by age might be linked to increment in additional healthcare needs as well as increased financial security while reduction in insurance cover ownership in post-55 years could be attributed to purchasing power and access to information. Several other local studies have also linked increment of health insurance covers ownership with increased age due to depreciation of inherited health stock and increased financial security [19, 22, 23]. This study found no significant difference in health insurance coverage between male and female patients. This was contrary to other studies that found men to be more risk-takers thus have lower ownership of health insurance coverage while women tend to interact more or need more health services hence higher health insurance coverage [19, 24]. Married patients were found to be 10 times more likely to own a health insurance cover as compared to patients who were never married. Marriage increases desire for health insurance to protect children, avoid catastrophic health expenditure, and likely to have higher combined income as compared to non-married persons. Other studies have also found a positive correlation between being married and ownership of health insurance [20, 25, 26].

Health insurance cover ownership was also found to increase with higher education levels. The positive correlation between education and ownership of health insurance cover is linked to purchasing power increase and higher access to health insurance information. Similar positive correlation have been made in local studies [15, 22, 23, 24]. Concurrent with other studies [27, 28, 29], this study found that ownership of health insurance covers was also found to increase with employment and higher average monthly income. Average sized households had higher ownership of health insurance covers compared to smaller and larger household sizes. Contrarily, findings made elsewhere in Kenya that did not find evidence linking

household size to ownership [20] while another Kenyan [24] study linked larger households with higher ownership of health insurance covers. In addition, a Kenyan study [22] and a Nigerian [25] study linked smaller households with higher ownership of health insurance covers.

According to loss aversion theory, the aggravation that one experiences in losing a sum of money appears to be greater than the pleasure associated with gaining the same amount [30]. In this way therefore the costs (time and health) a patient losses because of illness and desire to avoid these inconvenience is a likely trigger for uptake of health insurance. This study found that having a family member who was previously been admitted at hospital increases the likelihood of health insurance covers by 1.25 times. This was similar to studies in USA [18] in Nicaragua [31] and Kenya [20, 23] who found that the health status of household members and the probability of future health events occurring were positively correlated with uptake of health insurance.

3.3. Awareness of Health Insurance Cover

Nearly all (98%) of the respondents had heard of health insurance especially NHIF. The study further sought to determine the perceived level of benefits that accrue out of health insurance on a series of 3-point ranging from *great* (3) to *moderate* (2) to *little* (1) extent. Results in Table 2 showed that ownership of health insurance cover was significantly associated with awareness of the benefits of health insurance. Specifically insured persons were more positive in their perceptions of benefits of health insurance as compared to non-insured persons.

Although there was near universal awareness of health insurance covers, this self-report awareness of health insurance was not associated with ownership of health insurance contrary to other local studies [19, 32, 33]. However, similar to findings made in a study in Ghana [21] this study finds awareness of health insurance benefits was positively correlated with ownership of health insurance covers.

Table 2. Awareness of Health Insurance Cover Benefits.

Benefits	Own	Do not own	t-test
	Mean	Mean	p-value
Meeting some costs of treatment	2.86	2.83	0.328
Limiting use of out of pocket money in treatment services	2.86	2.81	0.361
Meets costs of all treatment services provided	2.70	2.8	0.036
Enables one to access quality Healthcare services	3.00	2.95	0.026
Assisted family members to get services	3.00	2.94	0.018
Meeting major costs of treatment	2.79	2.81	0.434

On a self-rater scale, the study also sought to establish the association between patient's knowledge on health insurance concepts and ownership of health insurance covers. This was through a series of 3-point Likert self-rate questions ranging from *great* (3) to *moderate* (2) to *little* (1) extent. Results indicated that patients who owned covers were more knowledgeable of important concepts of health insurance as compared to those who did not own health insurance (See Table 3). Contrary findings were made in local studies that

found widespread misunderstanding of health insurance concepts even among cover holders [10, 20, 19].

Table 3. Awareness of Health Insurance Cover Concepts.

	Own	Do not own	t-test
	Mean	Mean	p-value
Premiums	2.68	1.9	0.000
Out of pocket expenses	2.55	1.87	0.000
Services to be covered	2.36	1.62	0.000
Accredited Health facilities	2.46	1.65	0.000
Number of dependents	2.86	2.11	0.000
Services not to be covered	2.27	1.53	0.000

3.4. Accessibility and Ownership of Health Insurance Covers

Ownership of health insurance covers decreased with increase in cost of fare to travel to and from the nearest town with health insurance companies. In addition, ownership of health insurance cover was determined by the financial ability of patients to purchase an insurance cover (See Table 4).

Table 4. Accessibility and Ownership of Health Insurance Covers.

	Own any health insurance cover			Crude OR	
	Own (%)	Not own (%)	N	OR	P-value
Fare to nearest town with insurance companies (Kshs.)	< 100	43.5	56.5	209	
	100 – 200	26.3	73.7	19	0.5
	201 – 300	23.4	76.6	47	0.4
	301 – 400	11.8	88.2	17	0.2
	> 400	25.0	75.0	8	0.4
Fare to nearest covered health facility (Kshs.)	< 100	39.1	60.9	256	
	100 – 200	30.0	70.0	20	0.7
	200 – 300	18.8	81.3	16	0.4
	300 – 400	20.0	80.0	5	0.4
	> 400	33.3	66.7	3	0.8
Affordability of insurance covers	Unaffordable	10.7	89.3	140	
	Affordable	60.0	40.0	160	12.5
Acceptability of insurance covers	Accept	63.3	36.7	294	
	Do not accept	50	50	6	1.7

In Kenya, health insurance companies are mostly restricted to urban sites, where the private formal sector is concentrated [15, 34]. In addition, the use of agents' services is yet to be fully embraced by insurance firms in Kenya. Except those incurring more than Kshs. 400, ownership of health insurance covers significantly decreased with increase in cost of fare to travel to and from the nearest town with health insurance companies. This finding is congruent to a local study in Migori County that linked longer distance to urban centers with NHIF offices to lower uptake of NHIF [33]. Similarly, throughout Kenya, health insurance ownership among individuals residing in or near urban centers is twice likely to have a health insurance covers [15]. Individuals located far from town additionally might not be aware of where to get health insurance due to low access to information in rural areas as well as lower purchasing power among rural dwellers [17, 22]. On the other hand, the study found that there was no significant variation in ownership of health insurance covers with difference in amount spent by patients to travel to the covered health facilities. This could be

attributed to the fact that most patients were from nearby areas thus spent low on fares to travel to the health facility, which was a high capacity covered hospital. This was contrary to other studies [29, 35, 36] that documented increased ownership of health insurance covers with reduction in distance to covered health facilities. The study found that patients who indicated that premium monthly charges was not a strain on their monthly earnings were 12.5 times more likely to own an health insurance cover as compared to patients who indicated that including premium monthly charges would result in a strain in their household income. Although health insurance premiums are considerably low, consistent payment of these premiums is difficult to the poor households which largely characterize Bungoma County. Failure to strictly adhere to payment schedule will result in a patient being considered non-compliant hence might not benefit from the cover despite good payment history. Despite NHIF having embraced use of mobile payments for its premiums, not all rural customers have embraced it hence some still travel to town offices to

pay their premiums which is an additional cost to customers. This finding was consistent with other studies which have documented ownership of health insurance increase with ability to afford the covers [5, 10, 21, 32, 33, 37]. Intensifying efforts towards meeting expectations of clients will likely lead to higher client trust and confidence in service providers which is a good recipe for higher health insurance uptake and retention. This study contrary to other studies [10, 38] did not find evidence linking acceptability of insurance covers to uptake and retention.

3.5. Scheme Related Factors and Ownership of Health Insurance Cover

An interview with hospital managers and branch managers of insurance companies revealed that essential drugs and supplies stock-outs, long waiting time before service and perceived inferior quality of services provided by covered health facilities discouraged some people from enrolling in health insurance scheme. Additionally, at the time of this survey, the public health insurer was not covering outpatient services which also discouraged patients from taking this cover; however, there have been efforts by NHIF to include outpatient services. Like other parts of the country, public health facilities in Bungoma are faced with health workers shortage, this leads to overworking of existing staff which compromises on quality while also elongating queuing time. Poor experience while seeking services from covered facilities might discourage patients from renewing membership to the insurance schemes. Several other studies [29, 39, 40] have documented poor quality of services as a major hindrance to not only renewal of membership but also uptake for new membership as already existing members tend to speak ill of their experience.

4. Conclusions

In line with moral hazard theory, the study finds ownership of health insurance is accentuates utilization of health services since observed ownership by patients seeking health services in the hospital was more than the documented community-wide ownership. The study finds evidence linking ownership of health insurance covers to the conventional theory of demand of health insurance since awareness of benefits resulting from ownership of health insurance positively correlated with its uptake. Since demand of health insurance covers is price elastic, the study finds evidence of increased ownership of health insurance covers increased with perceived affordability of insurance covers. As a risk aversion method, uptake of health insurance was significantly more common among older, married and patients from average households that could be linked to desire to stabilize their earnings and avoid falling into income instability. Stock-outs of essential drugs and supplies as well as longer waiting time in covered health facilities created a perception of reduced expected utility which has the potential to discourage enrollment and renewal of membership to health insurance schemes.

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