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Abstract

Health Insurance is a social protection against the possibility of incurring medical expenditure among individuals. It is a critical pillar of Health care financing and the main driver in achieving Universal Health coverage in most nations. The core objective of the study was to assess the level of current uptake of Health Insurance among informal sector workers in Matuu Ward within Machakos County. The target population were the informal workers in Matuu, Machakos County. The study research design was analytical cross sectional study which applied a mixed method approach in data collection and analysis. The mixed method was used to contribute to answering of the research questions and provide stronger evidence for corroboration of findings through triangulation. A sample of 202 respondents was selected for this study and primary quantitative data was obtained from sampled individuals involved in enterprises by use of questionnaires. Descriptive data analysis was done and categorical variables in form of frequencies and percentages was done; while numerical variables in form mean, standard deviation was done in analyzing and presenting the data. Qualitative data from key informants was manually analyzed and then grouped into themes and sub-themes. The study established that at 97% were aware of the health insurance and in addition, only 31% of the respondents were aware of the Universal Health Care (UHC) which is being piloted in Machakos County. The major source of information on health insurance schemes was friends as reported by 41.1% of the respondents. The major reason for stopping payments was loss of main source of income as reported by 41.7%. Chi-square results indicated that gender, age, level of education and income level had no significant effect on uptake of insurance. However, marital status had a significant effect on uptake of insurance. In

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conclusion, the uptake of health insurance by informal sector workers is high especially with the NHIF. This is because the Government has been aggressively improving the uptake by NHIF by all in the Country to facilitate access to Health Services. On the other hand, uptake of health insurance offered by private insurance firms is still low due to high premiums, bearing in mind that most of the informal sector workers earn very low and irregular incomes. Majority the informal sector workers deem health insurance coverage as important and feel that it should be encouraged as part of the efforts of facilitating Universal Health Coverage. The study recommends that the Government should make health insurance uptake continuity more attractive to the informal sector workers. Government and the private sector should explore Public Private Partnership in provision of health insurance with the aim of promoting the contribution of private health insurance schemes in expanding Universal Health Coverage. Lastly, the government should have tax incentive such as tax breaks or waiver for the informal sector workers who are insurance holders to encourage continuity.

Keywords: *Health Insurance Schemes, Informal Sector Workers, Kenya*

1.1 Introduction

Universal Health Coverage (UHC) is widely supported as one of the social goals that depend on wide access to necessary quality Health care services and protection against financial risks to all individuals. UHC increases equity and improves population Health which contributes to the country's development (WHO 2014). Health Insurance is a critical pillar of Health care financing and the main driver in achieving Universal Health Coverage in most nations. It is a form of social protection against the risk of earning medical expenditure among people. It is useful in shielding homes from calamitous medical costs and the resultant impoverishment that comes with ill Health (WHO, 2010). Over 90% of those people who experience devastating Health care payments live-in Low-income Nations where their Health systems are mostly financed through unplanned payments which leave the people financially exposed as a result of the huge medical expenses, and ultimately impoverishment (Xu *et al*., 2003). It can easily lead to catastrophic impoverishment due to the escalating Healthcare costs and this has the possibility of adversely affecting a household's living standard, because the income spent on Healthcare would have been spent on the basic human needs as food and clothing (O'Donnell *et al*., 2008). According to Chuma and Maina (2012), over a tenth of household budgets is spent on Health care payments annually in Kenya. Poorest households consume one third of their income to Health care annually leading to highest occurrence of Out-of-Pocket payments by the poor in contrast to only 8% payment by the richest households.

Most low-income workers are involved in informal work which is defined by International Labour Organization (ILO), as any economic activity undertaken by workers with profitable units that are not legally or sufficiently recognized by formal arrangements (ILO, 2012). Their general characteristics and patterns are lack of entitlements such as pension, unfair dismissal, lack of critical allowances such as leave and health insurance, lack of industry regulations leading to an unhealthy environment and finally, poor pay. However, this segment is very critical as there is evidence that to a very large extent, the informal sector cushions its workforce against abject poverty. Kenya, like many other Low- and Middle-Income Countries (LMICs) is increasingly prioritizing the attainment of Universal Health Coverage (UHC) (Sachs, 2012). This is in pursuit of the goal of UHC to "ensure that everyone has access to Health care services that they need, of good quality, without the risk of financial ruin or impoverishment" (WHO, 2010). UHC is one of

the goals in the Sustainable Development Goals (SDGs), adopted by World Leaders in 2015 as an articulation of Global Development priorities until 2030 (United Nations, 2015). Attainment of UHC requires that the countries expand the range of Health services, expand population coverage with a pre-payment mechanism, and reduce the proportion of direct costs to citizens for access to Healthcare services (Chan, 2016). In Kenya, Health Insurance is accessed through three Health Insurance schemes; Private Insurance, Public Insurance and Community Based Health Insurance Organizations. The Private Health Insurance is primarily affordable to middle- and higher-income groups due to cost considerations, (Kimani *et al*, 2014).

1.2 Statement of the Problem

Dependence on Out-of-Pocket Payments for health services make large proportion of poor households not to access the available Health services due to monetary constraints. It is estimated that 4 out of every 5 Kenyans are not accessing Medical Insurance, hence excluded from quality Health care services (Siddharth, 2017). The main approach being promoted by the Government of Kenya to access medical Insurance is through the NHIF. NHIF is Government medical scheme and its premiums are fairly low (KIPPRA, 2018). This leaves informal sector workers without any form of social protection against the catastrophic medical expenditures. The current Government of Kenya (2018) has thus prioritized Universal Health Coverage in its Big 4 Development agenda over the next five years. The Kenyan Government adopted the use of NHIF as a key strategies for scaling up Population coverage with a prepayment Health financing mechanism (Ministry of Medical Services, 2012; Munge *et al*., 2017). This implies that the Government of Kenya, and the NHIF have to confront the informality problem and develop strategies to expand coverage among the informal sector. Membership to the NHIF is mandatory for formal sector workers, who pay an income rated monthly contribution through statutory deductions, while it is voluntary for informal sector workers who pay a flat rate contribution directly to the NHIF.

In an effort to expand Health Insurance coverage, the NHIF has in the recent past implemented a number of reforms. These include the introduction of an Outpatient benefit package. Previously, the NHIF offered an Inpatient only benefit package to the public. Expanding coverage to include Outpatient services is thought to be a strategy to make the NHIF more attractive to the public and hence drive enrolment. To enable this benefit package expansion, the NHIF revised its premium contribution rates upwards (GIZ, 2016). Prior to this revision, the NHIF premiums were last revised in 1988. The monthly contributions for the lowest paid formal employee increased by 167 percent, while rates for the highest earners increased by 431 percent. Contribution rates for the informal sector increased by 213% (GoK, 2015). This raises the concern of economic accessibility of the NHIF scheme by the workers in the informal sector whose incomes are comparatively low and unreliable.

This research focused on the factors that are contributing to the level of uptake of Health Insurance cover by the workers in the informal sector in Matuu, Machakos County. Matuu being a rapidly growing economy fuelled by commercial services and agriculture serves as an economic hub for both Yatta and Masinga Constituencies whose border is near the town. The town has a significant number of informal sector workers and just like the rest, they suffer the plight of being exposed to the catastrophic Health expenditures.

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1.3 Research Objectives

i) To determine the proportion of informal sector workers in Matuu Ward within Machakos County that enrolled for Medical Insurance Scheme in the past three years.
ii) To establish the sources of money paid for Health services at the point of use among the informal sector workers in Matuu Ward within Machakos County.
iii) To identify factors that influence uptake of Health Insurance Schemes among informal sector workers in Matuu Ward, Machakos County.

2.1 Theoretical Literature Review

2.1.1 Moral Hazard Theory

This theory postulates that individuals or institutions with Insurance may take more risks than those who do not have an Insurance. This is because of the assurance that there is financial protection from the consequences one may get from the risky behavior. This leads to the insurer facing excessive claims than anticipated. This theory can be realized in Health care transaction on both the demand and supply side. An increase in consumption of services due to low actual price to the insured person triggers the demand side of the Moral Hazard Theory. This therefore prompts unnecessary spending on the part of the consumer knowing that the burden will be taken care of by the Insurance provider. The supply side of the Moral Hazard Theory is over supply where the Medical Care Provider takes advantage of the fact that the consumer is financially covered and therefore procures excessive Health care services by overcharging and ordering unnecessary medical tests and procedures, all because the charges will be shifted to the Health Insurance provider (De Allegri *et al*., 2008).

2.2 Empirical Literature review

Delivering affordable, accessible and quality Healthcare and financing is one of the key Health policy concerns currently facing Governments, Communities, Policy makers and International Development Institutions. Universal Coverage of Health care, being a widely endorsed social goal, depends on wide access to Health care services and low financial hurdles to their utilization, which is expected to improve the general Health standing of the populace (WHO, 2010; Mwabu 2013).

Health Security is increasingly being recognized as an integral component to any poverty reduction strategy. Even though poverty alleviation remains an objective of central concern, there has been a change in focus away from poverty reduction per se in favour of social risk management. Such is the case because of the growing appreciation of the role that risk plays in the lives of the poor (Holzmann & Jorgensen, 2000). Among the various risks faced by poor households, a major threat to their lives and livelihood is Health risks. Existing studies indicate that the poor have higher mortality rates because they are prone to be sick and less likely to go for preventive and curative Health care. According to these studies, a major factor bringing about these challenges is high out-of-pocket payment (OOP) to Health care (*Ziraba et al*, 2009). The 2010 Millennium Development Goals and the 2010 World Health Report reports both emphasize on the importance of disparities reduction in Health care access, especially in marginalized groups and the poor through Universal Health Coverage (Evans & Etienne, 2012).

Health Insurance cover has become an important product in the modern world especially with the increasing costs of Healthcare services. The Government recognized the challenge and came up

with the Health Financing Strategy in 2010. Health Insurance covers in Kenya have emerged to ensure that Kenyans can conveniently meet their medical expenses. In Kenya, Health Insurance is accessed through three schemes; Private Health Insurance, Public Insurance Schemes, and CBHI Organizations. However, due to cost considerations, the private Health Insurance is primarily available to middle- and higher-income groups (Kimani *et al*, 2014). On the other hand, Community – Based Health Insurance is relatively new in Kenya having been introduced in 1999, hence, has limited coverage (Muiya, 2013). Most of the Community- Based Health Financing (CBHF) Schemes share certain basic features, which include Voluntary Membership, Prepayment Membership Contribution and Community Initiation and Operation. This is not a new venture even if it is considered a scheme that is an innovative financing mechanism for the poor. Meanwhile, there is the National Health Insurance Fund, a Government Insurance cover established under the parliamentary act of 1966 (NHIF, n.d). However, the uptake of the Insurance, as noted earlier, cover has not been very good in various parts of the country.

Informal sector workers in Kenya consist mainly of Small Business owners like Retailers, Hawkers, *Boda* operators and other Service Providers excluding drug traffickers and any other illegal activity (KNBS, 2015). They normally operate under open space and have to contend with harsh climatic conditions; hence, they are commonly referred to as the *Jua Kali* sector. It is generally agreed that important factors associated with impoverishment in the sector are Health problems and Health related expenses (Krishna *et al.*, 2006; Ajwang, 2013). The reason being a Health problem leading to a short-term loss of earnings or to large extent permanent decreased ability to earn a living. Moreover, in the unfortunate event of ill Health, accidents or injury, informal sector workers are the hardest hit especially in case of lack of voluntary enrolment into the Health Insurance Scheme because they are not covered by the Workmen's Compensation Act (GoK, 1988), the Factories Act (GoK, 1972) or Trade Disputes Act (GoK, 1991).

In a study carried out in Kibera in 2012, Muketha noted that 18.7 per cent of the Residents failed to enroll to Health Insurance because they did not know about NHIF or any other Health Insurance Scheme, 50.4 per cent said that they lacked funds while 21.1 per cent said that NHIF and other HIS offices are not accessible. These challenges can be attributed, partly to lack of education and understanding on the importance of Health Insurance.

2.3 Conceptual Framework

The Conceptual framework below is used to explain the possible connection between variables identified in the theoretical and empirical literature review above (Kombo and Tromp, 2011). In accordance with the views of Orodho (2009), the Conceptual model provides the means of associating the factors that influence the postulated outline in a pictorial or diagrammatic way. The dependent, independent, moderating and intervening variables for the study are linked together in Figure 1.

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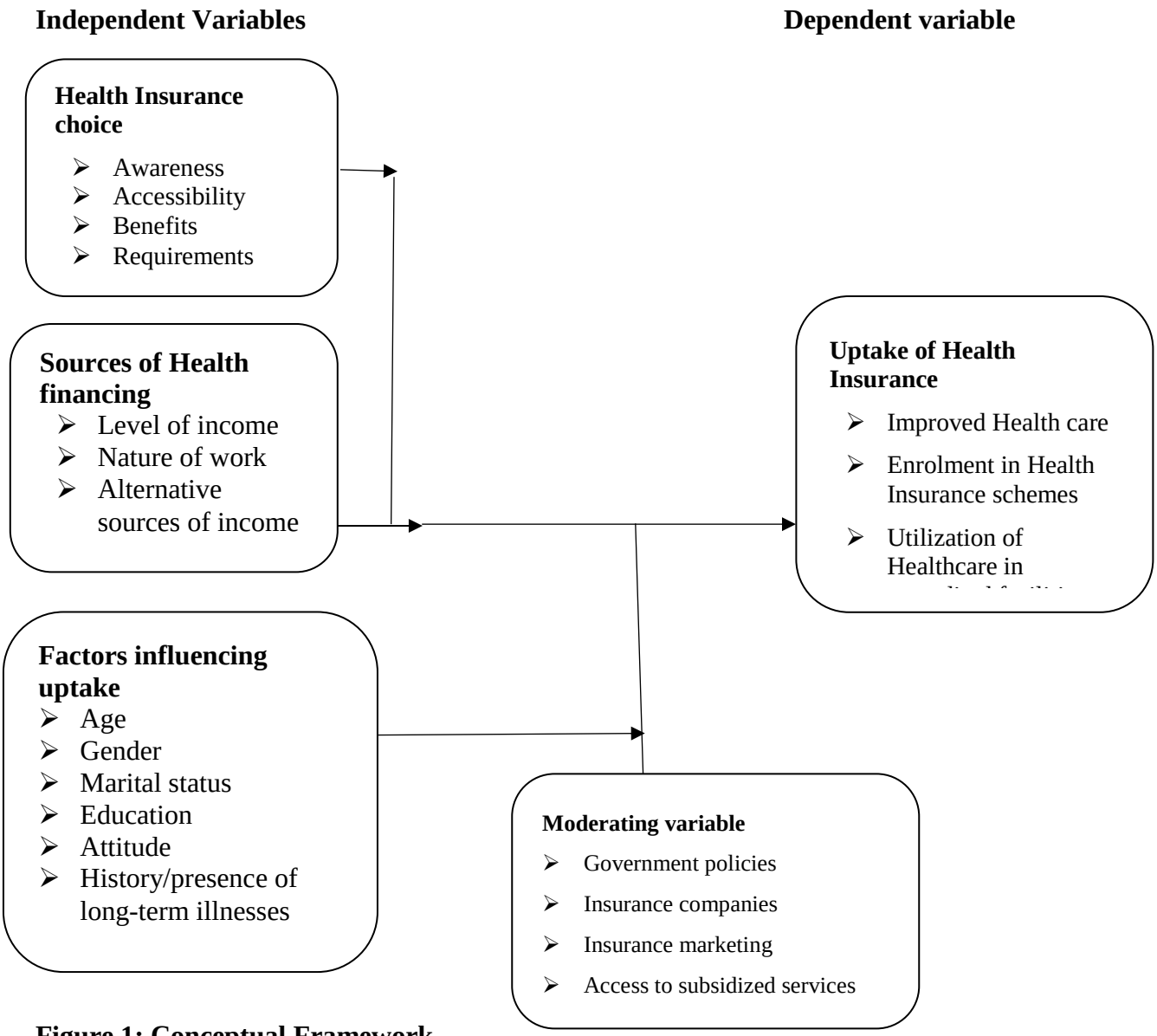

Figure 1: Conceptual Framework

3.1 Methodology

The target population was the informal workers in Matuu, Machakos County. The study design was analytical cross sectional study which applied a mixed method approach in data collection and analysis. The mixed method was used to contribute to answering of the research questions and provide stronger evidence for corroboration of findings through triangulation. A sample of 202 respondents was selected for this study and primary quantitative data was obtained from sampled individuals involved in enterprises by use of questionnaires. Descriptive data analysis was done and categorical variables in form of frequencies and percentages was done; while numerical variables in form mean, standard deviation was done in analyzing and presenting the data.

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Qualitative data from key informants was manually analyzed and then grouped into themes and sub-themes.

4.0 Results and Findings

4.1 Enrolment in Medical Insurance Schemes

The first objective for this study was to establish the level of uptake of health insurance schemes among informal sector workers. This involved establishing the awareness levels, source of information on health insurance and registration/ enrolment on the Schemes.

4.1.1 Awareness on the Health Insurance

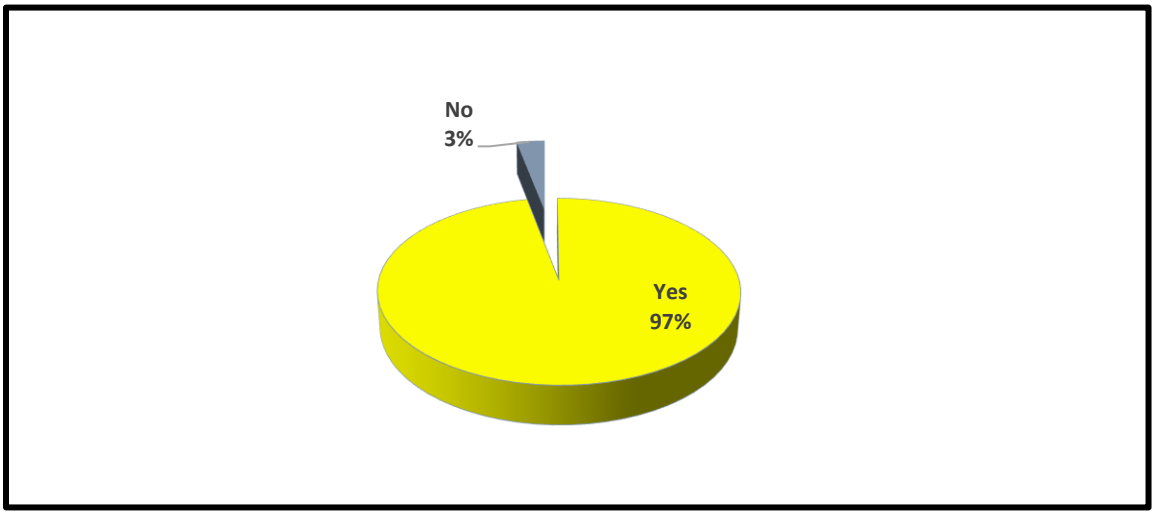

Figure 1: Awareness of Health Insurance schemes

Almost all of the respondents at 97% were aware of the health insurance as shown in Figure 1. This shows that the public have the information on the available health insurance schemes. In addition, the study found out that only 31% of the respondents were aware of the Universal Health Care (UHC) which is being piloted in Machakos County.

4.1.2 Source of Information on Health Insurance

Table 1: Source of information on Health Insurance scheme

Source	Frequency	Percent
Friend	79	41.1
Radio	76	39.6
TV	66	34.4
Health Professional	46	24.0
During Community Baraza	44	22.9
Other	3	1.6

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The major source of information on health insurance schemes was friends as reported by 41.1% of the respondents. Moreover, 39.6% indicated that they got the information from Radio, 34.4% saw information on television, and 24% got the information from health professional, 22.9% from the community baraza while only 1.6% reported to have obtained the information from other sources.

As indicated in Figure 2, a majority of the respondents (92%) reported that the requirements for enrolling into health insurance scheme were easy to fulfill whereas only 8% of the respondents reported that the requirements for enrolling for the health insurance are not easy.

4.1.3 Uptake of Health Insurance Schemes

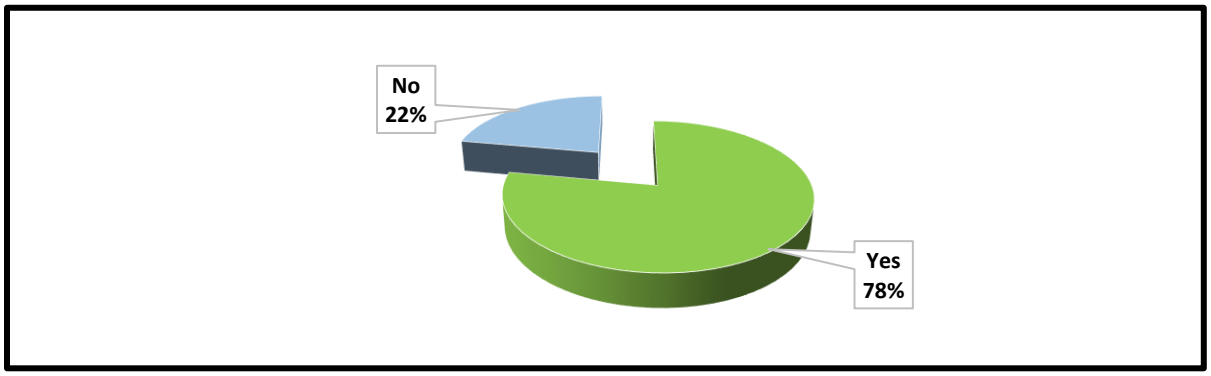

Figure 2: Have you enrolled for Health Insurance

The results in Figure 2 indicated that majority of the respondents (78%) stated that they were currently enrolled in at least a health insurance scheme.

According to the key informants, those who have been enrolled in health insurance schemes enjoy various benefits. Some of these benefits are "services that are normally too expensive for a common person to afford". The other benefits are: "in-patient cover catering for the bed rest accommodation, Medication, Doctor's fee, Surgical and other Medical procedures; Out- patient cover, which includes General Consultation, diagnosis and treatment of common ailments, Lab tests including Antenatal profiling, Health Education, Wellness and Counselling; routine screening for conditions such as Cervical and Prostate Cancer and minor Surgical services; and Maternity cover including both normal delivery and caesarean section." (Matron in charge of hospital; KII, 2019)

Moreover, according to representatives of NHIF interviewed as part of the KIIs," the cover further includes specialized diagnostic tests which includes Ultrasound, Magnetic Resonance Imaging (MRI) and Computed Tomography (CT scans); Kidney Renal Dialysis which is covered per family and applicable for Inpatient and Outpatient care for pre-dialysis and intra-dialysis care; Kidney transplant that is applicable for both local and overseas treatment; pre-transplant, intra-transplant and immediate post- transplant inpatient care and Hospital stay for donors. Surgical packages including major, minor and specialised surgeries; rehabilitation for drug and substance abuse; Oncology/Cancer treatment offered in specific NHIF contracted facilities; specialised Laboratory tests done at level E and F Hospitals; pre-authorization of undertaking is required for this test to be done as well as Emergency Ambulance Rescue including Road Ambulance Rescue." (Matron in charge of hospital, KII, 2019).

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4.2 Sources of Health Financing

The second objective sought to establish the sources of financing for health insurance and for those who are not enrolled to health insurance schemes, their source of funding for medical costs.

4.2.1: Payment for Health Insurance

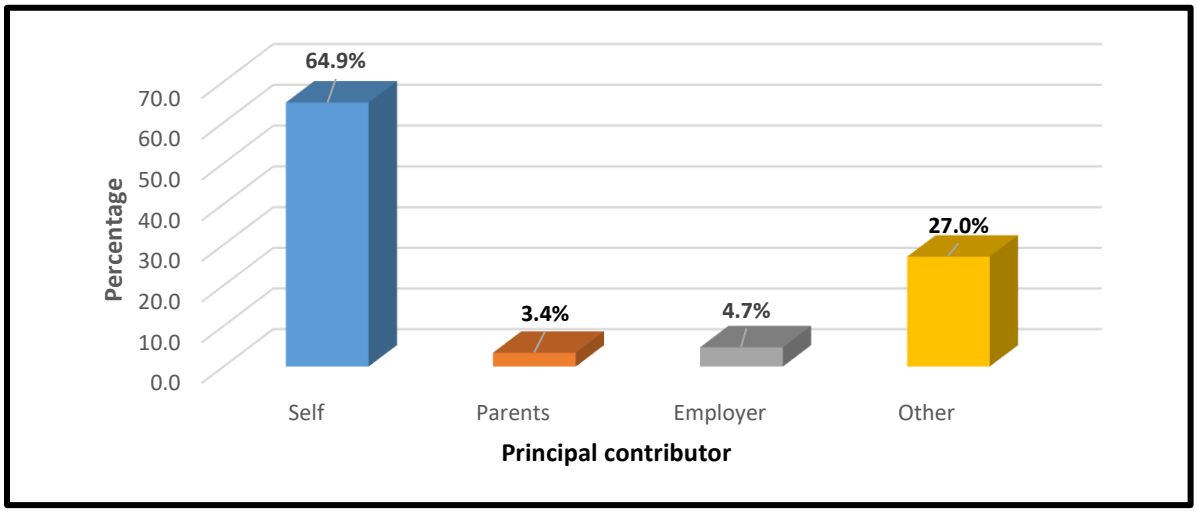

Figure 3: Who pays for the Insurance

Majority of the respondents (64.9%) reported that they pay for the health insurance themselves, 27% reported that other people pay for their health insurance, 4.7% reported that their employers pay for their health insurance and only 3.4% reported that their parents pay for the health insurance as illustrated in Figure 3.

4.2.2 Reasons for stopping payments

Table 2: Reasons for stopping payments

	N	%
Lost main source of income	10	41.7%
Insurance premiums increased	6	25.0%
Business performance doing badly	4	16.7%
Others	6	25.0%

Based on Table 2, the major reason for stopping payments was loss of main source of income as reported by 41.7%. A quarter of the respondents 25% reported that they stopped paying due to the increased premiums and the other 25% reported that they stopped paying due to other reasons whereas 16.7% indicated that they stopped paying due poor performance of their businesses.

Information from KIIs provides additional view on why some residents stopped payment of the monthly instalments. A number of residents stopped paying the monthly subscriptions since the

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introduction of Universal Health Care (UHC) which is being piloted in the County. The Matron in the Matuu Level 4 Hospital stated;

> *"Since UHC was piloted in November 2018, most of the residents have the UHC cover, some have the NHIF and a few have Medical cover from Britam and APA".*

According to the KII response, the UHC users however, can only get services from public facilities because the program does not include the private facilities. The mission hospital in Matuu also does not offer services for those intending to pay through insurance cards. According to the Hospital Administrator, the facility has been trying to have accreditation from NHIF but the process has taken so long without any feedback. This delay in obtaining approval has led to limited services at the hospital since some people have been locked out. 'NHIF has been slow in approving our accreditation so we are limited to people who can pay cash'. (Nurse in charge, mission hospital, KII 2019)

4.2.3 Proportion without insurance

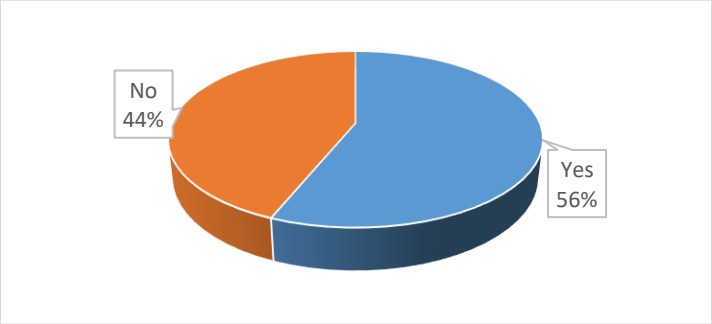

Figure 4: Reason for using Health Insurance

The results in Figure 4 indicated that 56% had insurance while 44% did not have insurance.

Nonetheless, as noted from the KII interviews, an Officer at the hospital said that; 'most health facilities would prefer the population having health insurance as opposed to out of pocket expenditure. This is because with health insurance it guarantees them payment as most of the time, they are required to offer waivers for the neediest patients who are not able to afford the costs. She further said that health insurance can be used as a means of social protection especially for the vulnerable Population (Officer in hospital KII)

4.3 Factors that influence uptake of Health Insurance Scheme

The third and final objective of this study sought to explore the factors influencing the uptake of health insurance schemes among informal sector workers.

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4.3.1 Gender and Uptake of Insurance

Table 3: Uptake of health insurance by gender

Crosstab				
		What is your gender?		Total
		Male	Female	
Have you ever been enrolled in any health insurance scheme?	Yes	85	63	148
	No	27	15	42
Total		112	78	190

Chi-Square Tests			
	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	.635[a]	1	.426
Continuity Correction[b]	.383	1	.536
Likelihood Ratio	.642	1	.423
Fisher's Exact Test			
Linear-by-Linear Association	.632	1	.427
N of Valid Cases	190		

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 17.24.
b. Computed only for a 2x2 table

The Pearson Chi-Square value is 0.426 which is larger than the critical 0.05. We therefore conclude that gender has no significant effect on uptake of insurance.

4.3.2 Age and Uptake of Insurance

Table 4: Uptake of health insurance by age

Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	45.880[a]	34	.084
Likelihood Ratio	53.208	34	.019
Linear-by-Linear Association	17.409	1	.000
N of Valid Cases	188		

a. 57 cells (81.4%) have expected count less than 5. The minimum expected count is .22.

The Pearson Chi-Square value is 0.084 which is larger than the critical 0.05. We therefore conclude that age has no significant effect on uptake of insurance.

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4.3.3 Marital Status and Uptake of Insurance

Table 5: Uptake of health insurance by marital status

Crosstab							
		What is your marital status?					Total
		Married	Single	Separated	Divorced	Widow/ widower	
Have you ever been enrolled in any health insurance scheme?	Yes	99	46	1	1	1	148
	No	10	32	0	0	0	42
Total		109	78	1	1	1	190

Chi-Square Tests			
	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	27.652[a]	4	.000
Likelihood Ratio	28.297	4	.000
Linear-by-Linear Association	14.023	1	.000
N of Valid Cases	190		

a. 6 cells (60.0%) have expected count less than 5. The minimum expected count is .22.

The Pearson Chi-Square value is 0.000 which is less than the critical 0.05. We therefore conclude that marital status has a significant effect on uptake of insurance.

4.3.4 Level of Education and Uptake of Insurance

Table 6: Uptake of health insurance by level of education

Crosstab							
		What is your education Level?					Total
		Primary	Secondary	Tertiary	University	Other	
Have you ever been enrolled in any health insurance scheme?	Yes	28	86	26	7	1	148
	No	4	33	4	1	0	42
Total		32	119	30	8	1	190

Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	5.955[a]	4	.203
Likelihood Ratio	6.514	4	.164
Linear-by-Linear Association	.176	1	.675
N of Valid Cases	190		

a. 3 cells (30.0%) have expected count less than 5. The minimum expected count is .22.

The Pearson Chi-Square value is 0.203 which is more than the critical 0.05. We therefore conclude that level of education has no significant effect on uptake of insurance.

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4.3.5 Income Level and Uptake of Insurance

Table 7: Uptake of health insurance and income levels

Crosstab						
		How much approximately do you earn in a month?				Total
		Below Ksh 5,000	Between Ksh 6,000 - 10,000	Between Ksh 11,000 - 20,000	Above Ksh 20,000	
Have you ever been enrolled in any health insurance scheme?	Yes	25	70	38	15	148
	No	7	26	7	2	42
Total		32	96	45	17	190

Chi-Square Tests	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	3.559[a]	3	.313
Likelihood Ratio	3.750	3	.290
Linear-by-Linear Association	1.768	1	.184
N of Valid Cases	190		

a. 1 cells (12.5%) have expected count less than 5. The minimum expected count is 3.76.

The Pearson Chi-Square value is 0.313 which is more than the critical 0.05. We therefore conclude that income level has no significant effect on uptake of insurance.

4.3.6 Presence of illness

Table 8: Uptake of Insurance by illness

			Have you ever been enrolled in any Health Insurance scheme?		Total
			Yes	No	
Presence of illness	Yes	N	87	20	107
		%	81.3%	18.7%	100.0%
	No	N	60	22	82
		%	73.2%	26.8%	100.0%
Total		N	147	42	189
		%	77.8%	22.2%	100.0%

The respondents were asked if they had a family member who had illness. This was meant to inform whether people are influenced to take up health insurance schemes to cater for chronic/long term ailments. From the study, 81.3% of those whose family members had illnesses had enrolled in health insurance. Moreover, 73.2% of those who had no illness in their family had also enrolled.

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4.3.7 Perception on Health Insurance

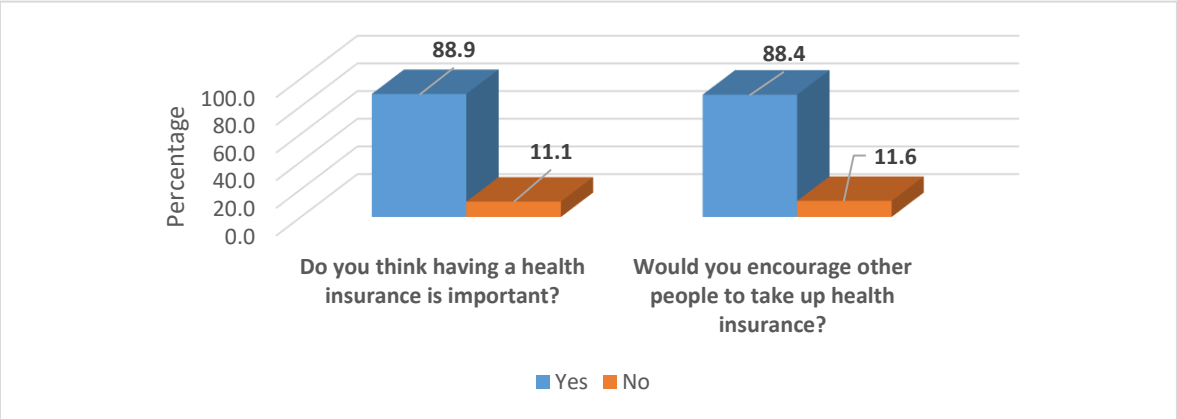

Figure 5: Perception on Health Insurance

In terms of rating the importance of health insurance, a high proportion of the respondents at 88.9% agreed that having the health insurance is important while only 11.1% of the respondents reported that having health insurance was not important. On the other hand, overwhelming 88.4% of the respondents reported that they would encourage other people to take health insurance while only 11.6% reported that they wouldn't encourage other people to take up health insurance as illustrated in Figure 5.

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4.4 Regression Analysis

A multinomial logistic regression analysis was conducted to establish the variables that significantly informed health insurance schemes uptake by the informal sector workers. The results are as depicted in Table 9.

Table 9: Regression Outputs

UPTAKE OF INSURANCE [a]	B	Std. Error	df	Sig.	Exp (B)
GENDER					
Male	0.775	0.469	1	0.099	2.523
Female	0[b]				
MARITAL STATUS					
Married	-14.47	0.498	1	0.000	3.517
Widow/ widower	-16.119	0.000	1	0.210	2.423
Separated	0.947	6886.887	1	0.430	2.385
Divorced	1.857	6886.887	1	0.350	1.536
Single	0[b]		0		
RELIGION					
Protestant	0.188	1.609	1	0.907	2.287
Catholic	0.7	1.609	1	0.664	2.174
Islam	0[b]		0		
LEVEL OF EDUCATION					
University	-0.496	7281.956	1	0.001	5.245
Tertiary	-0.664	7281.956	1	0.944	4.386
Secondary	-1.597	7281.956	1	0.932	2.125
Primary	0[b]		0		
INCOME					
Above Ksh 20,000	0.235	0.978	0	0.012	6.743
Between Ksh 11,000 - 20,000	0.104 0	0.973	1	0.915	1.826
Between Ksh 6,000 - 10,000	.443	0.968	1	0.647	1.063
Below Ksh 5,000	0[b]		0		
AWARENESS OF INSURANCE					
Aware of Insurance	0.574	0.983	0	0.000	8.266
Not Aware of Insurance	0[b]		0		
BUSINESS DURATION					
Above one year	1.796	0.381	0	0.004	5.267
7-12 months	1.019	0.576	1	0.077	3.279
4-6 months	0.242	0.771	1	0.754	1.281
1-3 months	0[b]		0		
BUSINESS POSITION					
Owner	0.735	0.580	1	0.021	7.631
Employee	0[b]		0		

a The reference category is: No Insurance Uptake.
b This parameter is set to zero because it is redundant.

The results in Table 9 indicates that under gender, the odds of the male informal sector workers taking insurance is 2.523 higher than the female informal sector workers. Under marital status, results indicated that the odds of the married informal sector workers taking insurance is 3.517 higher than the single informal sector workers. In addition, the odds of the Widow/ widower informal sector workers taking insurance is 2.423 higher than the single informal sector workers. The odds of the separated informal sector workers taking insurance is 2.385 higher than the single informal sector workers. Lastly, odds of the divorced informal sector workers taking insurance is 1.536 higher than the single informal sector workers. In comparison with the single informal sector workers, the married had the highest odds followed by the widow/ widower and separated while divorced had the least odds.

On religion, the results indicated that the odds of the Protestants faith informal sector workers taking insurance is 2.287 higher than the Islam faith informal sector workers. The odds of the catholic faith informal sector workers taking insurance is 2.174 higher than the Islam faith informal sector workers. Under the level of education, the results indicated that the odds of University level informal sector workers taking insurance is 5.245 higher than the primary level informal sector workers. The odds of tertiary level informal sector workers taking insurance is 4.386 higher than the primary level informal sector workers. Lastly, the odds of secondary level informal sector workers taking insurance is 2.125 higher than the primary level informal sector workers.

On income level, the results indicated that the odds of informal sector workers earning above Ksh 20,000 taking insurance is 6.743 higher than the informal sector workers earning below Ksh 5,000. The odds of informal sector workers earning between Ksh 11,000 - 20,000 taking insurance is 1.826 higher than the informal sector workers earning below Ksh 5,000. Lastly, the odds of informal sector workers earning between Ksh 6,000 - 10,000 taking insurance is 1.063 higher than the informal sector workers earning below Ksh 5,000. On the awareness of awareness of insurance among the informal sector workers, the results indicate that the odds of the informal sector workers insurance awareness taking insurance is 8.266 higher than informal sector workers with no insurance awareness.

Under business duration, the results indicated that the odds of the informal sector workers with above one year in business taking insurance is 5.267 higher than the informal sector workers with 1-3 months in business. The results further indicated that the odds of the informal sector workers with 7-12 months in business taking insurance is 3.279 higher than the informal sector workers with 1-3 months in business. The odds of the informal sector workers with 4-6 months in business taking insurance is 1.281 higher than the informal sector workers with 1-3 months in business. Under business position, the results indicated that the odds of the business owner taking insurance is 7.631 higher than the employees' informal sector.

4.5 Discussion of the Findings

The study sought to assess the level of current uptake of health insurance among informal sector workers in Matuu, Machakos County. Study findings established the sources of money paid for health services, payment options and frequency of payments and identified factors that influence uptake of health insurance scheme among informal sector workers. Looking at the uptake of the health insurance among the informal workers was important in answering the research questions in this study. The study found out that 78% of the respondents were enrolled in a health insurance. This contradicts the study by Duku *et al*, (2014) which found that only 34% of the Kenyan population had registered with an insurance scheme. Most of the respondents 72% were registered

with NHIF. The enrolment with private insurance schemes was minimal at only 4%. This confirms the study by (Chuma & Okungu, 2011) that private health insurance companies are expensive and cover only less than 2% of the population. In addition, only 31% of the respondents were aware of the Universal Health Care (UHC) which is being piloted in Machakos County. This confirms the findings of a recent study by Info Track a research and consulting firm (2019) who observed that despite the Universal Health Coverage (UHC) pilot program having been rolled out in four counties of Isiolo, Kisumu, Nyeri and Machakos, a majority (69%) of Kenyans are not aware of UHC. Only 31% reported being aware of the UHC program.

In regard to the second objective which sought to establish the sources of health financing, most of the respondents paid for the health insurance premiums using their incomes. Those who were not insured were required to pay for the medical bills of their patients using out of pocket financing. This was however not easy; as some of the bills would be so high requiring help from other quarters. The study further established that some sought the help of friends and relatives while others organized for fund raisers to raise the amounts required. Due to various reasons, some of the respondents (16%) reported withdrawing their membership to the health insurance schemes. Lack of money was the general reason for failing to pay for the premiums. As reported by 41.7% that they had lost their main source of income, a quarter of the respondents stopped paying due to the increased insurance premiums and another 16.7% indicated that they stopped paying due to poor performance of their businesses. This supports the findings on study carried out in Kibera in 2012 by Muketha who noted that 50.4 per cent of respondents lacked funds to enroll in health insurance while 21.1 per cent said that NHIF and other health insurance schemes (HIS) offices are not accessible. In addition, it also confirms that the study that some of the reasons include high premiums that are not affordable vis-à-vis income, inability to obtain credit (Behrman and Knowles, 1999). The fact that majority of the respondents (58.6%) were employees in the businesses and earning very low incomes informs the high levels of non-payment of subscriptions.

The study further established that some respondents had withdrawn their enrollment with the health insurance schemes due to introduction of UHC where members of NHIF and other health insurance schemes found no reason to be enrolled in two schemes. According to (Deloitte, 2011), NHIF estimates 30% of all members are inactive with significantly higher levels of inactivity among the informal sector. The higher levels of inactivity are due to the informal sector members consuming 33% of the benefits paid out and contribute about 5% of contributions (Deloitte, 2011).

The third objective of the study was geared to establishing the factors that influence the uptake of Health Insurance schemes. With regard to this, the study focused on factors such as age, gender, marital status, education levels, income and presence of illness in the family. The results showed that those who had enrolled in health insurance schemes were male (57.4%) compared to female (42.6%). Besides, Youths were more enrolled in Health Insurance Schemes (66.2%) compared to other Adults above the Age of 35 Years (33.8%). However, studies have been differing on the influence of Age and Gender on the uptake of Health Insurance. The study findings confirm the findings of Ying *et al*., (2010) and Jutting (2001) who found out that being young increases the probability of enrolling in a Health Insurance Scheme. However, this finding contradicts that of Mwaura (2012) who observed that advanced Age increased the probability of enrolling in a Health Insurance Scheme.

Moreover, two thirds of those who had enrolled in health insurance schemes were married. This was consistent with results from previous studies where married respondents were more likely to be insured (Trujillo, 2003; Liu *et al*., 2002). However, in terms of education, the findings showed

no significant relationship between the level of education of the respondents and uptake of health insurance schemes. This concurs with a study by Nyagero *et al*., (2012) which showed no significant association between education level of respondents and enrolment in health insurance scheme. But previous studies by Osei-Akoto & Adamba (2011) showed that the highly educated were more likely to purchase health insurance than the lowly educated. Further, the results showed an insignificant correlation between income levels and uptake of Health Insurance. This finding, however, contradicted some other studies such as (Osei-Akoto & Adamba, 2011).

5.1 Conclusion

The uptake by the informal sector workers of the health insurance offered by NHIF is relatively high compared to that offered by private insurance firms. This is attributed to the Government's recent aggressive efforts towards improving the uptake of NHIF in the Country as part of its efforts to facilitate access to Health Services for all the citizens. Machakos is one of the counties benefiting from the ongoing pilot of the Universal Health Coverage programme.

This has contributed significantly to improved uptake among the informal workers since it is provided as a non-contributory system that is financed indirectly through taxes and enables those registered to access health services free of charge from any government facility within the County. On the other hand, uptake of health insurance offered by private insurance firms is still low due to high premiums, bearing in mind that most of the informal sector workers earn very low and irregular incomes. Most the informal sector workers deem health insurance coverage as important and feel that it should be encouraged as part of the efforts of facilitating Universal Health Coverage. There is however a general concern that uptake of health insurance is in a way hampered by the low quality of services offered especially in the public health facilities.

6.1 Recommendations

1. Government should prioritize UHC, as a means of enhancing utilization of health services and health care since it is more attractive to the informal sector workers considering their levels of income.
2. The government should explore means to subsidize health insurance for the informal sector workers to encourage uptake and continuity.
3. More targeted civic education around the whole issue of insurance is required. The government and insurance companies can lead this through the counties and have more targeted civic education amongst contributors and the general public to improve utilization of insurance schemes and promote health care.
4. Government and the private sector should explore Public Private Partnership in provision of health insurance with the aim of promoting the contribution of private health insurance schemes in expanding Universal Health Coverage. The Government should consider chipping in and subsidizing high premiums, especially for the informal sector workers, to make the subscriptions affordable.

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