PERCEPTIONS OF HOUSEHOLDS TOWARDS HEALTH INSURANCE AND THEIR IMPLICATION TO ENROLMENT, KENYA.

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DECLARATION

I declare that this research paper is my original work and has not been presented for a degree award in any other university.

Signed: _____Date:___11/November/2020_____

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This research paper has been submitted for examination with my approval as university supervisor.

Signed: _____ Date:___12/November/2020_____

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DEDICATION

To my father, Dhimn Nzoya for his love and thirst for education.

ABSTRACT

Protection of household from catastrophic health care expenditures associated with direct payments and out-of-pocket payments is a desirable objective of health systems worldwide. A significant proportion of pooled funds financing the Kenya's health system are mobilized from households through OOP payments and with insurance uptake at a low of 17 percent in the country, the study sought to assess the demand-side perception factors of households towards health insurance, and evaluate the implications associated with the perceptions on voluntary enrolment to health insurance schemes.

A key finding was that households were willing to enroll and retain to health insurance schemes if their families and close friends were beneficiaries or would benefit in any way to pay for their health care costs. Also, the notion of everyone paying for their own health care costs was not popular with majority of the respondents. Further analysis revealed that households would consider the plight of the sick, the poor and the most vulnerable in communities, in their consideration for owning a health insurance cover.

From the study, recommendations are given to the health insurance providers to revise their approach to their insurance marketing strategies to include well-designed social and family benefits and awareness.

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LIST OF ACRONYMS

WHO – World Health Organization

UN – United Nations

SHI – Social Health Insurance

PHI – Private Health Insurance

CBHI – Community-Based Health Insurance

OOP – Out-of-Pocket

NSHIF - National Social Health Insurance Fund

NHIF - National Hospital Insurance Fund

UHC – Universal Health Coverage

SPSS – Statistical package of Social Science

CHAPTER ONE
INTRODUCTION

1.1 Background Information

Effective functioning healthcare systems are essential to the attainment of international policy commitments and also national policy objectives such as universal coverage for healthcare (WHO, 2007). Healthcare systems differ across countries in their structure, organization and financing, and the choice of funding mechanisms must be informed by the type of health system that can achieve overall policy objectives (Carrin et al. 2008). Public-financed health insurance is progressively being acknowledged as a favorable instrument for strengthening health financing systems in low-income countries while alternatively promoting equity and affordability of health care for the populations (UN, 2015). With a growing international consensus on social health protection systems, the World Health Assembly in 2015 unanimously agreed on a resolution advising countries to improve and streamline their health financing systems placing emphasis on the need to safeguard households from catastrophic healthcare expenditures and impoverishments by reducing the reliance on direct payments such as user-fees and developing pre-payment financial contribution systems for their respective health sectors (UN, 2015; ILO, 2001a). Direct Payments negatively affect households' financial wellbeing (ILO, 2008). Social health protection systems are developed with the aim of improving accessibility and affordability of populations to effective, timely and quality healthcare when needed, with emphasis on provision of both financial and non-financial risk protection towards individuals against catastrophic expenditures arising from seeking and purchasing healthcare services. (Cholleteta, 1997).

Public, and private non-profit and community-based insurance schemes are amongst the various categories under social health protection systems that are progressively being recognized as

promising tools for promoting equity in the financing of health sectors amongst countries both in the developed and developing worlds (ILO, 2008; WHO, 2006a). Social health insurance (SHI) is primarily centered on people; some low-income and middle-income countries, such as the Philippines, Thailand and Vietnam, have managed to implement SHI in their systems (Bennet *et al*., 1998). Voluntary insurance mechanisms, including private health insurance (PHI), have been introduced widely in countries such as South Africa, Chile, Brazil and Namibia, and in countries such as Ghana, Rwanda and Senegal for Community based health insurance (CBHI) (Mclntrye, 2007; Preker *et al.*, 2004; Ranson, 2002).

Globally, the implementation of health care insurance differ across countries in a number of ways. In developed countries, most schemes can be regarded as either combinations or variations, for instance, Canada employs a universal single-payer public-funded health insurance system; Germany has a public sponsored mandatory universal insurance system; Japan has a compulsory system comprising of employment-based insurance, national health insurance, self-insured and low-income insurance programs; while the US system is predominantly an employment-based health insurance systems where employers act as benefactors of their employees (Ellis et al, 2013).

The numerous forms of health insurance systems employed in different countries have had different outcomes and impacts on the population that they serve (Lagarde and Palmer, 2006). All developed countries provide universal coverage through their primary insurance schemes, except the United States. Insurance coverage in Canada, Japan, Germany and Singapore, approaches 100 percent (Ellis et al, 2013).

In middle-income and low-income countries, the majority of health systems are primarily funded by OOP payments, especially in African countries, where the concepts of health insurance and

social protection systems are fairly new and hardly well implemented (Mulupi *et al, 2013)*. Scarce resources and low institutional capacity explains why the progress of strengthening health systems and universal coverage of healthcare has been slow (Carrin, 2002).

However, significant progress has been documented in a few sub-Saharan countries such as Rwanda and Ghana in terms of financing and coverage with implementation the of social insurance schemes. Over the past decade Rwanda has managed to cover 91% (MoH Rwanda, 2010) while Ghana 66% (NHIA, 2010) of the total population into various social health protection programs in the respective countries. Whilst progress and achievements in both sub-Saharan countries towards equitable and affordable healthcare to their populations, most African countries are yet to institutionalize and implement social protection systems in line with the global agenda of achieving universal healthcare.

Kenya is yet to implement and institutionalize a universal health insurance program or scheme. However, the government has taken into consideration the possibility of introducing a compulsory National Social Health Insurance Fund (NSHIF) (GoK, 2003). Substantial efforts have been made to provide sustainable, accessible and affordable health through various reforms. Among the health reforms that have been instituted and implemented, is the National Hospital Insurance Fund (NHIF), a public scheme (GoK, 1996). The scheme's mandate has primarily placed emphasis on the formal sector employees which has inevitably excluded a significant fraction of the population that work in the informal sector. This has consequently led to inequities in the coverage of healthcare insurance, distribution and utilization of healthcare in the country (Kraushaar and Akumu, 1993). Household surveys estimate that approximately 17.1 percent of households in the country are enrolled into various pre-payment health schemes. With insurance coverage at 42 percent in the wealthiest quintile, compared to 3 percent in the poorest

quintile, 88.4 percent of insured households are enrolled in the NHIF scheme while 11.6 percent covered by private insurance schemes (KDHS, 2014).

Health insurance makes healthcare affordable by pooling risks and costs of healthcare expenditure of many people (Cholleteta, 1997). Most low-income countries lack proper institutionalized insurance mechanisms to pool health risks and finances for their entire respective populations. When they do, the risks, such as the present case with the Kenya NHIF scheme, are pooled only for civil servants and employees in the formal sector. The beneficiaries of such a risk pooling system are the employed who tend to be affluent compared to the other factions of the society, the poor who are consequentially unable to benefit from such insurance pools. (Dror and Jacquier 1999).

The main challenge hindering achievement of universal health insurance coverage in low-income nations is incorporation of the ever growing informal sector and enrolment of the vulnerable into schemes. In Kenya, it is estimated that the informal sector constitutes to about 31.6 percent of the total workforce while small-scale farming occupies 42.1 percent (World Bank, 2010). It is problematic to evaluate the incomes of individuals working in the informal sector, on the basis of setting and collecting premiums to pool funds for insurance schemes. Policy makers desiring to introduce or upscale, insurance schemes to the informal sector are faced with a bottleneck regarding the design of the scheme in regards to the enrolment, revenue collection and purchasing of healthcare services for such fractions of the population (Mathauer *et al*, 2007).

The Kenyan government is posed with the challenge of increasing coverage through voluntary enrollment in the NHIF scheme for the proportion of uninsured nationals in the informal sector and the disadvantaged. But then, promoting demand and acceptability of an intervention starts from an analysis and understanding of factors that affect demand amongst the target population.

With limited literature addressing the demand of health insurance in middle-income and low-income countries, policy makers are faced with a difficult task of stimulating demand for and acceptability of health insurance amongst uninsured households (Mathauer *et al*, 2007).

Previous econometric studies have explored individuals' socio-demographic determining factors and their relationship to health insurance ownership (Xu *et al.,* 2006, Bhat and Jain, 2006). Preceding literature regarding on individual's preferences have highlighted on the need to evaluate further beyond socio-demographic and income factors in order to recognize individuals' rationale and decision making behaviors (Monheit and Primoof , 2004). A small number of studies have explored community and individual perceptions and knowledge relating to health insurance and findings have shown that they play a significant role in the enrolment and retention into insurance schemes (Jehu-Appiah *et al.*, 2011; Mathauer *et al.,* 2008).

Policy makers and stakeholders need to recognize and acknowledge that community perceptions, beliefs and attitudes might either be potential drivers or barriers to enrolment. Measuring how a population feels about their health insurance system, specifically questions around the healthcare system financing, access and scope of coverage, will play a critical role in designing a health system that correctly echoes the mindset of its citizens (Loh et al., 2011).

Policy makers need to analyze and understand the preferences of the population while formulating and implementing interventions to reduce the need of trial and error during an intervention redesign or while designing one from the ground up. It is difficult to reliably determine the efficacy of a health care system without taking into account social preferences. (Kotzian, 2009).

As countries focus on UHC, it is important that community perceptions and understanding of health insurance are taken into account, and that they are educated and engaged to ensure that interventions and programs are acceptable to the target population.(Mulupi *et al*, 2013)

The paper aimed to contribute to the understanding of health insurance demand between, insured and uninsured households in Kenya by evaluating their perceptions regarding health insurance and their implication towards enrolment. It served to explore how non-insured households and individuals could be enrolled voluntarily into health insurance schemes.

1.2 Problem Statement

Protection of households from catastrophic health care expenditures associated with direct payments and out-of-pocket payments is a desirable objective of health systems worldwide. A significant proportion of pooled funds financing Kenya's health system are mobilized from households through OOP payments. Household OOP payments in the country accounted for 25.2%, 26.6% and 26.1% of the total health expenditure in FY 2009/10, 2012/13 and 2015/16 respectively (MoH, 2017), these estimates are above the WHO minimum desirable target of 20 percent OOP contribution to total health expenditure. The implications of such financing landscape that relies on OOP payments are evident and well documented (Meessen *et al.*, 2006).

The high level of OOP payments accounting to the total health expenditure in the country is an indication that households, in reality have funds to spend while purchasing healthcare. The study sought to answer the question of why households were directly paying out-of-pocket for healthcare rather than channeling the funds into pre-payment insurance schemes. With insurance uptake at a low of 17 percent in the country, promoting acceptability and satisfactoriness of insurance amongst households starts from an analysis and understanding of factors affecting demand among the target population. Research into people's preferences illustrates the need to further examine the thinking and decision-making behaviors of people beyond socio-demographic and income factors. Numerous econometric studies have explored socio-demographic factors and their relationship to health insurance ownership, few have explored community and individual perceptions relating to health insurance.

1.3 Purpose of the Study

1.3.1 Research Questions

For the study to achieve the objectives drawn from the problem statement, it sought to address the following questions:

i. What are the perceptions of health insurance amongst the insured households compared to those that are uninsured?
ii. What are the effects of perceptions on demand of health insurance by households?

1.3.2 Objectives of the study

The general objective of the study was to assess the perceptions of households towards health insurance and evaluate the implications associated with the perceptions towards voluntary enrolment to health insurance schemes by households in Kenya.

The specific objectives of the study were:

i. To identify the perceptions of households towards health insurance
ii. To assess the effect of perceptions on demand of health insurance

1.4 Justification of the study

Health insurance is progressively being acknowledged as a favorable instrument for strengthening health financing systems while alternatively promoting equity and affordability of medical care to the populations. In low-income countries were insurance uptake is relatively low compared to high-income countries, governments are posed with the challenge of increasing coverage to uninsured households. To realize universal health insurance coverage policy makers need to assess and understand households' demand-side factors of acceptability and enrolment to schemes. Past econometric studies have researched on socio-demographic factors, only few have explored community and individual perceptions towards uptake of health insurance. It is important for policy makers to be informed on the potential drivers or barriers brought about by

these perceptions, and how they influence households' decision to voluntary enrolment and retention into insurance schemes.

1.5 Organization of the Study

The rest of the research paper is structured as follows: Chapter two presents the literature review that is, the theoretical framework and empirical basis of the study. Chapter three looks at the methodology adopted for the research. Chapter four explains and interprets the results of the research data. Chapter five summarizes the study findings and recommendations.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter presents a comprehensive review of existing literature and studies relating to health insurance and a theoretical review on the demand of health insurance.

2.2 Theoretical framework

The theory of insurance demand is often considered as the purest illustration of economic behavior, but under uncertainty (Dionee, 2013). An individual's demand for health insurance arises from the relative uncertainty and doubt when it comes to a constant state of being in good physical and mental condition, and financial wellbeing after healthcare spending. The following theories were considered to be particularly relevant for the current study.

2.2.1 Theory of Risk Aversion

The essential purpose of health insurance is to decrease the risk related with healthcare seeking and spending. In relation to healthcare, there are two types of risks that are involved; a) the risk of falling ill, and the resulting deprivation in quality of life, the cost of seeking healthcare services, forfeiture of productive time, or death; and b) the risk of partial or delayed regaining of wellbeing. Events and consequences, and their associated risks are uncertain, both in scope and in incidence. Welfare economics of uncertainty therefore forecasts that people are always willing to pay to lessen these risks and effectively pool their risks through an insurer. (Arrow, 1963; Jack, 1999) With studies done in Africa showing that households are generally risk averse in regards to healthcare (Arhin-Tenkorang, 2001), the study adopted the theory of risk aversion in its methodology, under the assumption that the target population is risk averse in nature under uncertainty.

2.2.2 Theory of Expected Utility

The expected utility theory assumes than an individual tires to maximize the expected value of a utility function when under uncertainty (Friedman, 1986), individuals are typically risk-averse in nature. The theory further suggests that a decision maker chooses between risky or unpredictable scenarios by contrasting their predicted utility values (John *et al.*, 2007). The decision for the demand and willingness to buy an insurance policy by a household would depend on the perceived disparity between the expected utility levels with insurance and expected utility without insurance. A risk averse individual will prefer to pay an actuarially fair premium in order to avoid paying future loss while remaining within budget and cost constraints. The study adopted the expected utility theory to explain households' uptake and willingness to pay for health insurance under uncertainty.

2.3 Empirical Review

Studies have documented a variety of determinants identified to affect enrolment and retention rates with respect to health insurance, with emphasis on socio-demographic and economic characteristics (Xu *et al*., 2006, Bhat and Jain, 2006). Consequently, there is limited literature on communities and individuals' perceptions and knowledge relating to health insurance and the role they play in influencing demand, enrolment and retention too insurance schemes (Mathauer *et al*., 2007).

Few studies have analyzed the views of households and individuals on health insurance and findings have shown that views, beliefs and attitudes can be potential drivers and barriers to uptake. A study conducted in Ghana assessing the households' health insurance demand towards the Ghana Health Insurance Scheme (NHIS), established that though the general perception towards NHIS were positive, scheme factors such as provider approaches, prices and peer

pressure were a barrier to voluntary enrolment to schemes. The uninsured households were more negative towards benefits, price and convenience of NHIS than the insured households (Jehu-Appiah *et al.*, 2011). The current study acknowledged and incorporated these findings more so literature on the supply-side factors (scheme factors) as the study methodology placed more emphasis on demand-side factors.

A study conducted in the central region of Kenya in Nyeri and Kirinyaga districts found out that there was awareness on the existence of various health insurance schemes amongst households, but then again with limited knowledge into the functions and benefits of health insurance schemes. Study also found that there was presence of wide-spread dissatisfaction with the public health systems and that households showed a high preference for a comprehensive benefit package with no co-payments for both inpatient and outpatient treatment and care while choosing their insurance plans (Mulupi *et al*., 2013). The current study acknowledged and further contributed to the findings by sampling and analyzing households' data not only from two districts, but all regions in the country, inclusion of a significant number of the target population to generalize the findings.

A study examining the levels, disparities and factors related to coverage of health insurance in Kenya found out that certain socio-demographic factors influenced demand for health insurance amongst individuals (Kazungu and Barasa, 2017). The study findings show that there was a clear correlation with uptake among people who were elderly, male, formally working, married, exposed to and made aware by the media, belonged to a small and well-off family, and existence of a prolonged chronic disease. The current study investigated away from demographic and income factors to perception and attitudes in an attempt to understand households' reasoning and decision making behaviors towards health insurance demand.

A study on the perceptions and knowledge of the NHIF amongst workers in the informal sector (Mathauer *et al*. 2008) found out that little knowledge about NHIF, its enrolment options and procedures were critical barriers to enrolment. Inability to pay was also found to be a barrier to retention. The study acknowledged that focusing on awareness raising and information to individual would positively contribute to voluntary enrolment by individuals to the NHIF scheme. This current study will not only focus on demographic factors such as employment status, and type or a target population in the informal sector, but analyze data from sampled households irrespective of any employment type or status.

2.4 Conceptual Framework

Analytically, factors that determine health insurance demand can be divided into supply-side and demand-side factors based on the reviewed literature. The willingness of a household to enroll to an insurance scheme depends on the perceived disparity between the level of expected insurance utility level and expected non-insurance level (Kirigia *et al*., 2005). The perceived differences in utilities are determined by various variables grouped into categories, as further defined in *Table 1*.

Table 1: Conceptual framework; Wiesmann and Jutting, 2001; Osei-Akoto, 2003; Carrin, 2003.

Community characteristics	**Personal and household characteristics**	**Health care characteristics**	**Insurance scheme design features**	**Availability of risk management alternatives**
Solidarity and mutuality, trust among and across communities	Socio-demographic aspects, affecting risk, perceptions, views and attitudes, e.g. household size, sex, age, health status.	Geographical access to health care	Attractive contribution rates and level of co-payments, level of penalties	Waivers and exemption
Social capital	Preferences and risk aversion	Quality of services and availability of drugs	Attractive benefit package	Community-based health insurance and similar forms
Familiarity with formal institutions	Knowledge of costs and price sensitivity	Costs and variability	Adequate payment modes (frequency, timing, place of collection, flexibility	Solidarity groups to cater for high cost events
Notion on insurability of health (illness is not destiny)	Income and ability to pay	Catastrophic illness costs	Appropriate enrolment procedures, enrolment unit	
Understanding and acceptability of insurance principles		Anticipated quality through insurance ownership	Options for community participation	
			Credibility of funds managers	
The more pronounced these are, the higher the demand and utility			The more attractive these are, the higher the demand and utility	The more effective these are in offering financial protection, the lower the insurance demand

Community characteristics on the acceptability and understanding of health insurance concepts were further assessed based on the study's objectives and chosen methodology. The level of understanding and the acceptance of health insurance principles and rationales influences the uptake of insurance by households and communities. Low-income households maybe disinclined to enroll to insurance schemes since they do not willingly conform to the impression of paying for services they might not use at present (Bworn and Churchill, 200). Also, if cohesion within the community is mutually high, individuals are less likely to be apprehensive about whether the benefits of their efforts accrue to themselves or other members of the community (Jütting, 2001).

2.5 Overview of literature review

The literature review identified different socio-economic factors and how they influence the uptake of health insurance amongst individuals and communities. Preceding literature regarding individuals' preference has highlighted the need to assess factors outside demographic and incomes variables to understand individual's reasoning and decision-making behaviours. Based on the study rationale socio-demographic factors and risk aversion are not assessed, but rather, the study explored the community and individual perceptions and knowledge to health insurance and assessed the role they play in the demand and enrolment to insurance schemes by households in Kenya.

CHAPTER THREE
RESEARCH METHODOLOGY

3.1 Introduction

This chapter presents the research methodology that will be applied in accordance with the rationale of the study, assessing the perception of households towards health insurance. This chapter is structured into: (a) model specification, (b) analytical hypotheses, (c) data type and sources, (d) Measurement of variables, (e) data analysis.

3.2 Model Specification

The reviewed literature has provided theoretical models and empirical findings on the role community and individual perceptions play in the demand of health insurance. Linear and logistic regression models are the models commonly mentioned in the reviewed literature.

For this study, a logistic regression model and particularly a Logit model, was employed for the perception analysis, because of the dichotomous categorical nature of the dependent variable of the research data that will be used for this study.

In a logistic regression model, we model the natural log of odds of an event. As the dependent variable is bounded by 0 and 1 (Household health insurance ownership status “yes” or “no”), normality cannot be assumed for a proportion, but rather recognize that the proportions have a binomial distribution. In which the mean is denoted by *P* and the variance is denoted by *P*(1-P)/n*, where n is the number of observations, and *P* is the likelihood of the occurrence of the event. The study will use a logit transformation to link the dependent variable to the set of explanatory variables.

The logit link will take the form:

Logit (P) = Log [P / (1-P)]

The term within the square brackets is the odds of an event occurring, such as the likelihood of the awareness factor of a household to own a health insurance policy.

The relationship between the binary dependent variable, and the *X* independent variables can be expressed through the following formula:

Let:

$P_i = \Pr(Y = 1 \mid X = x_i)$

Then we can write the model:

$$\text{Log}\left(\frac{P_i}{1-P_i}\right) = \text{Log}it\,(P_i) = \beta_0 + \beta_k x_i$$

Where P_i is the predicted probability of the perception factors if the household has health insurance, $1 - P_i$ is the predicted probability if the household has no health insurance and x_i is the predictor variable, in this case the perception factors. β_k Represents the $\text{Log}(ODDS)$ change corresponding to a unitary increase of the X_k variables; positive values of the β_k coefficients correspond to higher probabilities that the dependent variable assumes high values, and vice versa (Eboli and Mazzulla, 2009).

3.3 Analytical Hypotheses

The hypothesis was formulated as follows:

Null hypothesis	$H_0: \alpha = 0$, Households' perceptions does not affect health insurance ownership status
Alternative hypothesis	$H_1: \alpha \neq 0$, Households' perceptions affect health insurance ownership status

3.4 Data type and sources

The study used secondary data from the Kenya Household Expenditure and Utilization Survey (2018), a cross-sectional survey that sought to collect information on households' characteristics, health-seeking behaviors and health insurance coverage.

3.5 Description of variables

Based on the analysis model chosen for the study, the dependent variables was "household insurance ownership status", whether the household members were insured or uninsured by an health insurance cover and the responses were either "Yes" coded as "1" or "No" coded as "0".

While the independent variables consisted of 6 questions with responses described by means of words that will form a five-point Likert scale. The responses will range from '1=strongly disagree' to '5=strongly agree' to measure the respondents' opinions on statements related to health insurance and community attributes (De Luca, 2006). The perception questions were as follows:

i) Willingness of respondent to pay for health insurance that will contribute to healthcare costs of those who are sick, even though the respondent is not sick
ii) Willingness of respondent to pay for health insurance that will contribute to healthcare costs of those who are poor, or of less means than respondent
iii) Respondent's opinion on whether everyone should only be expected to pay for their own healthcare
iv) Willingness of respondent to contribute to healthcare costs for him/herself and his/her family
v) Willingness of respondent to contribute to healthcare costs that benefit him/herself, his/her family and other people that the respondent know (like neighbors and friends)

vi) Willingness of respondent to contribute to healthcare that benefits a wider group of people particularly those who are worse-off

3.6 Measurement of variables

Table 2: A summary of study variables

Variable	Expected Sign	Measurement
Dependent Variable		
Household insurance ownership status		Household members' health insurance ownership. Categorized into: 1=Yes and 0=No (Nominal)
Independent variables		
Willingness to pay (for sick)	Positive (+)	Willingness to pay for health insurance that will contribute to healthcare of those who are sick. Categories: Ordinal Likert scale ranging from 1= strongly disagree, 2=disagree, 3=neither agree or disagree, 4=agree and 5=strongly agree
Willingness to pay (for poor)	Negative (-)	Willingness to pay for health insurance that will contribute to healthcare costs of those who are poor Categories: Ordinal Likert scale
Solidarity (society)	Negative (-)	Opinion on whether everyone should only be expected to pay for their own healthcare Categories: Ordinal Likert scale
Willingness to pay (for family)	Positive (+)	Willingness to contribute to healthcare costs for respondent's family Categories: Ordinal Likert scale
Willingness to pay (for family and friends)	Positive (+)	Willingness to contribute to healthcare costs for respondent's family and other people Categories: Ordinal Likert scale
Willingness to pay (for society)	Negative (-)	Willingness to contribute to healthcare costs that benefit a wider group of people Categories: Ordinal Likert scale

3.7 Data Analysis

Due to the categorical nature of the dependent and independent variables of the research data, a binary regression analysis was adopted to estimate the weight of the perception factors of households on health insurance. To estimate the effects of the independent variables on the dependent variable, a logit model was formulated. Statistical software packages that were used to run the analysis were SPSS and Microsoft Excel 2013.

CHAPTER FOUR
DATA ANALYSIS, FINDINGS AND DISCUSSIONS

4.0 Introduction

The statistical analysis of the data used for this study and the related results are shown in this chapter. The chapter also provides the basis for discussions and recommendations.

4.1 Summary of descriptive statistics

4.1.1 Distribution of respondents by insurance ownership status

In this regard, the dependent variable is a binary variable based on the two possible outcomes, "Yes" indicating ownership and "No" representing otherwise. The summary of the cover status is presented in *Table 3* below:

Table 3: Household insurance ownership status

Health insurance ownership status			**Test Value = 0**		
	n	%	t	df	Sig. (2-tailed)
Yes = 1	997	24.6	259.188	4051	0.000
No = 2	3055	75.4			

The findings in *table 3* show that 997 (24.6%) respondents had insurance cover for their households while the majority (3055, 75.4%) had none. The t tests results reveal that the difference between those having a cover and those not having any is statistically significantly, (t=259.188, df=4051, p=0.000).

4.1.2 Distribution of responses by the perception factors

The areas assessed included the household insurance ownership status and the respondents' willingness to pay for the insurance because of the sick, the poor, society, family, friends and neighbors and the vulnerable. The results were as presented in *table 4* below.

The descriptive analysis show that majority of responses (3524, 87%) agreed that willingness to pay for the family was central in household ownership status, resulting to the least overall mean

rating of 4 out of five. This implied that willingness to pay for family remains one of the single-most factors that affect household insurance ownership status. Equally, 2005 (49%) disagreed that the opinion on whether everyone should only be expected to pay for their own healthcare was a factor in household insurance ownership (mean rating of 2.88), indicating that it was a demotivating factor in healthcare insurance ownership. Other areas were within the mean of 3.7.

Table 4: Summary ratings of Respondents opinions on ownership factors

Independent Variables	Strongly disagree		disagree		Neither agree nor disagree		agree		Strongly agree		Response count	Mean rating
	N	%	N	%	N	%	N	%	N	%	N	
Willingness to pay for the sick	93	2	538	13	252	6	2657	66	512	13	4052	3.73
Willingness to pay for the poor	73	2	529	13	13	8	2639	65	506	13	4052	3.73
Solidarity - society	370	9	1635	40	389	10	1443	36	215	5	4052	2.88
Willingness to pay for family	51	1	283	7	194	5	2624	65	900	22	4052	4.00
Willingness to pay for family, friends and neighbors	56	1	532	13	348	9	2598	64	518	13	4052	3.74
Willingness to pay for the vulnerable in the society	54	1	571	14	373	9	2580	64	474	12	4052	3.70

4.2 Bivariate Analysis of Health Insurance Cover and Related Influencing Factors

For this study perceptions and attitudes towards health insurance was measure using six questions, namely, willingness to pay for the sick, willingness to pay for the poor, solidarity, willingness to pay for family members, willingness to pay for family and friends and willingness to pay for the society.

Each question was phrased in terms of perception statements, against which respondents were asked to express their views on a five-point Likert scale, calibrated as ‘strongly agree’, ‘agree’,

'neither agree or disagree', 'disagree' and 'strongly disagree'. The views expressed by respondents were cross-tabulated against the response variable of health insurance ownership status. The results have been presented under each of the following sub-sections, which correspond with objectives of the study.

Table 5: Bivariate Analysis of Household Ownership of Health Insurance

	Own Health Insurance		**Do not Own Health Insurance**		**Total**		**Chi square results**		
	Freq.	*Percent.*	*Freq.*	*Percent.*	*Freq.*	*Percent.*	χ^2	*df*	*ρ-value*
Willingness of respondent to pay for health insurance that will contribute to healthcare costs of those who are sick, even though the respondent is not sick									
Strongly disagree	23	2.3%	70	2.3%	93	2.3%	11.147[a]	4	.025
Disagree	131	13.1%	407	13.3%	538	13.3%			
Neither agree nor disagree	46	4.6%	206	6.7%	252	6.2%			
Agree	648	65.0%	2009	65.8%	2657	65.6%			
Strongly agree	149	14.9%	363	11.9%	512	12.6%			
Total	997	100.0%	3055	100.0%	4052	100.0%			
Willingness of respondent to pay for health insurance that will contribute to healthcare costs of those who are poor, or of less means than respondent									
Strongly disagree	20	2.0%	53	1.7%	73	1.8%	5.565[a]	4	.234
Disagree	124	12.4%	405	13.3%	529	13.1%			
Neither agree nor disagree	67	6.7%	238	7.8%	305	7.5%			
Agree	643	64.5%	1996	65.3%	2639	65.1%			
Strongly agree	143	14.3%	363	11.9%	506	12.5%			
Total	997	100.0%	3055	100.0%	4052	100.0%			
Respondent's opinion on whether everyone should only be expected to pay for their own healthcare									
Strongly disagree	86	8.6%	284	9.3%	370	9.1%	8.557[a]	4	.073
Disagree	437	43.8%	1198	39.2%	1635	40.4%			
Neither agree nor disagree	89	8.9%	300	9.8%	389	9.6%			
Agree	327	32.8%	1116	36.5%	1443	35.6%			
Strongly agree	58	5.8%	157	5.1%	215	5.3%			
Total	997	100.0%	3055	100.0%	4052	100.0%			
Willingness of respondent to contribute to healthcare costs for him/herself and his/her family									
Strongly disagree	11	1.1%	40	1.3%	51	1.3%	18.208[a]	4	.001
Disagree	50	5.0%	233	7.6%	283	7.0%			
Neither agree nor disagree	31	3.1%	163	5.3%	194	4.8%			
Agree	665	66.7%	1959	64.1%	2624	64.8%			
Strongly agree	240	24.1%	660	21.6%	900	22.2%			
Total	997	100.0%	3055	100.0%	4052	100.0%			
Willingness of respondent to contribute to healthcare costs that benefit him/herself, his/her family and other people that the respondent know (like neighbors and friends)									
Strongly disagree	14	1.4%	42	1.4%	56	1.4%	9.530[a]	4	.049
Disagree	119	11.9%	413	13.5%	532	13.1%			

Neither agree nor disagree	67	6.7%	281	9.2%	348	8.6%			
agree	655	65.7%	1943	63.6%	2598	64.1%			
Strongly agree	142	14.2%	376	12.3%	518	12.8%			
Total	997	100.0%	3055	100.0%	4052	100.0%			
Willingness of respondent to contribute to healthcare that benefits a wider group of people particularly those who are worse-off									
Strongly disagree	11	1.1%	43	1.4%	54	1.3%	18.114[a]	4	.001
disagree	109	10.9%	462	15.1%	571	14.1%			
Neither agree nor disagree	76	7.6%	297	9.7%	373	9.2%			
agree	672	67.4%	1908	62.5%	2580	63.7%			
Strongly agree	129	12.9%	345	11.3%	474	11.7%			
Total	997	100.0%	3055	100.0%	4052	100.0%			

The first statement postulated that *'Willingness of respondent to pay for health insurance that will contribute to healthcare costs of those who are sick, even though the respondent is not sick'.* The results presented in table above show that of the 4052 respondents, 512 (12.6%) strongly agreed with the assertion, while 2657 (65.6%) agreed. On the lower side of the scale, 538 (13.3%) learners disagreed with the statement, while 93 (2.3%) indicated strong disagreement. Cumulatively, whereas 3169 (78.2%) respondents affirmed that willingness to pay for the sick enhance the ability to buy health insurance cover, 631 (15.6%) negated the assertion.

In relation to the respondents that have health insurance cover, the results show that of the 997 subjects, 648 (65%) agreed with the statement, while 131 (13.1%) disagreed. Contrastingly, among the 3055 respondents who do not own any health cover for their households, 363 (11.9%) strongly agreed with the statement, while 70 (2.3%) disagreed strongly. In view of this, the analysis generated a χ^2 value of 11.147 (df = 4 & ρ = 0.025), which suggests up to 95% chance that ownership status is significantly associated with the perception that '*Willingness of respondent to pay for health insurance that will contribute to healthcare costs of those who are sick, even though the respondent is not sick''.*

The second observation statement posited that *'Willingness of respondent to pay for health insurance that will contribute to healthcare costs of those who are poor, or of less means than respondent'*. In view of this, the results in *Table 5* show that among the 4052 respondents, 506 (12.5%) strongly agreed with the claim, while 529 (13.1%) disagreed. Cumulative results show that up to 3145 (77.6%) respondents affirmed that regard for the poor influenced household uptake for health insurance services, while 602 (14.9%) expressed contrary views. In the context of household insurance ownership status, the results show that in the category of the respondents who admitted to having one (n=997), 643 (64.5%) respondents agreed with the assertion, while 124(12.4%) disagreed. Among those who did not have any, 363 (11.9%) strongly agreed with the statement, while 53 (1.7%) disagreed strongly. The analysis further obtained a χ^2 value of 5.565 (df = 4 & ρ = 0.234), which suggests up to 95% chance that household insurance ownership status was not significantly associated with the perception that "willingness of respondent to pay for health insurance that will contribute to healthcare costs of those who are poor, or of less means than respondent".

The third perception statement claimed that '*Respondent's opinion on whether everyone should only be expected to pay for their own healthcare'.* The results in *Table 5* show that 1443 (35.6%) respondents agreed with the assertion, while 215 (5.3%) agreed. Those who disagreed with the statement were 1635 (40.4%), while 370 (9.1%) strongly disagreed. Cumulatively, up to 1658 (40.9%) research participants affirmed that the aspect of solidarity is necessary in households acquiring health covers, while 2005 (49.5%) refuted the claim.

In relation to ownership status, the results indicate that among the household heads who have health cover for their families (n=997), 58 (5.8%) strongly agreed with the assertion, while 437 (43.8%) disagreed. In the category of respondents whose households indicated to not having any

insurance, (n=3055), 1116 (36.5%) agreed with the assertion, while 284 (9.3%) strongly disagreed with it. The analysis revealed up to 95% chance that household insurance ownership status do not significantly associate with the perception that 'Respondent's opinion on whether everyone should only be expected to pay for their own healthcare' (χ^2 = 8.557, df = 4 & ρ-value = 0.073).

The fourth perception statement suggested that 'Willingness of respondent to contribute to healthcare costs for him/herself and his/her family'. Based on this, the results presented in Table 5 show that of the 4052 respondents, 2624 (64.8%) agreed with the assertion, while 283 (7%) indicated disagreement. Cumulative results show that most household heads, 3524 (87%) confirmed the assertion, only 334 (8.2%) refuted it. The analysis further shows that in the category of respondents who indicated to having ownership of health (n=997), 240 (24.1%) agreed strongly with the statement, while another 11 (1.1%) strongly disagreed. Among the 3055 respondents who did not have health insurance, 1959 (64.1%) agreed with the assertion while 40 (1.3%) indicated strong disagreement. The analysis obtained a χ^2 value of 18.208 (df = 4 & ρ = 0.001), which suggests up to 95% chance that household insurance ownership status is significantly associated with the perception that 'Willingness of respondent to contribute to healthcare costs for him/herself and his/her family'.

The fifth perception statement indicated that 'Willingness of respondent to contribute to healthcare costs that benefit him/herself, his/her family and other people that the respondent know (like neighbors and friends)'. As indicated in *Table 5*, 518 (12.8%) respondents strongly agreed with the assertion, while 532 (13.1%) disagreed. Cumulatively, 588 (14.5%) participants confuted the claim while 3116 (76.9%) affirmed it. In context of household insurance ownership status, the results show that the category of those whose insurance health cover is active (n=997),

142 (14.2%) strongly agreed with the statement, whereas 119 (11.9%) disagreed. In the category of research subjects who do not have access to health cover, (n=3055), nearly two-thirds, 1943 (63.6%) agreed with the claim while those who disagreed were 413 (13.5%). Contingency analysis revealed a significant relationship between insurance ownership status and the perception that *Willingness of respondent to contribute to healthcare costs that benefit him/herself, his/her family and other people that the respondent know (like neighbors and friends)* ($\chi^2 = 9.53$, df = 4 & ρ-value = 0.049). This suggests up to 95% chance that ownership of health cover by a household varied significantly among household heads depending on the extent of agreement or disagreement with the perception statement about willing to pay for the sake of family and friends.

The sixth perception statement indicated that 'Willingness of respondent to contribute to healthcare that benefits a wider group of people particularly those who are worse-off'. As indicated in Table 5, 474 (11.7%) respondents strongly agreed with the assertion, while 54 (1.3%) strongly disagreed. Cumulatively, 3054 (75.4%) participants affirmed the claim while 625 (15.4%) disagreed. In context of household insurance ownership status, the results show that the category of those whose insurance health cover is active (n=997), 672 (67.4%) agreed with the statement, whereas 109 (10.9%) disagreed. In the category of research subjects who do not have access to health cover, (n=3055), nearly two-thirds, 1908 (62.5%) agreed with the claim while those who disagreed were 462 (15.1%). Further analysis revealed a significant relationship between insurance ownership status and the perception that *Willingness of respondent to contribute to healthcare that benefits a wider group of people particularly those who are worse-off* ($\chi^2 = 18.114$, df = 4 & ρ-value = 0.001). This suggests up to 95% chance that ownership of health cover by a household varied significantly among household heads depending on the extent

of agreement or disagreement with the perception statement about willing to pay for the sake of the vulnerable in the society.

4.3 Influence of household perceptions on ownership of health cover: Multivariate Analysis

The bivariate analyses in the above sections revealed that household ownership insurance status correlates with four of the six metrics of house factors. All the six aspects of acquiring health insurance (independent variables) were incorporated in the binary logistic regression model in order to determine their influence on household ownership of health insurance (dependent variable).

4.3.1 Collinearity diagnostics

Multicollinearity exists when there is clear linear relationship between independent variables. Collinearity is indicated by VIF>10, Tolerance value of less than 0.20, Condition Index of 30 or higher and least two variables having Eigenvalue value of > 0.90. Variables that do not meets the criterion above shows collinearity effects and thus may either inflate or deflate regression coefficients. *Table 6* shows the collinearity test results. All the VIF values are less than 10 and as such, there is no inter-correlations between the independent variables.

Table 6: Collinearity Analysis

	Unstandardized Coefficients		**Standardized Coefficients**	**t**	**Sig.**	**Collinearity Statistics**		**Eigen value**	**Condition Index**
	B	Std. Error	Beta			Tolerance	VIF		
(Constant)	1.871	0.042		44.251	0			6.739	1
1- Sick	0.001	0.012	0.002	0.075	0.94	0.397	2.521	0.147	6.768
2- poor	0.02	0.013	0.041	1.53	0.126	0.342	2.921	0.039	13.135
3- society	0.01	0.006	0.027	1.734	0.083	0.982	1.018	0.029	15.306
4- family	-0.027	0.009	-0.05	-2.855	0.004	0.786	1.273	0.019	18.827
5- FF	0.012	0.012	0.024	0.978	0.328	0.408	2.452	0.014	21.588
6- Vulnerable	-0.043	0.012	-0.09	-3.596	0	0.396	2.527	0.013	22.822

4.3.2 Odds Ratio

The results of the logistic regression model were interpreted from Odds Ratios (OR), which represents the constant effect of a predictor X, on the likelihood that one outcome will occur. In other words, it's the odds of a unit variation in a dependent variable in response to a unit change in an independent variable. The element of willingness to pay for the sick is a categorical variable with five categories with the reference set being "strongly agree". In this regard, the "neither agree nor disagree" group is the only significant class (ρ-value = 0.044, β = 0.542, OR = 1.719, C.I. = 1.013-2.917). The odds of acquiring health cover among the neutral group is 1.719 times high as compared to those who strongly agree to own healthcare insurance for the sake of paying for the sick, when holding other variables constant.

Similarly, the variable of inclination to pay for the poor in acquiring health insurance is a categorical variable with five categories with the reference set being "strongly agree". In this regard, none of the groups were significant. The notion of solidarity in subscribing to household health cover had a reference class of "strongly agree" being the only significant component in influencing health insurance utilization (ρ-value = 0.027). As a result, those with such a view are likely to agree strongly that it's important to acquire a household insurance cover since everyone should have one.

The component of willingness to pay for the family is also a categorical variable with five categories with the reference set being "strongly agree". In this regard, the "neither agree nor disagree and disagree" groups are the significant ones (ρ-value = 0.048, β = 0.484, OR = 1.622, C.I. = 1.005-2.619; ρ-value = 0.007, β = 0.524, OR = 1.689, C.I. = 1.152-2.475 respectively). As a result, the odds of acquiring health insurance with the intention of paying for the family among those with a neutral opinion is 1.622 times that of paying for the family in the strongly agree

group, when controlling for all other variables. In the same vein, , the odds of acquiring health insurance with the intention of paying for the family among those who disagree with the opinion is 1.689 times that of paying for the family in the strongly agree group, when controlling for all other variables.

Table 7: Logistic Regression Table

Independent Covariates	B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I.for EXP(B)	
							Lower	Upper
Willingness to pay for the Sick			**6.805**	**4**	**.147**			
Strongly disagree	.170	.365	.217	1	.642	1.185	.579	2.426
Disagree	.016	.229	.005	1	.944	1.016	.648	1.593
Neither agree nor disagree	.542	.270	4.039	1	.044	1.719	1.013	2.917
Agree	.254	.178	2.033	1	.154	1.289	.909	1.827
Willingness to pay for the poor			**5.403**	**4**	**.248**			
Strongly disagree	-.500	.410	1.487	1	.223	.607	.272	1.355
Disagree	-.227	.250	.821	1	.365	.797	.488	1.302
Neither agree nor disagree	-.303	.263	1.322	1	.250	.739	.441	1.238
Agree	.044	.190	.053	1	.817	1.045	.720	1.516
Solidarity - society			**10.978**	**4**	**.027**			
Strongly disagree	.152	.202	.568	1	.451	1.164	.784	1.729
Disagree	-.136	.178	.583	1	.445	.873	.616	1.237
Neither agree nor disagree	-.071	.214	.109	1	.741	.932	.612	1.418
Agree	.124	.184	.454	1	.500	1.132	.790	1.622
Willingness to pay for the Family			**13.052**	**4**	**.011**			
Strongly disagree	.303	.410	.543	1	.461	1.353	.605	3.025
Disagree	.524	.195	7.205	1	.007	1.689	1.152	2.475
Neither agree nor disagree	.484	.244	3.922	1	.048	1.622	1.005	2.619
Agree	-.002	.112	.000	1	.983	.998	.801	1.243
Willingness to pay for the Family, Friends & Neighbors			**2.457**	**4**	**.652**			
Strongly disagree	-.306	.456	.451	1	.502	.736	.301	1.801
Disagree	-.168	.226	.550	1	.458	.845	.543	1.318
Neither agree nor disagree	.123	.236	.273	1	.602	1.131	.712	1.797
Agree	.030	.169	.033	1	.857	1.031	.740	1.436
Willingness to pay for the very Vulnerable			**17.658**	**4**	**.001**			
Strongly disagree	.589	.477	1.526	1	.217	1.802	.708	4.590
Disagree	.604	.236	6.564	1	.010	1.829	1.152	2.903
Neither agree nor disagree	.159	.230	.477	1	.490	1.172	.746	1.841
Agree	-.119	.170	.488	1	.485	.888	.636	1.239
Constant	**.875**	**.172**	**25.942**	**1**	**.000**	**2.398**		

The component of willingness to pay for the vulnerable is also a categorical variable with five categories with the reference set being "strongly agree". In this regard, the "disagree" group is the significant element (ρ-value = 0.010, β = 0.604, OR = 1.829, C.I. = 1.152-2.903). As a result, the odds of acquiring health insurance with the motivation of paying for the vulnerable among those who disagree is 1.829 times that of paying for the family in the strongly agree group, when controlling for all other variables.

4.3.3 Model's goodness-of-fit

The model's goodness-of-fit refers to the strength with which it predicts a dependent variable from a set of independent and moderating variables. This study determined the model's strength in explaining variation in learners' ethical sensitivity when making decisions from the set of six independent variables, namely, sick, poor, society, family, friends and vulnerable. This was done using Nagelkerke's R^2 and Hosmer-Lemeshow (H-L) goodness-of-fit statistic. In this regard, the regression model generated a Nagelkerke's R^2 of 0.022, which implies that 22.5% of all the variation in the dependent variable comes from the six predictor variables.

The H-L goodness-of-fit statistic shows that a logistic regression model is well-fitting observed data at an acceptable level when the resultant ρ-value is greater than 0.05; further indicating that the model's prediction does not significantly differ from the observed frequencies. In this study, the H-L table obtained a χ^2 value of 10.520, with 7 degrees of freedom and a ρ-value of 0.161 which is higher than 0.05. This result confirms that the model was a fair fit of the observed data. In addition, omnibus tests of model coefficients obtained a computed χ^2 value of 60.301, with 24 degrees of freedom and a ρ-value of 0.000, which was significant at 99% confidence level, which shows that the model-fit was statistically significant.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter summarizes the findings of the study and draws conclusions based on the established relationship and influence of perceptions towards health insurance on uptake and ownership. The section also recommends policies and areas of further research.

5.2 Summary of the Findings

The objective of the study was to assess the perceptions of households towards health insurance and evaluate the implications associated with the perceptions towards voluntary enrolment to health insurance schemes. The study was intended to generate information that would influence the design and programing of health financing systems with regard to health insurance. The study was also intended to inform and support policy engagements at various administrative levels with a view to improving allocation of resources to support health systems in promotion of equity and affordability of medical care to populations.

From the descriptive statistics, majority of the respondents indicated that their family's healthcare interests were more important in their decisions to acquire healthcare insurance. Many respondents also touted the regard for friends and neighbors as a driving factor in owning healthcare insurance. The notion of everyone paying for their own healthcare was not popular with majority of respondents. The analysis also reveals that more people would also consider the plight of the sick, the poor and the most vulnerable in communities, in their considerations for owning healthcare insurance.

The bivariate analysis reveal that between the two groups; those with ownership and those without, the difference in opinions was significant. This indicated that the four factors were central in their acquisition of health care insurance.

From the estimation of the model, the factor of family was found to be positively significant in three groups (strongly agree, neutral and disagree), indicating that regardless of ownership status, the factor was indeed a motivating factor in health insurance. The respondents deemed consideration for the poor as not a significant factor.

5.3 Conclusions

There are several reasons for households to enroll and retain to a health insurance scheme. For example, some households consider the health needs for the poor or the sick in buying insurance. Despite these reasons, uptake of health care insurance among households is dependent on the family health care needs. Based on the estimated regression model, family and friends healthcare needs come first followed by other groups that are very vulnerable. Thus, to project or forecast healthcare insurance ownership among households in Kenya, one must rank the individual family healthcare needs as very important, followed by the needs of other groups. The study's empirical analysis revealed that family healthcare needs was significant predictors and had a positive effect in the household ownership of health insurance.

5.4 Recommendations

From the study, recommendations are given to the health insurance providers to revise their approach to their insurance marketing strategies to include well-designed social and family benefits and awareness.

The study established that households empathize with their friends and neighbors and therefore it would be proper to consider community health needs in developing relevant health insurance schemes. Similarly, the study suggests enhancing healthcare programs that enhance family/ community's livelihood could go along in encouraging families to enroll and retain to health insurance schemes.

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